Corporate Governance, Disclosure Content and Shareholder Value: Impacts and Interrelationships from the US Banking Sector

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“Corporate Governance, Disclosure Content and Shareholder Value: Impacts and Interrelationships from the US Banking Sector.”

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Abstract

The recent financial crisis was the largest shock to the financial system in decades. Its implications on banks' performance, corporate image and stakeholders' trust are of a high concern for all interested parties. Banks market capitalisation dropped significantly, risk levels increased and stakeholders’ confidence was shaken. This raises the importance of researching this particular area of primary concern to seek potential approaches intended to help banks to recover through increased disclosures, helping to rebuild trust and manage risk levels.

Acknowledging societal needs and having effective dialogue with shareholders and stakeholders regarding banks' social profile as well as risk management practices is likely to reduce the uncertainty gap, shape banks' image and manage trust. These are indeed valuable in the wake of the financial crisis for bank continuity and enhancing shareholder value. I argue that effective corporate governance is likely to encourage more corporate social responsibility (CSR) and risk management (RM) disclosure, which in turn is expected to improve stock prices and reduce return volatility. The study examines potential solutions that assist in the management of the increasing risk levels, shaken confidence and falling market values resulting from the recent financial crisis. It contributes toward better understanding to the influence of internal corporate governance mechanisms on CSR and RM disclosure content and their substantive consequences on shareholder value.

Examining a sample of US national commercial banks in the wake of the financial crisis indicates that boards with larger size, higher independence and CEO duality are inclined toward reporting a wider range of CSR and RM disclosures in annual reports, aiming to benefit the bank’s transparency and stakeholders’ long-term mutual relationship. Contrary to CSR disclosures, the number of audit committee financial experts was found to encourage better RM disclosure content implying the difference in influence on voluntary and mandatory disclosures. Insights into the desirable consequences CSR and RM disclosures content have on shareholder value are also evidenced. The study finds evidence supporting the association between CSR disclosure content and stock return indicating investors’ interest in, and consideration of, CSR information when valuing assets and building their trading decisions. The results also suggest that higher RM disclosure score reduces uncertainties of bank risk environment and provides investors with valuable information to assess financial assets and monitor management practices. This was reflected as an improvement to stock return and reduction to return volatility.

Thus, effective corporate governance is more tending to enhance shareholder value through encouraging better CSR and RM disclosure content. Corporate governance should sponsor and introduce the perception of doing business responsibly and benefit from RM disclosure as a preventive tool assisting in the management of agency problems and bank risks. The economic consequences of CSR and RM disclosures imply that CSR engagement and reporting is an investment rather than an expense, and RM disclosure is a preventive tool rather than an exercise to comply with legislation requirement. Consequently, considering their content is important for better shareholder value.

Corporate Governance, Disclosure Content and Shareholder Value: Impacts and Interrelationships from the US Banking Sector

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Glossary of Abbreviations

ACS	: Audit committee size
ACFE	: Audit committee financial experts
ACM	: Audit committee meetings
AG	: Asset growth
BS	: Board of directors size
BI	: Board of directors independence
BM	: Board of directors meetings
BtoM	: Book-to-market value of equity
CSR	: Corporate social responsibility
CSRD	: Corporate social responsibility disclosures
COSO	: Committee of Sponsoring Organizations of the Treadway Commission
CEO	: Chief executive officer
DUAL/ RD	: Chairman-CEO role duality
IR	: Investment return
Lev	: Leverage
PCh	: Stock Price change
RM	: Risk management
RMD	: Risk management disclosures
ROA	: Return on assets
ROE	: Return on equity
ROS	: Return on sales
SEC	: The Security and Exchange commission
SOX	: Sarbanes-Oxley Act
TIR	: Total investment return

Declaration

This is to assert that the material of the present thesis has not been submitted previously for a degree at Durham University or any other university.

Statement of Copyright

Acknowledgement

It is interesting, the feeling of sitting down to write the acknowledgment. It means that you are approaching to close a chapter in your life and looking to start a new endeavour. In these moments of mixed feelings, three years of memories came to my mind with all the challenges, pressures and hard work, pleasant and sad moments, achievements and upsets. I remembered all friends, colleagues, staff and students I have met and all the places I have visited. Really, they are three unforgettable years; they are years of rich experience by all means.

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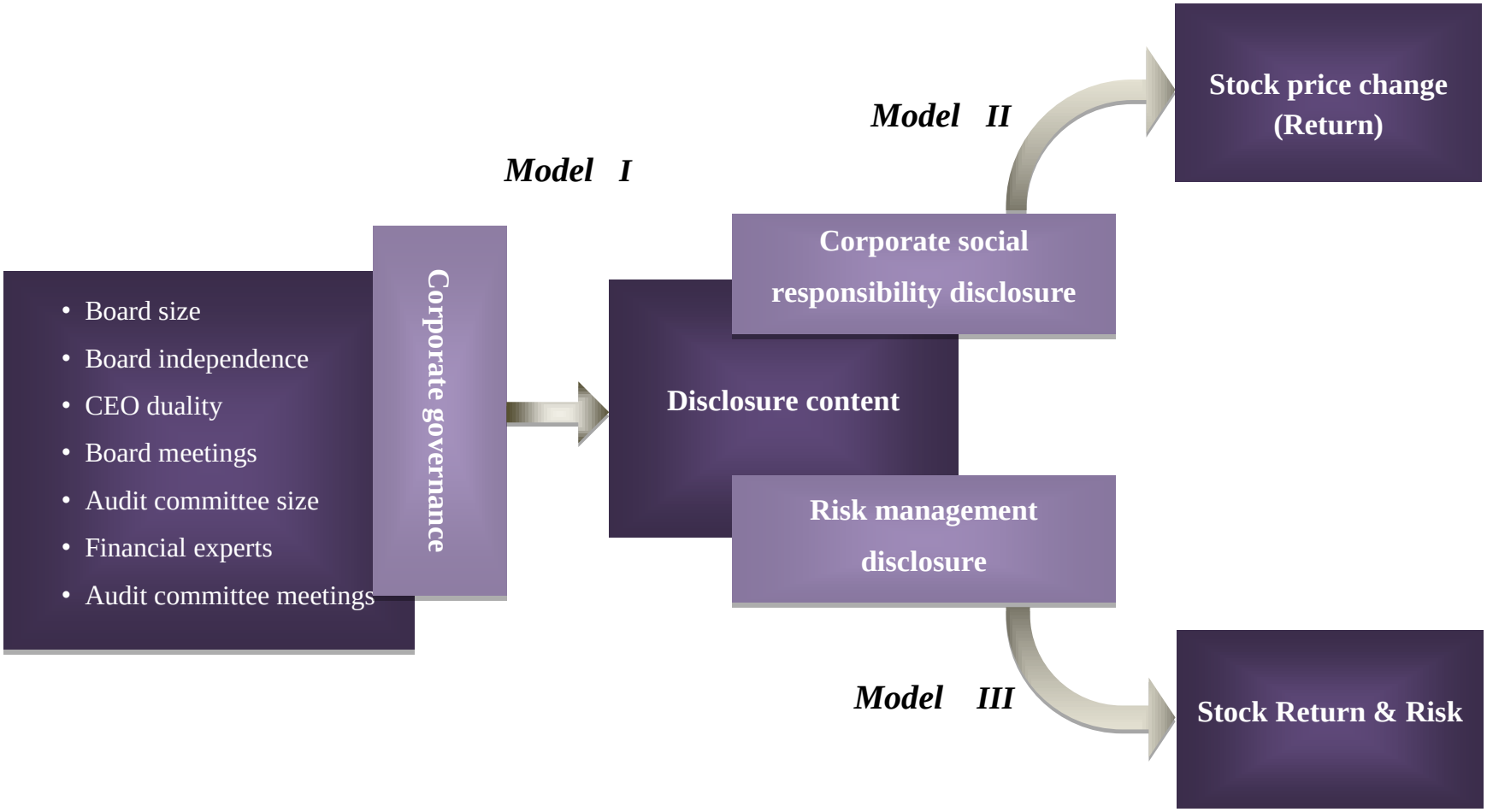
*To all I would like to say, **YES**, with stubborn determination you can go so far and achieve what you might believe is just a dream.*

Conceptual Framework



Chapter 1. Introduction

Chapter One

Introduction

Banks' risk exposure and corporate image are two debatable issues especially after the recent financial crisis. The 2007 financial crisis was the largest shock to the financial system not only in the US, but in the world since 1930 (Cornett, McNutt, Strahan and Tehranian, 2011). The banking sector was the centre of the crisis (Grove, Patelli, Victoravich and Xu, 2011) that cost trillions of US dollars of losses in wealth on the stock market between October 2007 and October 2008 (Brunnermeier, 2009). Most of the security prices and banks' market capitalisation declined sharply and the volatility in financial markets was at a peak (Ivashina and Scharfstein, 2010). Consequently, it was hard to find investors interested in buying a distressed asset (Acharaya, Shin and Yorulmazer, 2011).

The confusion in the financial markets and the shrink in trading activities were partially driven by the lack of information that limited asset evaluation (Gorton, 2009; Acharya, Shin and Yorulmazer, 2011). According to a survey conducted by the Market Watch, 57% of banks' customers have low trust in the banking sector. They believe that effective communication might help in rebuilding the trust (Market Watch: Financial Services, Nov. 2009). Being transparent and informative in disseminating information is important in the management of the information asymmetry left in the market due to the crisis. Indeed, since companies satisfy the demand for information to assess their future position and uncertainties by disclosing voluntarily information (Meek, Robert and Gray, 1995), that reflects firms' transparency and reduces investors' vagueness (Pashakwale and Courtis, 2005). Managing uncertainty levels and reducing the degree of information

asymmetry are most likely to be reflected on a firm's performance (Kothari, Xu and Short, 2009).

The enhancement to the disclosure practice and the volume of information provided to capital markets has reduced the uncertainty gap between informed and non-informed investors and encouraged trading, which in turn improved stock liquidity and price (Kim and Verrechia, 1994). Diamond and Verrechia (1991) found that informed investors are more confident in placing large orders in the market, which improves stock position. In contrast, uninformed investors ask for a higher return for the higher risk resulting from the lack of information (Easley and O'Hara, 2004). Therefore, investors favour to deal with financial assets having low cost of information; accordingly the required rate of return will shift in relation with the cost incurred to collect information (Hubbard, 2002). The same is applicable from the depositors' side, as the demand for a higher interest rate will increase when information is limited, as risk premium will be higher (Hubbard, 2002).

From a signalling viewpoint, it is argued that investors have no motive to collect costly information for undervalued firms (Lee et al., 1983). Consequently firms are more responsible for signalling their performance by disclosing information that feeds the uncertainty gap and attracts investors (Lee et al., 1983). Therefore, quality firm management sends signals to shareholders and investors to differentiate their firms and benefit from a higher share price; the strength of the signal will be reflected in more stock participants, and more participants indicate a higher firm value (Levy and Lazarovich-Porat, 1995).

During the latest financial crisis, the banking sector was experiencing increasing pressure (Allen and Moessner, 2011; Brunnermeier, 2011; Ivashina and Scharfstein, 2010)

that scratched stakeholders and investors trust (Gorton, 2009) and shook their confidence in the adopted risk management practices (Acharya, Shin and Yorulmazer, 2011; Gatev, Schuermann and Strahan, 2009). Therefore, the financial crisis impacted on two main banking pillars: the pillar of trust and the pillar of risk. This opened new challenges for bank management to approach risks (Cornett et al., 2011) and convey their effort toward a safer risk environment (Allen and Moessner, 2011; Gorton, 2009), as well as considering a long-term view of their relation with shareholders in particular and stakeholders in general, and responding and acknowledging the need for more transparency and society involvement (Barth and Landsman, 2010; Matten, 2006; Money and Schepers, 2007; Gill, 2008; Buchholtz, Brown and Shabana, 2008; Grove, Patelli, Victoravich and Xu, 2011).

It is quite reasonable to argue that corporate social responsibility (CSR) and risk management (RM) disclosures by businesses in general, and banks in particular, have significantly increased following the recent global financial crisis. As Haji and Ghazali (2012) argue, "the financial crisis might have forced companies to be involved in more social activities to legitimise their existence. It could be argued that the public was in greater need during the financial crisis, and hence their expectations from company contributions might have been higher" (p.101). The situation for the banks in general, and US banks in particular, is not different. Arguably, financial statements are not sufficient to provide a complete picture of a bank (Scholes, 2000). To complete this picture and, more importantly, to improve their image after the financial crisis, it would be expected that banks' management are led to disclose more RM information and be involved in more social activities and, therefore, disclose more CSR information in their annual reports (Conett et al., 2011; Helbok and Wagner, 2005; Humbbard, 2000; Godfrey et al., 2009; Lourenco et al., 2012).

The main objective, as the "traditional" disclosure studies argue, is to fulfil the needs of stakeholders in terms of improving transparency, satisfying the decision needs of interested parties (Meek et al., 1995), reducing agency costs (Jensen and Meckling, 1976; Poshakwale and Courtis, 2005) and information cost in stock markets (Cormier and Gordon, 2001; Verrecchia, 2001). Such disclosures can also be linked to a lower cost of capital, better cash flows and higher share values. Other benefits include a reduction in information asymmetry between banks' managers and outsiders and an improvement of a bank's reputation in the market. Risk is also present (and should be) in almost every aspect of business operation (Lajili and Zeghal, 2005). Banks have come under increasing risk levels during the credit crunch (Allen and Moessner, 2011; Brunnermeier, 2011; Ivashina and Scharfstein, 2010) that have led to shaking shareholders' and stock participants' confidence in the effectiveness of banks' risk management practices (Acharya et al., 2011; Gatev et al., 2009). To appreciate the above points, the thesis examines two main streams of disclosures: CSR disclosure and RM disclosure. Kytle and Ruggie (2005) reinforce this by arguing: "CSR programmes are a necessary element of risk management for global companies because they provide the framework and principles for stakeholder engagement, can supply a wealth of intelligence on emerging and current social issues/groups to support the corporate risk agenda, and ultimately serve as a countermeasure for social risk" (p.1).

The flow of information in general, and risk environment information in particular, is a focal point in managing agency conflicts (Lajili and Zeghal, 2005). This is likely to be of higher concern after the recent financial crisis due to the increasing risk levels (Cornett et al., 2011). Risk management practices are intended to meet the increasing challenges of the financial crisis by reducing the chance of failure (Solomon et al., 2000). In the recent financial crisis, the absence of clear understanding of the banks' complex operations and the dynamics of risk management damaged the financial markets (Allen and Moessner,

2011; Gorton, 2009; Brunnermeir, 2011; Ivashina and Scharfstein, 2010). The complexity of the business transactions promotes the need for quality risk management disclosures to evaluate management effectiveness and approaches followed by dealing with the market volatility (Lajili and Zeghal, 2005).

The link between risk management information as a driver to reduce information asymmetry and lean the stress on asset pricing (Acharya et al., 2011) might be clearly articulated. However, it might be debatable if financial markets consider CSR or disregard it. The growing argument against focusing exclusively on stockholder value turned to be more debatable after losing trust in how companies are being managed and the need for social accountability to prevent firms' misbehaviour (Arvidsson, 2010). This raised the issue of firms' accountability to society (Matten, 2006). Stakeholders as well as investors seek more firm-related information, especially with the increasing societal issues (Berthelot, Coulmont and Serret, 2012). As a response, management communicates CSR information through annual reports to meet the expectations of market actors (Arvidsson, 2010).

Surveying 27 companies and interviewing investor-relations managers (IRM), Arvidsson (2010) found that management sensitivity to the shift in market needs and stakeholders opinions is the driver behind the increasing trend of CSR involvement and communication, "IRMs put forward CSR as if not the most important area of information beside financial figures so one of the most important" (Arvidsson, 2010, p. 349). The increasing demand for CSR information and investors realisation of the role of CSR in preventing firms' value and appeasing the concerns of influential stakeholders' groups, lead to the development of stock market indexes (e.g. 'Dow Jones Sustainability and FTSE

4GOOD Index') grouping firms that meet socially-responsible standards (Arvidsson, 2010).

Recent studies highlight CSR-desirable consequences on market reaction and firms' value. Lourenco, Branco, Curto and Eugenio (2012) found that CSR is valuable to investors and that markets penalise profitable firms having poor CSR activities. Such firms are more likely to face higher stakeholder pressure (Lourenco et al., 2012). In line with Lourenco et al., (2012), Berthelot et al. (2012) find that firms reporting on their sustainability issues are rewarded in financial markets, which explains the financial motive behind social reporting and investors' interest in this type of disclosure. Moreover, Cormier, Ledoux and Magnan (2011) examined the impact of social and environmental disclosures on stock participants showing that social reporting reduces the level of information asymmetry between management and investors, which was proxied by bid-ask spread and stock price volatility.

CSR is valuable to shareholders as it protects the firm from stakeholders' sanctions and misjudgement when facing negative events (Godfrey et al., 2009). Firms might be punished when they negatively impact key stakeholders. This might reach up to the level of non-dealing with the firm. The moral capital created from CSR activities forms contingent economic value that mitigates this risk and provides the firm "the benefit of doubt" (Godfrey et al., 2009). CSR is also found to have desirable consequences on firms' cost of capital (Ghoul et al., 2011). Examining a sample of 12,915 US firms covering the period between 1992 and 2007, the study shows that firms with higher CSR score have a wider investor base and lower perceived risk. In view of the substantive value of CSR, it turns up on the agenda of both CEOs and boards of directors and is increasingly seen as a driver for growth in a number of various institutions (Arvidsson, 2010; Spitzeck, 2009;

Bassen et al., 2006). This increases the importance of examining the impact of bank internal corporate governance mechanisms on CSR disclosure and reconciling its consequences on bank value, which is, to my knowledge, an understudied area particularly in the banking sector.

Previous literature highlighted the desirable consequences firms' CSR activities and CSR reporting might have on firm performance, trust and reputation as well as risk profile (Aguilera, Williams, Conley and Rupp, 2006; Simpson and Kohers, 2002; Scholtens, 2008; Salama, Anderson and Toms, 2011; Ghoul, Guedhami, Kwok and Mishra, 2011). Its importance might be of more value in regulated industries as a firm's failure might not only have an influence on investors but also on regulators' reputation. Moreover, CSR information is demanded by investors interested in dealing with socially-responsible firms (Holder-Webb, Cohem, Nath and Wood, 2009). Additionally, it might be used as a marketing tool to raise awareness (McWilliam and Siegel, 2001). The influence of CSR activities on firms is most likely determined by effectively communicating them to the largest group of stakeholders (McWilliams and Siegel, 2001; Godfrey, Merril and Hansen, 2009). Indeed, discussing a firm's social activities, charitable contributions, environmental projects and their development to human capital acts as a dialogue with stakeholders to achieve their acceptance and indicate a bank's good standing as well as its interest in responding to society's obligations (Simpson and Koher, 2002; Gray, Kouhy and Lavers, 1995b; Rowley, 1997).

Empirical research by Simpson and Kohers (2002) found a positive link between social performance and banks' financial performance. Long-term potential investors consider corporate social and environmental behaviour as material to investment decisions. Since they value CSR profile due to the competitive advantage it might give to the firm

(Aguilera et al., 2006). Moreover, CSR activities protect and enhance a firm's and shareholders' value especially when facing negative events (Godfrey, Merrill and Hansen, 2009). Surveying CSR studies over a 20-year period, Richardson, Welker and Hutchinson (1999) concluded that disclosing CSR information reduces information asymmetry and enhances market performance. While, Pava and Krausz (1996) found that socially responsible firms count on the positive impact the CSR has on a firm's performance to compensate for additional risks.

As stakeholders trust was shaken due to the crisis, engaging and reporting on CSR is likely to help firms in strengthening the link with stakeholders and maintaining their existence, business growth, and continuity (Branco and Rodrigues, 2006). This might be, in addition to obtaining stakeholders' commitment, due to the impact of social involvement in improving customers' brand loyalty and motivating employees (Mackenzie, 2007). From a theoretical perspective, Gray, Kouhy and Lavers (1995) argued that stakeholder theory provides the rationale behind a firm's motivation to disclose voluntary information, particularly CSR and environmental information. As firms' existence and continuity are related to stakeholders' support and acceptance (Gray et al., 1995), firms should provide tools and mechanisms to address the needs of different stakeholders having different concerns (Rowley, 1997). CSR disclosures are considered one of the methods firms might use to reflect their appreciation to society and acknowledgement to stakeholders needs (Gray et al., 1995). Communicating the level of community involvement reflects firms' coherence with society values and how they are acting to the best of stakeholders' interest. This in turn is likely to maintain their virtual contract and develop their reputation (Branco and Rodrigues, 2006).

On the other hand, a closer look at the US banks' risk management shows the need for improving their risk disclosure practice as stakeholders are not receiving adequate risk management information (Lewis, 2006). By disclosing RM information investors will be more able to diagnose bank risk (Helbok and Wagner, 2006) and evaluate management effectiveness (Lajili and Zeghal, 2005). Indeed, risk management practices are aiming to reduce financial failure and maintain shareholders' value (Solomon, J., Solomon, A., Norton and Joseph, 2000). Being more informative in disclosing information to provide better understanding to the followed risk management mechanisms assists in diagnosing firms' risk profile and valuing assets (Scholes, 2000; Beaver, Eger, Ryan and Wolfson, 1989).

Disseminating information concerning portfolio quality and risk levels might assist in the management of uncertainty and relax stakeholders concerns regarding their interest in the bank (Hubbard, 2000). Generally, firms disclose information over and above what is mandatory to satisfy investors' need for information in order to help them in assessing firms' value (Meek, Roberts and Gray, 1995). Even if the disclosure is mandatory, the extent of information provided and its comprehensiveness is determined by management (Kent and Stewart, 2008). Increasing the number of informed investors is most likely to improve stock price (Poshakwal and Courtis, 2005; Healy and Palepu, 2001) as stock prices are influenced by the level of information available in efficient markets (Fama, 1991; Helbok and Wagner, 2006). Therefore, incomplete information discourages investors and will not attract them to be stockholders (Merton, 1987).

As the relationship between firms and stakeholders is based on the positive exchange of benefits (Bear, Rahman and Post, 2010) risk information is important to any party interested in the firm in order to assess its risk profile (Linsley, Shrives and

Crumpton, 2006). Along with the pressure that the US banking sector was experiencing on their stock performance and stakeholders trust (Allen and Moessner, 2011; Brunnermeier, 2011; Ivashina and Scharfstein, 2010; Gorton, 2009), one might expect that banks with more effective corporate governance mechanisms will encourage the disclosure of wider-content CSR and RM information. Consequently, stakeholders' acceptance is most likely to be achieved (Branco and Rodrigues, 2006; Gray et al., 1995) and information asymmetry reduced, improving stock performance (Kothari et al., 2009; Akhigbe et al., 2008; Scholtens, 2009) as well as corporate image and trust (Gray et al., 1995; Li et al., 2010; Mackenzie, 2007). Therefore, the present thesis examines through three interrelated empirical chapters, in the wake of the financial crisis, the impact of US banks' internal corporate governance mechanisms on the content of CSR and RM disclosures on one hand, and on the other hand, how the content of disclosed CSR and RM information is being discounted by investors and reflected on stock return and bank risk.

To my knowledge, the drivers and potential benefits of CSR and RM disclosures are understudied areas, where further researches are recommended to uncover important insights. The present study is an attempt toward better understanding of the power of CSR and RM disclosures and what benefit banks might expect from such reporting as well as the substantive consequences of drafting CSR and RM disclosure. The three papers comprising this thesis shed light on the interrelationships between corporate governance, disclosures content and shareholder value. The first paper examines the impact of board of directors and audit committee structures on the content of CSR and RM disclosure. The second investigates if CSR disclosure content has economic consequences reflected as an improvement on stock price, average return and total investment return. While the third questions the reliability and informative level of RM disclosures, and to what extent they are being discounted by investors and reflect on stock return and volatility.

Previous CSR literature addressed either the relationships between CSR and firm characteristics or its impact on reputation (Haniffa and Cooke, 2005; Scholtens, 2009; Branco and Rodrigues, 2006; Simpson and Kohers, 2002), though studies exploring the influence of corporate governance on CSR reporting are lacking in the literature (Li, Fetscherin, Alon, Lattemann and Yeh, 2010; Kolk and Pinkse, 2010; Spitzeck, 2009; Gill, 2008). On the other hand, voluntary disclosures and corporate governance studies were either conducted using a sample excluding the financial sector, due to its special disclosure requirements (Revert, 2008; Chau and Gray, 2010) or used a mixed sample of financial and non-financial firms. Such samples ignore the difference in the reporting regulations and the regulatory bodies governing the banking sector and mandating special reporting requirements. With respect to the impact of disclosures on stock reaction, this relation was examined widely. However, to my knowledge, few studies investigated in particular the impact of CSR or RM disclosures content on bank stock reaction.

Previous studies which intended to assess CSR and RM disclosure have generally used two main approaches. The first is to use CSR ratings provided by CSR rating agencies (Johnson and Greening, 1999; Barnea and Rubin, 2010; Bear et al., 2010). I excluded this option as the approach followed for the ratings tends to remain unclear. For example, the "Association for Investment Management Research" (AIMR) produces ranking for aggregate and disaggregate voluntary disclosures in annual reports and form 10-Ks. The processes of selecting the firms to be ranked and the approach followed in ranking firm disclosures are not clearly understood (Healy and Palepu, 2001). The second approach is to measure the disclosure content using word, sentence or page counts (Li et al., 2008; Kothari, Xu and Short, 2009; Bushee and Noe, 2010; Haniffa and Cooke, 2005; Lajili and Zeghal, 2005). I also exclude this option as such quantity scoring based approach says little about the quality of the disclosures (Hasseldine, Salama and Toms, 2005).

Reviewing the disclosure studies in general and the voluntary disclosure studies in particular, one can identify the contradicting results explaining the relationships between corporate governance and disclosure levels (Lim, Matolcsy and Chow, 2007; Li et al., 2010; Bear, Rahman and Post, 2010; Barnea and Rubin, 2010). In addition there is doubt on how applicable these results are on the banking sector due to the sampling strategies followed as mentioned earlier. Moreover traditionally, one or two internal corporate governance attributes were addressed in isolation without considering a comprehensive set of variables reflecting both the board of directors, and the audit committee structures (Li et al., 2010; Bear, Rahman and Post, 2010; Barnea and Rubin, 2010; Chen and Jaggi, 2000).

Responding to the identified literature gaps, the current research contributes by examining a unique sample of the US listed national commercial banks in the wake of the financial crisis, i.e. the years 2009-2010. This is likely to provide a better understanding of the intersection between bank internal corporate governance mechanisms and bank reporting strategy concerning their social and risk profile, and how drafting their disclosures reflects on stock performance. In addressing these interesting empirical questions, the thesis seeks to provide evidence on how banks' internal corporate governance mechanisms, i.e. board and audit committee structures, can influence on the content of disclosed CSR and RM information, and consequently, what benefits shareholders might achieve, in terms of stock price improvement and risk management as a result of better disclosures content illustrating bank social and risk profile.

The study argues that more effective corporate governance structure, in particular higher board independence, large board size, CEO duality, large audit committee size and a higher number of financial experts in the audit committee, will encourage the disclosure of better CSR and RM information content. Boards of directors can have an important role in

setting and overseeing CSR standards (Mackenzie, 2007) and providing quality reporting (Cohen et al., 2004). Moreover, being transparent and providing informative content of disclosures assists in the management of agency conflicts, reduces asymmetry, which is likely to improve stock price and reduce volatility (Welker, 1995; Kothari et al., 2009; Poshakwal and Courtic, 2005; Jenning and Stacks, 1985). The estimated results might be valuable to banks' corporate managers considering their reporting strategy and aiming to benefit from CSR and RM reporting as a tool to enhance shareholders' value. As well, the estimated relationships might signal investors' reactions on whether CSR information is discounted or disregarded in the financial markets. Also, the thesis examines if disclosed RM information is considered reliable and valuable in valuing assets and assessing bank risk.

The content analysis technique, defined by Holder-Webb et al. (2009) as "a way of codifying text and content of written narratives into groups or categories based on selected criteria", is employed to measure the content of CSR and RM disclosures in 2009-2010 annual reports, i.e. the existence and quality of disclosures. Following the guidelines provided by Gray, Kouhy and Lavers (1995a), I construct a CSR disclosure measure based on the definitions, frameworks and methods employed in the mainstream CSR literature. Accordingly, the content of community involvement, environment, employees, as well as social product and service quality disclosure is examined (Gray et al., 1995b; Haniffa and Cooke, 2005; Branco and Rodrigues, 2006; Scholtens, 2008; Holder-Webb et al., 2009). The content of RM disclosures that discusses bank risk exposure and the techniques adopted, to assess, mitigate and manage identified risks (Campbell and Slack, 2008; Helbok and Wagner, 2006) is measured according to six categories, which are: credit risk, interest rate risk, liquidity risk, market risk, legal and compliance risk and operational risk (COSO, 2009; Linsley et al., 2006; Baumann and Nier, 2004; Ahmed et al., 2004).

As a tool to communicate firms' specific information and valuable messages (Campbell and Slack, 2008), annual reports were used by previous researchers to measure disclosures (Perignon and Smith, 2010; Linley and Shrives, 2006; Ahmed, Beatty and Bettinghaus, 2004). In line with previous research, the study focuses on self-reported information revealed by the firms in their annual reports (Gray et al., 1995b); the recognisable channel for firms to disclose information (Toms, 2002). The information contained in the annual report is under much more control of the CEO and the board of directors, than information in the press or published by interest groups, that many ratings agencies rely on (Johnson and Greening, 1999; Barnea and Rubin, 2010; Bear et al., 2010). Annual reports disclosures illustrate CSR activities and RM practices conducted and communicated throughout the year. Moreover, annual reports are widely distributed (Gray, Meek and Roberts, 1995) and tend to have a much wider readership among shareholders, stakeholders and information intermediaries, such as financial analysts and credit rating agencies.

There are broad options available to companies about where and how to report their related activities. Although the main disclosure mechanism is the annual report, some might argue that there are also other disclosure mechanisms, e.g. interim and quarterly reports, media releases, personnel handbooks, employee newspapers, Internet home pages, and CEOs' speeches (Zeghal and Ahmed, 1990; Marston and Shrives, 1991). Ideally, however, if a researcher is to measure all CSR disclosures by a company, all communications forms by this company reaching the public domain should be considered to be part of the accountability-discharge activity (Gray et al., 1995b). Nonetheless, it is impossible to be certain that one has identified all communications (Zeghal and Ahmed, 1990).

CSR disclosures are seen as a mechanism that companies use to enhance their reputations, provide information to stakeholders and discharge the social contract between the entity and the relevant public (Gray et al., 1988). Most of the previous empirical studies have examined companies' annual reports to draw conclusions about various aspects of the firm's CSR (Milne and Adler, 1999). There are valid reasons for choosing the annual report to measure CSR activities (see, for example, Abbott and Monsen, 1979; Wiseman, 1982; McConnell et al., 1986; Gray et al., 1995b; Robertson and Nicholson, 1996; Wilmshurst and Frost, 2000; Salama, 2003). First, it is widely recognised as the principal and permanent means for corporate communication of economic activities and CSR issues that top management regard as important for shareholders and the public domain, and so is a record of the entity's historical social consciousness. The annual report contains valuable signals about what lies ahead in terms of the company's CSR and RM. Secondly, because of the ready availability and easy access of annual reports, it is possible to derive CSR involvement and RM practices scores. Finally, it is a statutory report incorporating both statutory and voluntary disclosures, which is provided on a regular basis year after year, and one over which management exercises editorial control.

Building on the above and keeping with the majority of the literature, I argue that CSR and RM disclosures in the annual report can provide important information about the particular values embedded within the bank and hence serve as an important signalling function for a bank in terms of allowing it to convey its distinctiveness in terms of how it values particular CSR issues and RM practices.

In line with the set argument and supporting most of the hypotheses, the results indicate that effective internal corporate governance mechanism has a positive influence on the content of CSR and RM disclosures provided through annual reports. The results also

highlight the importance of CSR reporting in showing improvements on stock prices and total investment return. Furthermore, I find that better content of RM disclosures reduces total risk for the subsequent year, proxied by stock return standard deviation, and improves the current year's stock price. The results propose an alternative approach to enhance shareholders' value through engaging, reporting on CSR activities, and improving the risk-management disclosures practice. These findings have significant implications for understanding CSR and RM disclosures content drivers in the banking sector from a corporate governance angle, while previous attention was given to firms' characteristics and the non-financial sector. Moreover, the findings also suggest that bank's leadership might use CSR and RM disclosure in annual reports not only to market the bank's activities to its stakeholders, but also to signal the quality of the bank's corporate governance.

The first model estimates the relationships between corporate governance variables and the content of CSR and RM disclosures. The results suggest that banks with higher board independence, larger board size and CEO duality encourage more communication of the bank's social profile, by disclosing enhanced content of CSR information in annual reports. The higher proportion of independent directors on the board and their diversified backgrounds (Gray et al., 1995b; Ibrahim et al., 2003; Guest, 2009) seem to be more efficient in bringing CSR onto the board agenda and promoting a wider range communication of CSR disclosures. Moreover, the accumulated experience associated with boards having larger size facilitates the allocation of workload needed to manage banks' complex operations (Beiner at al., 2004; Grove et al., 2011; John and Senbet, 1998), keeping room for discussing topics beyond the banking operations territory. Therefore, boards with larger size tend to consider the disclosure of better CSR information content.

The results also indicate that CEOs with a dual role are inclined more toward disclosing better content of CSR disclosures. Combining the CEO and the chair of the board authorities appears to increase the sensitivity and accountability of the CEO position, particularly after the crisis, encouraging higher transparency. At the same time, having these two authorities might facilitate the process of engaging and reporting on CSR (Barnea and Rubin, 2010; Haniffa and Cooke, 2002). This is either to signal their ethical standards to stakeholders for personal benefit or to reflect banks' behaviour and achieve stakeholders' acceptance in the period after the financial crisis.

A lens on the association of corporate governance and RM disclosures indicates that banks with larger board size, higher independence and CEO duality are more inclined to communicate their RM practices through enhanced content of RM disclosure in annual reports. The diversified experiences and backgrounds characterising boards with larger size and higher independence (Guest, 2009; Ibrahim et al., 2003) enhance their ability to monitor management (Lee et al., 2004) and consequently promote higher transparency. With more effective communication, a clearer image on how a bank is being managed will be spread, trust levels are likely to be managed and stronger stakeholders' relations are to be developed (Simpson and Koher, 2002; Meek et al., 1995; Poshakwale and Courtis, 2005).

Contrary to CSR disclosures, audit committee financial experts' variable is found to be related to the content of RM disclosure. This difference might be due to the nature of each disclosure type examined as well as the role of audit committees. Audit committees in general are more oriented toward overseeing the sufficiency of risk management practices, the reliability of financial reporting and the compliance with regulations (McMullen, 1996;

Krishnan and Visvanathan, 2009). Presumably, in the period after the crisis, they were more focused on these roles with less intention to voluntary reporting. Future studies examining longer time horizons after the crisis will be helpful to spot any change in audit committee behaviour toward voluntary disclosures in general and CSR disclosures in particular.

The second model investigates the consequences of CSR disclosures content on stock price change, total investment return and average monthly return. Proving the association between CSR and stock performance signals the interest of shareholders and investors in, and the consideration to CSR information, when valuing assets and building their trading decisions. The reported results support the link between CSR annual disclosure content and stock performance suggesting positive influence on price change and total investment return. This indicates that better content of CSR disclosures has economic implications, and management participation in CSR activities and reporting on them is likely to gear shareholders' value. The reported association is consistent across the alternative measures used, stock price change, total investment return, average monthly return and categorical return, signalling the economic benefit of CSR disclosure content. With respect to the examined control variables, the reported results evidence the improvement of stock price when banks achieved lower leverage and book to equity ratios.

CSR disclosures being recognised by investors and reflected on stock price is in line with the agency theory as more information is likely to assist in reducing uncertainties as well as agency conflicts (Welker et al., 1995). With a lower level of information asymmetry and less agency problems, a firm's value is likely to be improved and better shareholders' value to be achieved (Diamond and Verrechia, 1991; Watson et al., 2002;

Kothari et al., 2009). Having a wider view to visualise the estimated relationships in model one along with model two, an extended role to corporate governance could be seen to enhance shareholders' value. Banks' corporate governance should consider in their strategies and introduce the perception of doing business with a sense of social responsibility. In addition to encouraging effective communication to banks' social profile which conveys the bank image as a 'good citizen'. In doing so, boards of directors will be more aligned with the interest of both stakeholders and shareholders as the exchange of benefits is more fair.

The third model examines the influence of RM disclosures content on stock return and return volatility. The study argues that, if the content of disclosed RM information in banks' annual reports after the financial crisis period were considered reliable by investors, then the disclosure content is likely to enhance the knowledge base of investors and be mirrored on stock performance. Theoretically, investors react to new available information (Merton, 1987) and the level of revealed information assists in reducing information asymmetry (Humbard, 2000) as well as evaluating management effectiveness (Lajili and Zeghal, 2005). Accordingly, stock price is affected by the level of information available in efficient markets (Fama, 1991; Helbok and Wagner, 2006).

In line with my argument, the reported results indicate that better content of RM disclosures is likely to improve the return of the current year and to reduce the return variance of the subsequent year proxied by the standard deviation of monthly stock returns. The influence of RM disclosures on stock performance suggests that investors appreciated and valued the content of disclosed RM information as they were discounted when pricing stocks. The content of information revealed through RM disclosures seems to provide an

efficient tool to monitor management practices and their alignment with shareholders interest. This is likely to reduce information asymmetry and the uncertainty gap improving stock performance. In addition to RM disclosures content, the reported results show the improvement of stock price and reduction to return variance when banks achieved better return on assets and book to equity ratio.

In addition to the current introduction, the thesis consists of three papers followed by a conclusion. Each paper comprises an introduction followed by four main sections. The first section covers the literature review and theoretical framework. The second section discusses the research design along with the sample selection and data collection. The third section addresses the results of the analysed data and the interpretation of the estimated hypotheses. The conclusion of each paper is drawn in the final section.

Chapter 2. Corporate Governance and the Content of Corporate Social Responsibility and Risk Management Disclosures

Chapter Two

Corporate Governance and the Content of Corporate Social Responsibility and Risk Management Disclosures

2.1 Introduction

The banking sector was the centre of the recent financial crisis and has come under increasing pressure to consider the long-term view of their relations with shareholders in particular and stakeholders in general, and to respond to and acknowledge the need for more transparency and societal commitment (Barth and Landsman, 2010; Matten, 2006; Money and Schepers, 2007; Gill, 2008; Buchholtz, Brown and Shabana, 2008; Grove, Patelli and Victoravich and Xu, 2011).

Banks, as financial intermediaries, are the backbone of the economy playing a major role in managing clients' assets and financing other industries as well as households (Howells and Bain, 2008). As a consequence of the financial crisis they lost stakeholders' trust and the crisis panic started when investors were faced with poor information hindering them from assessing the level and location of risk causing financial intermediaries to stop dealing (Gorton, 2009). A survey conducted after the financial crisis found that 57% of banks' customers believed that opportunities to rebuild customer trust in the banking sector were low and gaining trust might be through effective communication (Market Watch: Financial Services, Nov. 2009).

Previous studies suggest that firms' corporate social responsibility (CSR) activities and CSR reporting might positively influence firms' performance, trust and reputation as well as risk profile (Aguilera, Williams, Conley and Rupp, 2006; Simpson and Kohers,

2002; Scholtens, 2008; Salama, Anderson and Toms, 2011; Ghoul, Guedhami, Kwok and Mishra, 2011). The importance of CSR activities becomes more of value in regulated industries where negative effects might impact not only investors' but also regulators' reputation. Moreover, the impact of CSR activities on firms is most likely determined by effectively communicating them to the largest group of stakeholders (McWilliams and Siegel, 2001; Godfrey, Merril and Hansen, 2009). Indeed, providing information about the level of community involvement, such as social activities, charitable contributions, environmental projects and developing human capital, will act as a dialogue between the bank and its stakeholders to achieve their acceptance and convey the message that the bank is financially healthy and responding to society's obligations (Simpson and Koher, 2002; Gray, Kouhy and Lavers, 1995b; Rowley, 1997). In addition, CSR information might be used as a marketing tool to raise awareness (McWilliam and Siegel, 2001). Therefore, CSR information is demanded by investors interested in dealing with socially responsible firms (Holder-Webb, Cohem, Nath and Wood, 2009).

On the other hand, having a look at US banks from the risk management (RM) angle shows that banks are not adequately disclosing risk management information to their stakeholders and their current risk disclosure practices need improvement (Lewis, 2006). Disseminating information concerning portfolio quality and risk levels might assist in managing clients' uncertainty and transmit the impression that clients' assets are properly safeguarded (Hubbard, 2000). In general, companies satisfy the need for information to assess their future position and manage uncertainties by providing information beyond what is required (Meek, Roberts and Gray, 1995). Moreover, Merton (1987) found that investors react to the diffusion of information instantly once it is received and mentioned that investors having incomplete information will not be stockholders.

As the relationship between the firm and its stakeholders is based on the positive exchange of benefits (Bear, Rahman and Post, 2010), and risk information is important to any party interested in the firm in order to assess its risk profile (Linsley, Shrives and Crumpton, 2006), one might expect that a bank with more effective corporate governance, in particular higher board independence, larger board size and CEO duality, will provide better content of CSR and RM disclosures than banks with less internal corporate governance mechanisms. Indeed, boards of directors can exercise a vital role in setting and overseeing the proper implementation of companies' CRS standards (Mackenzie, 2007) and providing quality reporting (Cohen et al., 2004).

Consequently, the current study seeks to examine whether corporate governance influences the content of CSR and RM disclosures in US-listed national commercial banks' annual reports. The focus on annual reports is due to their importance and being checked by insiders and outsiders as key documents revealing management messages and firms' strategies.

Traditionally, previous literature lacks such studies (Li, Fetscherin, Alon, Lattemann and Yeh, 2010; Kolk and Pinkse, 2010; Spitzeck, 2009; Gill, 2008), since previous CSR studies were either examining the trend of CSR or the interrelationships between CSR and firms' reputation as well as firms' characteristics, such as performance, number of branches and listing status (Haniffa and Cooke, 2005). On the other hand, the studies that examined the relationships between corporate governance and the level of voluntary disclosure were either based on a sample that excluded the financial sector, due to its special disclosure requirements, or used a pool of financial and non-financial firms. This ignores the difference in the reporting regulation and the regulatory bodies governing the banking sector and mandating special reporting requirements. The present study

examines a unique sample of US-listed national commercial banks and uses a content analysis technique to measure the content of disclosures.

The findings suggest that banks with a higher proportion of independent directors, larger board size and CEO duality are more inclined to communicate their social profile through enhanced content of CSR disclosure in annual reports. These results imply that the diversified backgrounds of boards with higher independence and larger size promote more transparency and consideration to disclose better content of CSR information. Since banks are complex organisations, a relatively large number of directors assist in having more accumulated experience and distributing the workload, which impacts on the bank's attitude towards stakeholders. Role duality is also found to be positively associated with CSR disclosure content, implying CEOs' interest in signalling their ethical standards to stakeholders either for personal benefit or to reflect a bank's behaviour.

With respect to risk management disclosures, the results suggest that banks with larger board size, higher proportion of independent directors and CEO duality are more inclined to communicate their risk management practices through enhanced content of RM disclosure in annual reports. However, and in contrast to CSR, audit committee financial experts are positively related to the content of RM disclosure. This might be due the role of audit committee in ensuring a proper internal control system, safe risk environment and the integrity financial statements. The findings also suggest that banks' leadership might use CSR and RM disclosure in annual reports not only to market the banks' activities to its stakeholders but also to signal the quality of the bank's corporate governance.

The following sections provide a review of the literature and theoretical framework followed by the research design and the hypotheses testing. This is followed by the results discussion section. Finally, the conclusions and research limitations are discussed in the last section.

2.2 Literature review and theoretical framework

2.2.1 Literature review

Corporate governance could be seen as the mechanism of managing the internal and external network of relationships (Aguilera, Williams, Conley and Rupp, 2006; Money and Schepers, 2007). It was defined by Donnelly and Mulcahy (2008) as "a set of control mechanisms that is specially designed to monitor and ratify managerial decisions, and to ensure the efficient operation of a corporation on behalf of its stakeholders". Corporate governance is influenced by society norms and values (Mackenzie, 2007) as well as political and legal legislations, such as the Sarbanes Oxley Act 2002 (Aguilera et al., 2006). Banks' governance in particular might be more sensitive to society influences since depositors, who form a major part of a bank's stakeholders, are the core-funding source (Grove, Patelli, Victoravich and Xu, 2011). Therefore, effective governance which efficiently monitors management behaviour, avoids the risk of ethical violation and bad reputation (Arora and Dharwadkar, 2011).

The traditional scope of corporate governance, as controlling and directing companies (Cadbury, 1992) and managing agency conflicts, to maximise shareholders' value (Gill, 2008), has been developed (Money and Schepers, 2007) to include firms' CSR behaviour and balance between social and economic objectives (Buchholtz et al., 2008; Balasubramanian, 2012). Social responsibility is becoming part of corporate governance and on the agenda of both CEOs and boards of directors (Spitzeck, 2009). Its importance in managing the needs not only of shareholders but also a broad group of stakeholders is captured by effective corporate management (Pava and Krausz, 1996), since neglecting stakeholders' expectations might hinder the achievement of the firm's goals (Kolk and

Pinkse, 2010). Consequently, CSR turned to be more integrated with corporate governance, blending the social aspect in decision- making and considering the interest of employees, clients and society in the same manner as shareholders' interest (Gill, 2008).

Corporate governance is likely to enhance the monitoring level which in turn provides higher assertions to shareholders (Chen and Nowland, 2010). Its effectiveness provides assurance to shareholders that management is acting to the best of their interest, that maintaining acceptable values and operations will sustain in the long-term; consequently firms with better corporate governance are likely to be less risky and have better firm's value (Chen, Chung, Hsu and Wu, 2010). In contrast, weaknesses in governance might influence firms' transparency and lead to poor financial reporting (Cohen, Krishnamoorthy and Wright, 2004).

In promoting confidence and illustrating current and prospected achievements or goals, companies disseminate information to the public tackling several business aspects and reflecting firms' transparency. The need for information to assess a firm's position and lower uncertainty level might be satisfied by disclosing voluntarily information beyond what is required (Meek et al., 1995). One of the mediums used by companies to transmit information is their annual reports, which are divided into two main sections: the legislative mandatory reporting requirement (financial statements and their related notes) and the voluntary reporting (Stanton, 2002). The voluntarily-released information might include both qualitative and quantitative information, such as corporate general and strategic information, environmental information, social responsibilities, non-mandatory financial and market information.

The level of disclosed information reflects companies' transparency and provides different users with needed information, which assists in lowering the level of uncertainty and decreasing investors' vagueness (Poshakwale and Courtis, 2005). It was noticed that the demand for CSR activities and information was increasing, as investors interested in social responsibility investments needed related information which could not be found in the traditional financial reports (Holder-Webb et al., 2009). From a risk management angle, banks are not adequately disclosing risk management information to stakeholders and their current risk disclosure practices need improvements (Lewis, 2006).

Several studies were conducted to examine the relationship between different corporate governance factors and the level of voluntary disclosures in general or a dedicated disclosure segment in particular. These studies were conducted on developed, emerging, and transforming economies and different results were reached. The following section presents a critical review of some prior research that investigated the determinants and implications of CSR and RM disclosures as well as voluntary disclosures in general. Reviewing voluntary disclosures studies is valuable as they include the CSR disclosure within the non-financial voluntary disclosures and additional risk information within the financial and strategic voluntary disclosures. In doing so, a comprehensive review to various disclosure studies will be conducted to help in aligning the present study and achieving the optimal results.

The World Bank defined CSR as activities looking for society welfare and enhancing business progress "Corporate social responsibility is the commitment of businesses to contribute to sustainable economic development by working with employees, their families, the local community and society at large to improve their lives in ways that

are good for business and for development" (Starks, 2009, p. 465). The engagement in CSR might have both financial and strategic advantages (Kolk, 2010; Standburg, 2005). The voluntary aspect of social activities and reporting on them might help firms mitigate risks and achieve better performance due to the trust, buffer of goodwill developed and the accompanied competitive advantage (Gill, 2008; Money et al., 2007; Aguilera et al., 2006). This is one of the reasons why investors increasingly require boards and managers to engage in CSR and report on this engagement (Kolk and Pinks, 2010).

Banks as financial intermediaries, bridging between lenders (the depositors) and borrowers, need a high level of trust and ethical behaviour to succeed. Demonstrating ethical behaviour and commitment could be through developing social products, helping charities, assisting in education and health care (McWilliams and Siegel, 2001). CSR disclosure, which is according to Revert (2009) defined in the literature as the voluntary interaction between the firm and its stakeholders through addressing their social and environmental issues within business activities, assists in developing their reputation and shaping their image (Branco and Rodrigues, 2006). Consequently, by engaging and reporting on CSR, companies strengthen the link with their stakeholders and maintain their existence, business growth, and continuity (Branco and Rodrigues, 2006). Indeed, social responsibility assists in strengthening customers' brand loyalty and motivates employees (Mackenzie, 2007).

From the financial view, Simpson and Kohers (2002) evidenced a clear link between bank social performance and financial performance. They argued that addressing non-stockholders' needs and reporting on firm community involvement positively affect firms' performance and develops trust with stakeholders. Moreover, firms' participation in

social responsibility is reflected on a firm's value by having lower cost of capital and less risk (Ghoul et al., 2011). This might be due to the influence of social reputation in reducing a firm's systematic risk which is affected by risk of claims and social violation (Salama, Anderson and Toms, 2011). As a result, socially responsible firms are less subject to future penalties resulting, for example, from employees' disputes, product safety as well as consumer fraud (Waddock and Graves, 1997).

In building marketing strategies, banks might differentiate their products and services to develop a new market need or to get a better price for an existing service (Mcwilliams and Siegel, 2001). CSR and CSR reporting might be used as a diversification strategy and a marketing tool to raise customers' and investors' awareness of those who are interested in dealing with firms having a high social responsibility attitude and is delivering social products. This increases the demand for CSR activities and reporting, as investors interested in social responsibility investments need related information which cannot be found in the traditional financial reports (Holder-Webb et al., 2009). Moreover, from signalling-theory perspective, company performance is linked to the level of voluntary disclosed information (Watson, Shrives and Marston, 2002). Therefore, banks are motivated to disclose CSR information to reflect their community investment activities as a signal of good standing and healthy financial position.

Within the context of CSR and firm performance relationship, Scholtens (2008) argued that providing a proper set of information discussing management activities, resources allocation, financial position and market competitiveness assists in evaluating a firm's risk. Scholtens (2008) assessed CSR performance of 32 international banks covering the United States, the Pacific and Europe in both the years 2000 and 2005. Scholtens

mentioned that there is no optimal methodology used in previous studies to quantify banks' involvement in social responsibility to be able to follow. Therefore, he identified four CSR categories and developed a framework that divided the four categories into 29 CSR indicators. The four social responsibility categories were as follows, "code of ethics and sustainability reporting, environmental management, responsible financial products and social conduct". The content of sustainability and CSR reports as well as websites was reviewed and a CSR score was assigned to each bank.

The results of the study indicated that in general banks are becoming more involved in social responsibility and it is more spread among the financial sector. In addition, the regression analysis results provided a strong support to the relationship between CSR score and bank financial performance and size. These results were explained from the view of stakeholder theory mentioning that companies are part of their society and they should be coherent with it, appreciate its values and behave to the best of its interest in order to maintain their social contract. In conducting CSR activities and reporting on their achievements, they reflect their appreciation to society values shaping their image and strengthening the link with stakeholders to preserve their existence, business growth and continuity.

The content of social responsibility disclosures using a sample of Portuguese banks' annual reports in 2004 was also analysed by Branco and Rodrigues (2006). A scoring sheet was developed to analyse the content of social disclosures, giving one point for each CSR theme discussed in the annual report across the four social responsibility categories. The study concluded that banks with a higher number of branches, which makes them more monitored by the public, disclose more CSR information to enhance their image. This

assisted banks in differentiating themselves from peers, "community involvement as part of the legitimating strategies when compared with less known banks" (Branco and Rodrigues, 2006, p. 244). Furthermore, it was noticed that banks are motivated to report on their CSR and especially human capital information since they are an essential asset as banks and investors demand such information in their assessments.

The study added that social and environmental issues are not only important to manufacturing companies that may cause damage to the society, but also applicable in the banking industry. Banks are operating through several branches and they consume a considerable amount of energy and paper and consequently this will generate waste. Therefore, the public will be interested in knowing banks' policies and treatments regarding all similar issues, such as recycling.

Using the content analysis technique to assess CSR disclosures in the UK companies' annual reports, Gray et al. (1995b) examined the change in trend and type of CSR disclosure across 13 years. In studying the change in CSR trend, the researchers divided CSR into four main categories, which are employees, environment, community, and customer service. Gray et al. found that community and environmental disclosures varied across time and witnessed considerable increase in the early 1990s and were affected by firm size. The study added that companies are using environmental disclosures to maintain a good relationship with stakeholders and as a defence tool against pressure groups. CSR in general is being used as "wax and wane" to capture public awareness toward the firm's brand, however companies should not expect better profitability within a short term period. These results were related to stakeholder theory since the continuity of

companies is linked to stakeholders' support and acceptance, which could be achieved by engaging in CSR activities and communicating them.

Focusing on one type of CSR disclosure, Toms (2002) found that environmental disclosures in the annual reports significantly assisted in the development of environmental reputation, arguing that annual reports are the quality channel to signal environmental investments. The reputation rate for 215 UK firms in 1996 and 1997 were obtained from "Management Today survey of Britain's most admired Companies". The environmental disclosures were rated from zero to five; a zero rate was given if no disclosures were presented in the annual report and a rate of five if the disclosures presented information discussing the environmental plans as well as their implementation and results. The overall disclosure score was a dummy variable: one was assigned if the disclosed information was above required level and zero otherwise. Other company publications were reviewed only if the annual report mentioned that additional information was provided. The study found that better environmental disclosures led to better reputation, which in turn developed the firm's intangible asset "reputation is arguably the most important of intangible assets", adding that corporate governance could influence the development of corporate reputation (Toms, 2002, p.259). Moreover, the study concluded that the reputation of the firm affected the level of systematic risk and consequently enabled the firm to raise capital cheaper.

Corporate governance and corporate social responsibility are considered jointly and systematically interrelated and therefore firms with strong corporate governance are likely to be involved in more CSR activities and reporting on them (Jamali, Safieddine and Rabbath, 2008). Similarly, Hess (2007) noticed that CSR reporting integrates with

corporate governance mechanism to ensure room for accountability and reflect the firm's transparency and stakeholders' engagement, "Corporate social reporting has the potential to become a successful and effective form of New Governance regulation" (Hess, 2007, p. 470). Hess, according to feedback obtained from executives at one of the big four audit firms, mentioned that companies can benefit from the expansion of their social disclosure practice by enhancing their image and reputation. However, the benefit of social reporting will be at the cost of disclosing information. The company will pay the cost of preparing and providing unfavorable disclosures that might be used by competitors; on the other hand, social disclosures users are also paying a high cost due to the volume of unrelated or unreliable disclosed information. Therefore, the study recommended a more structured system of social reporting to ensure transparency and maximise the benefit from the disclosed information for both users and companies.

The empirical link between governance attributes and information was examined by Lim, Matolcsy and Chow (2007). They indicated that board composition determines the level of forward-looking and strategic-voluntary disclosures, but not affecting the level of historical quantitative and non-financial disclosures. They argued that appointing non-executive directors on the board might manage agency issues due to their independent supervision of management activities. Their presence encourages management to provide more information above what is required in order to maintain their reputation. On the other hand, inside directors have different motivations to provide information resulting from the link between their compensation and firm performance. Therefore, executive directors might be interested in disseminating information to demonstrate their performance and proper decision taking. This protects the firm from stock undervaluation and minimises the risk of unseemly valuation.

Lim, Matolcsy and Chow (2007) examined the annual reports of 181 non-financial and mining Australian companies for the period ended 2001, using a checklist to measure the unweighted voluntary disclosure score across 67 disclosure items. The results showed that the level of the full disclosure score is explained by the percentage of independent directors on the board. However, the independent directors influence the level of forward-looking quantitative and strategic disclosure level, they did not affect the level of non-financial and historical disclosures. In addition, a positive association was found between the level of voluntary disclosure and firm size, industry type and price to book value; while the level of disclosure was not explained by the size of the audit firm. ROA was correlated with the level of historical voluntary disclosure reflecting company's intention to disclose historical results when they have good performance, and lower level of information when they have poor performance.

CSR disclosures in particular and the governance environment was examined by Li, Fetscherin, Alon, Lattemann and Yeh (2010) using a sample of 105 companies from the emerging markets, Brazil, Russia, India and China. The study argued that the disclosure of CSR is the result of stakeholders' demand for more community involvement and better transparency. CSR disclosures in 2007 annual reports, websites and social responsibility reports were assessed and classified in to three categories. The first category was the "motives for CSR activities", which included items related to "value driven, performance and stakeholder-driven". The second category was the "managerial CSR process", which included items related to the activities conducted by the company such as "sponsorships, voluntarism, code of ethics, health and safety". The third category was "stakeholders' issue", which included items related to "community, employees, suppliers, shareholders

and customers". The CSR score was computed according to the number of items communicated. The total score was the sum of points given in all the three categories.

The results of the multiple regression analysis showed that the percentage of independent directors on the board and the separation between the role of the chairman and the CEO were significantly associated with the intensity of CSR disclosures. It was mentioned that CSR disclosures are becoming part of the firms' social marketing strategy and they are positively influencing the firm's image. Moreover, the study indicated that the size of the firm, measured by the volume of total sales, was positively related to the intensity of CSR communicated.

In contrast, Bear, Rahman and Post (2010) examined a sample of 51 firms in the healthcare industry selected from the "Fortune 2009 World's Most Admired Companies" and found a statistical relationship between CSR and CEO role duality. CSR performance was also found to positively influence firms' reputation as stakeholders relationship is built on positive trade of benefits. The study mentioned that the results of a survey conducted by "Mercer Investment Consulting" found that 46% of the investors take into consideration firm's corporate governance, corporate social and environmental practices in their analysis and resulting decisions.

Barnea and Rubin (2010) explored the conflict of what benefit will be generated from investing in CSR, highlighting that companies increased their investments in CSR activities in the previous years as they support firm's value maximisation. The study used the 'Kinder Lydenburg Domini' (KLD) rating to develop the CSR variable for 2,649 US firms. The CSR variable was a dummy variable given the value of one if the company was

classified as socially responsible and zero if classified as socially irresponsible. The leverage and CEO duality were introduced into the model in addition to the ownership variables.

The results of the OLS regression showed that leverage and inside ownership were negatively associated with the CSR rating, while CEO duality was not statistically significant. However, they argued that managers might conduct and report CSR as this might enhance their reputation and reflect their good practices toward society. The results reflected the interest of inside directors in limiting the investments in CSR activities unless they will incur low cost. Moreover, companies experiencing high debt have low opportunities to invest in social activities due to cash unavailability.

Johnson and Greening (1999) examined the association between outside directors on the board and two dimensions of firms' social performance. In doing so, 252 US companies from the KLD database were randomly drawn and their corresponding social performance regarding people ("community, women and minorities, employee relations") and product quality dimensions ("environment and product quality") were obtained for the year 1991.

The result evidenced consistent and significant positive relationship between CSR and the proportion of outside directors. Firm size and performance (ROA, ROE, and ROS) were tested as control variables evidencing a positive correlation with the people dimension and a negative correlation with the product quality dimension. The study concluded that according to agency theory, the outside directors tend to encourage CSR

practices to reflect the alignment of their performance with shareholders interest and companies' long term benefit.

Analysing the responses of 307 questionnaires conducted on US board members in the service industry, Ibrahim, Howard and Angelidis (2003) examined the relationship between CSR and board independence. The results of the Manova analysis validated their assumptions and supported Johnson and Greening (1999) that outside directors gave more concern to society than insiders due to their background diversity. The analysis evidenced that outside directors have a significantly different attitude and are more committed to CSR than inside directors.

Reverte (2009) examined the determinants of CSR in a sample of 46 Spanish-listed, non-financial companies in the years 2005 and 2006. Reverte argued that CSR disclosures are an important mechanism used by management to satisfy stakeholders' need for information and that stakeholder theory is relevant in illustrating firms' CSR behaviour, "the stakeholder theory explicitly considers the expectations impact of the different stakeholder groups within society upon corporate disclosure policies" (Revert, 2009, p. 353).

The results were based on CSR score and content rating obtained from the 'Observatory on corporate social responsibility' (OCSR) that issued a report on the disclosure practice of all companies included in 'IBEX35' index. The results suggested that companies which are more visible to the public disclose more CSR information. Moreover, the study supported the relationship between company size measured by the log of market capitalisation and the content of CSR disclosures. Conversely, the analysis

showed that both profitability measured by return on assets and leverage were not significant in explaining the variation in the content of CSR disclosures. Furthermore, it was mentioned that companies in the manufacturing industry disclose more environmental and safety disclosures, while companies in the financial and services sectors tend to disclose more social responsibility disclosures.

Money and Schepers (2007) conducted an exploratory study and captured data through interviews held with 13 UK companies' senior corporate governance and social responsibility practitioners. The results obtained from the interviews as well as the review of companies' websites and social responsibility reports reflected an increase in the social responsibility practices in the previous years and a look toward a long term strategic perspective, instead of a short term performance view only. One of the conclusions drawn was the direct link between the shareholders and stakeholders value. The study found that management is using CSR activities to manage risk indicators and enhance a firm's performance. This could be achieved through the reputation and trust obtained from the relationship built between the company and its stakeholders as a result of their social behaviour.

In reviewing risk disclosure literature, I found that risk disclosure in the banking industry has been examined by different researchers highlighting interesting results. The article by Lewis (2006) pointed out that banks are not adequately disclosing risk management (RM) information to their stakeholders, and that their current risk disclosure practices need improvement. For example, only half of the banks disclosed the methods used in computing their risk ratios; Moody's recommends banks to disclose more risk management information due to its importance in deriving credit rating, "banks' risk

management and disclosure practices are increasingly taken into account in their credit ratings" (Lewis, 2006, p. 8). Indeed, enhanced risk management disclosures by disclosing voluntarily information concerning bank risk and capital adequacy can be used as a mechanism to discipline the market and complement the regulators' supervision without one replacing the other (Estrella, 2004).

The association between the disclosures of maturity gap and interest rate risk was examined by Ahmed, Beatty and Bettinghaus (2004) using a sample of US commercial banks that submitted the 'Report of condition and Income' for the years from 1989 to 1997. This period witnessed a large variation in interest rates compared to other periods. The study found evidence supporting the relation between maturity gap disclosures and interest rate risk, "a single, disclosed number, maturity gap, could be very informative about this important risk" (Ahmed et al., 2004, p.224).

By testing the association between a one-year maturity gap and the changes in the interest rate after one year, Ahmed at al. (2004) showed that the one-year maturity gap was significantly related to the changes in the interest rate of not only one year ahead but also for three years ahead. Moreover, the maturity gap disclosure was correlated with the changes in interest rate income. The study concluded that maturity gap disclosure could be more informative than the information presented in the bank's financial statements.

The few risk disclosure researches, especially in the banking sector, and the lack of support for the development of risk reporting, triggered Linsley, Shrives and Crumpton (2006) to investigate the practice of risk disclosure in a sample of UK and Canadian banks' annual reports, "Risk disclosure is still evolving within the academic literature and

therefore suggestions are made for further empirical research" (Linsley et al., 2006, p.268). The study selected RM disclosures to explore the nature and types of information disclosed as well as the relationship with other variables such as size, profitability and risk definition. They argued that risk information is important to any party interested in the firm in order to be able to assess its risk profile. Moreover, the Basel committee recommended the enhancement of bank transparency through the disclosure of six categories that include risk management and risk exposure as two significant categories. The importance of risk disclosure is derived from its ability to be used as market stabiliser to discipline banks with poor performance and risk profile as well as encourage banks with adequate risk management.

The examined sample that covered eighteen UK and Canadian banks similar in size was selected from 'The banker 2002' that ranks the top 1,000 banks. The content of risk disclosure practice was examined by sentence count rather than word count to have a more reliable disclosure score. The risk disclosure was divided into six types which are "Credit risk, market risk, interest rate risk, operational risk, capital structure and adequacy risk and risk management framework and policies". A scoring grid was developed based on previous studies to count risk disclosure sentences and to categorise the quantitative and qualitative disclosure sentences into good news, bad news and future news.

The findings support a positive relation between bank size and the content of risk disclosure, using the total assets and market capitalisation as a proxy of size. In contrast, no association between the content of risk disclosure and profitability as well as risk level was found. This was explained by either the ratio of book-to-market value was not the proper proxy for risk level, or banks are interested in keeping their risk practices confidential and

not to be publically spread. Moreover, the study found that the number of risk disclosures is associated with the number of risk definitions. This is important, since defining the risk will provide a clear understanding to the reader on the type and scope of risk being discussed and avoid undesired conclusions. The study also noticed that the content of quantitative and future risk disclosure was significantly less than the content of qualitative and historical information.

The effect of banks disclosure quality and timeliness on market was examined by Penas and Tumer-Alkan (2010). The examination was performed using a sample of listed Turkish banks for the period from 1995 to 2001, the period before the Turkish liquidity and currency crisis. The accounting and financial data was collected quarterly and adjusted for any stock split or dividend distribution. The researchers selected the variation in non-performing loans, maturity gap and currency mismatch as explanatory variables and proxy of financial fragility. By employing the OLS, the study found that shareholders and stock participants were negatively impacted by the financial indicators such as maturity gap and non-performing loans. This reaction was explained by shareholders' concerns regarding bank performance and future profit. In contrast, shareholders were positively impacted by the disclosure of good news such as profit increase. The study concluded that disclosing information in a timely manner is highly important, however it should not affect disclosures' reliability. Such bank disclosures can act as a monitoring tool by stock participants and a discipline to the market.

The influence of independent directors on enhancing the comprehensiveness of financial disclosures, board monitoring and transparency was examined and evidenced by Chen and Jaggi (2000). 87 listed firms in Hong Kong were selected covering the two years,

1993 and 1994, and diversified across twenty-four industries. Annual reports were examined and the comprehensiveness of mandatory financial disclosure as a dependent variable was assessed according to the quality and extent of information provided. The overall disclosure score was computed by dividing the sum of disclosure types score by the maximum score in order to get the dependent variable value.

Employing the OLS, the study found that a positive correlation exists between the proportion of independent directors and the comprehensiveness of financial disclosures. This relation was weakened in the case of family-controlled companies. Therefore, the study argued that the higher the percentage of independent directors on the board the higher the influence will be on management to provide more information and to show transparency. In addition to the independent directors and the family control, a set of control variables were examined and the analysis showed that the comprehensiveness of financial disclosures is affected by the total sales and the size of the audit firm. The other control variables, such as liquidity, debt over equity, net sales and market value of equity were not significant to explain the comprehensiveness of disclosures.

The trend and quality of value at risk disclosure by US, Canadian and international commercial banks were examined by Perignon and Smith (2010). The study started computing the annual value at risk disclosure in the annual reports of ten US commercial banks for the period between 1996 and 2005 and then expanded the analysis to cover Canadian and international banks. They found that value at risk disclosure is beneficial in forecasting the change in the future trading return and the relation between them is likely to be linear. The study evidenced a growing trend in the information quality disclosed by the commercial banks over the period of the study.

While the previous literature explored the CSR and RM disclosures, the following set of studies will spotlight on some studies conducted on the association between corporate governance and the voluntary disclosure practice. Voluntary disclosures consist of financial and non-financial disclosures such as social disclosures, strategic information and risk ratios. Previous studies examining the association between corporate governance and voluntary disclosures refer to the board characteristics role in facilitating a high degree of transparency.

Cheng and Courtenay (2006) studied the association of the level of voluntary disclosure with board of directors' role, board size and CEO role duality. The reported results showed that the proportion of independent directors was associated with the level of voluntary disclosure and the higher proportion of independent directors led to a higher level of voluntary disclosure. On the other hand, board size and CEO duality were not associated with the level of voluntary disclosure. The study identified that the existence of a regulatory environment strengthened the relationship between the independent directors on the board and the level of voluntary disclosure. These conclusions were based on the results of the cross-sectional OLS regression analysis conducted on 104 non-financial companies distributed along eight industries and listed on the Singapore Stock Exchange in 2000. The level of voluntary disclosure was measured based on a checklist consisting of three main categories: business data, management discussions and forward looking information. Each disclosure item was rated according to its importance in investment decisions by investors and financial analysts.

Another study was conducted by Eng and Mak (2003) and achieved different results when using a sample of financial and non-financial companies listed on the

Singapore stock exchange. Eng and Mak examined the effect of ownership structure and board composition on the extent of voluntary disclosure. The ownership structure was attributed by managerial ownership, block-holder ownership and government ownership, while the board composition was measured by the percentage of independent directors. A disclosure score sheet was developed to measure the level of strategic, financial and non-financial information, such as employees and product information presented in the annual reports. The disclosure level was measured as the total score of disclosed items across the three mentioned categories. By employing the OLS regression on a sample of 158 firms listed at the end of 1995, the study found that lower managerial ownership and significant government ownership increased the level of voluntary disclosure. On the other hand, it was found that a higher proportion of independent directors was inversely proportional to the level of voluntary disclosure. They argued that the enhanced level of monitoring provided by the higher proportion of independent directors replaces the need for more disclosure. The study also found that larger firms as well as firms having lower debt had a higher level of voluntary disclosure. The remaining control variables; industry type, auditor, profitability and growth opportunity were not significant with the extent of voluntary disclosure.

Using a sample of 51 listed Irish companies, Donnelly and Mulcahy (2008) employed the Poisson regression to examine the influence of the board structure on the extent of voluntary disclosure. The voluntary disclosure list was divided into three segments, which are strategic, financial and non-financial information. The level of voluntary disclosure was computed as the sum of disclosed items. The study found that the level of voluntary disclosure was positively correlated with the proportion of non-executive directors on the board and none-CEO duality. On the other hand, the managerial

and institutional ownership was not statistically significant with the level of voluntary disclosure. Moreover, the study found that firm size as well as board size was associated with the level of voluntary disclosure.

While the previously discussed studies identified opposing relations between the level of voluntary disclosure and the independent directors on the board, Ho and Shun Wong (2001) found that the level of voluntary disclosure was not influenced by the proportion of independent directors. Ho and Shun Wong tested the relationship between the voluntary disclosure and four corporate governance attributes using a sample of 92 listed companies in Hong Kong, covering multiple industries. The study identified twenty voluntary disclosure items to compute the dependent variable, the level of voluntary disclosure and to test its relationship with the independent variables, the proportion of independent non-executive directors on the board, existence of an audit committee, CEO role duality and the proportion of family members on the board. The multiple regression results showed a positive relationship between the existence of an audit committee and the extent of voluntary disclosure, and a negative relationship with the percentage of family members on the board. The remaining two corporate governance explanatory variables, CEO role duality and independent directors on the board, were not supported by the tested model. With respect to the control variables, only firm size measured as log of total assets was found to impact the level of voluntary disclosure, while profitability, leverage and assets in place were not associated with the level of disclosure.

The positive relationship between the existence of an audit committee and the level of voluntary disclosures was supported by the study conducted by Barako, Hancock and Izan (2006). Barako et al. (2006) examined the association of ownership structure as

corporate governance proxy in addition to a set of company characteristics with the level of voluntary disclosure. The study was conducted on 43 listed Kenyan companies across four economic sectors: agricultural, commercial and services, finance and investment and industrial sectors. A voluntary disclosure index of 47 items, including both CSR and financial disclosures, was used to measure the level of voluntary disclosure in the annual reports. Each disclosure item was scaled from zero to four in order to weight the disclosure according to its importance. The disclosure checklist was categorised into four groups; the first group covered the strategic and general disclosures, the second group included financial non-mandatory data, the third group consisted of forward-looking data and the fourth group included the social responsibility disclosures.

The results of the multivariate analysis showed that the presence of an audit committee, institutional and foreign ownership, are significant factors and positively impact the level of voluntary disclosure, while the proportion of the non-executive directors on the board is negatively related to the level of voluntary disclosure. The study also concluded that large companies proxied by total assets and companies having high debt ratio disclose more information. All other tested variables, board leadership structure, liquidity, profitability, and the external audit firm, had no impact on the extent of voluntary disclosure. As robustness tests, the study examined the set hypothesises using the unweighted disclosure score and consistent results were obtained.

The impact of board independence and CEO role duality was also examined by Chau and Gray (2010) using evidence from Hong Kong. The results supported Cheng and Courtenay (2006) regarding the positive relation between board independence and disclosure level and contradicted with their conclusion as having no influence on the CEO

duality on disclosures. Chau and Gray (2010) examined a sample of 273 non-financial companies listed on the Hong Kong stock exchange in the year 2002. The level of disclosure was measured using the unweighted score, i.e. the count of disclosed voluntary items divided by the maximum score a company could achieve. The disclosure checklist included, among others, disclosures on employees, research and development, social and product safety as well as financial review information. Using the OLS regression, Chau and Gray found that the percentage of non-executive directors on the board encouraged voluntary disclosure, while family ownership and CEO duality were negatively correlated with the level of voluntary disclosure. The impact of independent directors on the board was mitigated by the effect of separation between the CEO and chairman responsibilities. The researchers tested the impact of several control variables and found that among firm size, return on equity, size of the audit firm (big four), growth rate and listing status, only the size of the firm was positively associated with the level of voluntary disclosure.

The influence of role duality on the level of voluntary disclosure was examined in Malaysian companies by Haniffa and Cooke (2002). Haniffa and Cooke indicated that CEO duality and the proportion of family members on the board relate to the level of voluntary disclosure. The study analysed 138 annual reports for the period ended 1995 for companies listed on the Kula Lumpur stock exchange, excluding the financial sector, since it is subject to different disclosure requirements. The level of voluntary disclosure, the dependent variable, was measured using an unweighted index. It contained corporate social disclosure items such as community involvement, relationship with employees', environmental, product and service information as well as strategy and capital market disclosure items used in previous studies. Implementing the multiple regression analysis, the study indicated that the proportion of family members and the separation between the

role of the chairman and CEO were inversely associated with the level of voluntary disclosure, suggesting that the executive chair might consider more voluntary disclosure to satisfy the need for monitoring. This result opposed the agency theory, which argues that the separation between the chairman of the board and any executive position is needed to maintain proper control. The second main finding derived from the full regression model was the absence of cultural factors' influence on the level of voluntary disclosure.

The clear relationship between the level of voluntary disclosure from one side and the CEO duality and board independence on the other side identified in the above studies was not the case when the same relation was examined using Canadian companies. Labelle (2002) used the rates published by the 'Canadian Institute of Chartered Accountants' (CICA) concerning firms' disclosure quality to examine their relation with corporate governance practices. Labelle examined years 1996 and 1997 and showed the absence of consistent association between the disclosure quality and the percentage of independent directors on the board and the CEO duality. On the contrary, the size of the company was found to be the most impacting explanatory variable.

While some of the previously-discussed studies evidenced a correlation between the presence of an audit committee and the extent of voluntary disclosure, Ho and Shun Wong, 2001, Barako, et al. 2006 and Li et al., 2008 investigated the effect of the audit committee size in addition to the board structure on the level of intellectual capital disclosure. The relationship between the intellectual capital disclosure and the corporate governance structure was examined using a sample of 100 UK-listed companies' annual reports issued in the period from March 2004 to February 2005. A checklist of 61 disclosure items was used to assess the level of disclosure through three measurement

techniques. The first technique was the unweighted score obtained by calculating the sum of disclosed items divided by the maximum number of defined intellectual capital disclosure items. In the second method, the disclosure score was measured as the log of the number of words related to intellectual capital disclosures. The third measurement calculated the percentage of intellectual capital disclosure word count to the total annual report word count.

The results of the multiple regression analysis indicated that there is a direct correlation between the board composition and the three disclosure level measurements. The size of the audit committee and meeting frequency were only associated with the unweighted disclosure score and the word count. On the other hand, the study indicated that CEO duality is not associated with the intellectual capital disclosure. The study concluded that companies governed by efficient corporate governance practices tend to disclose more information at a higher quality. Li et al. mentioned that independent directors' concern to reduce information asymmetry and lower agency cost drives them to enhance the level of disclosed information, while an active audit committee with more members might enforce governance mechanisms and encourage transparency. As control variables, firm size (log of sales) and ROA were significant with the extent of intellectual capital disclosure.

The relationship between the corporate governance and the level of disclosures in Australian companies was examined by Kent and Stewart (2008). The study examined the disclosure extent regarding the expected impact of adopting the Australian International Financial Reporting Standard (AIFRS). They argued that even if there is a mandatory requirement to disclose a category of information, the extent of information provided and

its comprehensiveness is determined by management. The quantity of information provided was used to measure the level of disclosure, since more disclosures will enhance informativeness and indicate higher transparency. The first measure used to assess the extent of disclosures was the number of sentences providing information on the transition and its effect on changing accounting policies. The second measure was an index capturing the number of discussed accounting policy changes that would result from the adoption of the standard.

The board of directors and the audit committee characteristics were selected as corporate governance independent variables along with external audit firm rating. The proportion of independent directors was used to measure the independence of the board of directors and the audit committee, while a dummy variable was used to reflect the CEO duality and the existence of audit committee. The number of directors on the board and the audit committee was used to measure their size. In addition to the corporate governance variables, the study introduced into the model the amount of intangible assets, tax loss, geographical segments, industry and log of total assets as control variables.

All listed firms on the Australian stock exchange with a 30 June 2004 balance date were selected, excluding firms that did not provide information or having missing figures. The results showed that the size of the board relates directly to the extent of disclosure, while audit committee size is negatively correlated with the extent of disclosure. Moreover, it was evidenced that the CEO duality and the audit committee independence were not associated with the disclosure level. The study found that companies that hired large external audit firms disclose more information than companies that hired smaller audit

firms. Kent and Stewart concluded that effective governance, aiming for quality monitoring, discloses more voluntary disclosures.

Patelli and Prencipe (2007) hypothesised that the level of voluntary disclosure as an external monitoring tool and the percentage of independent directors on the board are positively associated, arguing that the existence of independent directors enhances the level of disclosed information and assists in decreasing the agency cost. They mentioned that acting as a director on the board and handling a managerial position might limit their ability to monitor management activities. Patelli and Prencipe (2007) examined 171 non-financial companies' annual reports in the year ending 2002 and characterised by having domineering shareholders. To ensure robustness of the results, both the weighted and the unweighted disclosure scores were computed. Firm size, leverage, profitability, labour pressure and residual ownership diffusion were used as control variables.

The regression results showed that, with both weighted and unweighted disclosure scores, the level of voluntary disclosure is positively correlated with the percentage of independent directors on the board, supporting the set hypothesis and aligned with agency theory. Moreover, the study concluded that both the firm size and the percentage of shares owned by shareholders having less than two per cent of shares contributed to the explanation of the change in the level of voluntary disclosure. Therefore, the higher the percentage of independent directors on the board and the larger the firm size, the higher the level of voluntary disclosure and the less the information uncertainty and agency cost.

While the above studies examined the relation between the corporate governance factors and the level of voluntary disclosure, other studies examined the same relation but using a specific group of voluntary disclosure. Research by Laksmana (2008) studied the

relationship between board structure and the level of voluntary compensation and governance disclosures, obtaining results consistent with Eng and Mak (2003), Chau and Gray (2010) and Donnelly and Mulcahy (2008). The study selected a sample of non-regulated industries listed on the Standard & Poor's and examined two periods, 1993 and 2002. The selected sample covered six industries; 64% of the sample was from the manufacturing industry and the remainder from the retail, wholesale, services, transportation, mining and construction. The total sample size was 218 firms in the year 1993 and 232 firms in 2002.

The extent of voluntary disclosure was measured based on a checklist containing 23 disclosure items using the unweighted score, i.e. the company was given one point if the disclosure item existed and zero otherwise. Applying the ordinary least square (OLS) the study found that board size is directly related to compensation information transparency, showing that the higher the level of disclosed information the lower the information asymmetry (Laksmana, 2008). The study argued that boards with a high proportion of independent directors are characterised by low conflict of interest, wise assessment in case of disagreement with management and act according to shareholders' interest. Therefore, companies having a higher percentage of independent directors on their boards disclose more compensation-related information, which enhances their reporting quality. Moreover, they mentioned that having an adequate number of directors on the board will assist in having proper distribution of responsibilities, which influences the effectiveness of decisions.

The impact of CEO duality, the proportion of independent board directors and the existence of an audit committee on the level of share options disclosure was examined by

Forker (1992). Forker provided evidence supporting the relationship between the CEO duality and disclosure level found by Chau and Gray (2010) and Donnelly and Mulcahy (2008), while the results contradict Ho and Shun Wong (2001) and Barako et al. (2006) regarding the audit committee impact. The study argued that the higher the level of uncertainty the lower the monitoring ability and therefore, by providing quality disclosure, uncertainties might be reduced and shareholders could assume more reliability. Examining a sample of 182 firms selected on the bases of the largest and smallest 100 UK-quoted firms, the study found that the quality of disclosures was negatively impacted by CEO duality. However, the existence of an audit committee and the proportion of non-executive directors on the board were marginally influencing the disclosure quality. Therefore, the study concluded that audit committees and independent directors need to be more involved in the monitoring of disclosures quality.

A trend analysis on the volume of environmental reporting across eight industries was performed by Gibson and O'Donovan (2007) using the annual reports of 41 Australian companies for the period between 1983 and 2003. The study showed that the volume of environmental disclosure increased in three categories (financial, quantifiable non-financial and descriptive environmental), and the percentage of companies reporting environmental information increased from 27% in year 1983 to 100% in year 2003. The number of companies reporting financial environmental disclosure increased from 3% in year 1983 to 33% in year 2003 after achieving 41% in year 1996, while companies disclosing descriptive environmental disclosures increased from 29% in 1984 to 100% in 2003.

In addition to the studies that investigated the association between corporate governance factors and the extent of voluntary disclosure, there is a considerable volume of literature that examined the determinants of voluntary disclosures with respect to firms' characteristics. Exploring this area enhances my understanding of the factors determining the variation in voluntary disclosure level and contributes to aligning the research to achieve the desired contribution.

The existence of a relationship between voluntary accounting ratios disclosure and a set of company characteristics was assessed by Watson, Shrives and Marston (2002). The study selected seven company characteristics that measure performance, profitability and size. Watson et al. argued that according to the agency theory management disclose more information to present their success and convince shareholders of their proper leadership. At the same time, providing more information is likely to reduce uncertainty and lower the cost of capital. The researchers also referred to the signalling theory that links the company performance to the level of voluntary disclosure. Companies with good standing, clear strategy and future growth will favour signalling their good news in the form of voluntary disclosures. Moreover, they mentioned that according to the legitimacy theory, spreading a company's legitimacy can reduce monitoring and consequently other costs might decrease.

The study used 'Times UK's Top 1000' list to select the large UK firms according to their turnover. The selected sample covered 313 firms from the mineral extraction, utilities, manufacturing and consumer goods and services. The financial data regarding the period between 1989 and 1993 was requested from the selected companies and the disclosure level was examined in the corresponding annual reports. The study used several statistical techniques, such as the multivariate analysis and the stepwise model, to identify

the independent variable that better explains the level of voluntary disclosure. They concluded that performance measures have minimal effect on the disclosure level, while company size and industry are significantly associated with the disclosure level. The remaining independent variables: profitability ratios, return (dividend per share) and debt to equity, vary in explaining the level of voluntary disclosure from year to year. Finally, the study indicated that liquidity had no impact on the level of ratio of voluntary disclosure.

Using different firms' characteristics, Raffournier (1995) investigated the determinants of the voluntary information disclosed by Swiss-listed, non-financial companies, using a sample of 161 annual reports for the period ended 1991. Raffournier adopted the unweighted disclosure index to avoid the inherent subjectivity in assigning weights for each disclosure item and to provide equal importance to all users. Therefore, the disclosure index was computed by having the ratio of the obtained disclosure score, i.e. the total number of disclosed items to the total number of disclosure items, according to the company's industry.

To measure the effect of each variable independently, the researcher employed first the univariate analysis and then the multivariate analysis. The results of the univariate analysis showed that firm size considerably impacts the level of voluntary financial disclosures. In addition to the size, a strong correlation exists between the level of voluntary disclosure and both the firm's internationality (listed on international stock exchanges) and the size of the appointed external audit firm. The remaining examined variables such as profitability, leverage and ownership diffusion were not significant in explaining the variation in disclosures level. When employing the multivariate analysis,

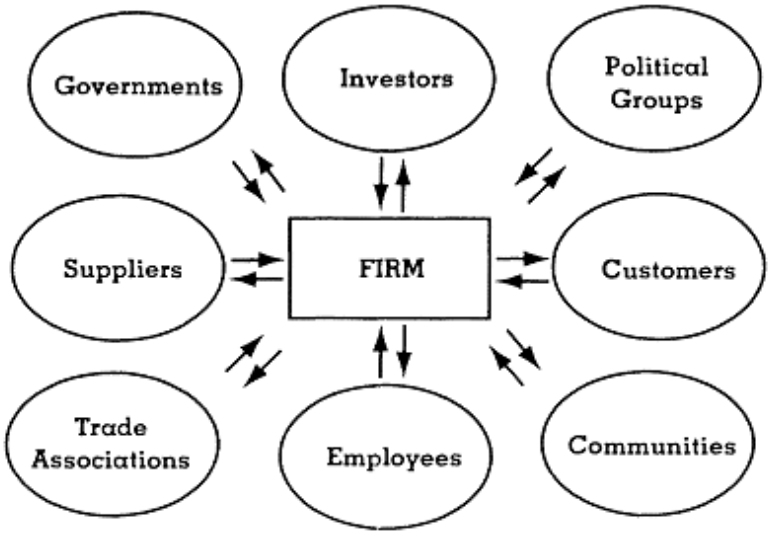
only firm size and internationality were significant. They argued that large firms tend to disclose more information due to the lower cost they will pay in preparing it, since most of the disclosed information will be prepared for internal use. Conversely, small companies are likely to disclose less information not to be at a competitive disadvantage.

2.2.2 Stakeholder Theory

The current study is based on stakeholder theory that relates the success and continuity of the firms to their ability to address stakeholders' concerns and management success in achieving stakeholders' acceptance. "A stakeholder in an organization is any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984). According to Donaldson and Preston (1995) stakeholders are all parties that have an interest in the firm and can exercise power influencing its activities. Donaldson and Preston summarise the stakeholders in the below model:

Figure

Stakeholder Model



Source: Donaldson, T. and Preston L. (1995). The stakeholders Theory of The Corporation: concept, Evidence, and Implications. *Academy of Management Review*, 20(1): 65-91.

Jawaher and Mclaughlin (1995) argued that firms use different strategies to manage stakeholders according to the relative importance of the stakeholders' group and their serious role in the firm's survival. Four types of strategies were defined in the study describing the firm's behaviour toward different stakeholders having different patterns of influences on organisations. The first approach, the proactive approach, is adopted when the stakeholder group is important to the success and continuity of the firm. According to this approach management deals seriously and with considerable involvement to satisfy stakeholders' issues and answer their concerns. The second approach is the accommodation approach, where less priority is given to related stakeholders due to their marginal influence, "accommodation involves accepting responsibility but, at the same time, bargaining to obtain concessions" (Jawaher and Mclaughlin, 1995, p.402). The third approach is the defence approach where minimum effort is performed by the firm to address related stakeholders concerns: "The defence strategy involves doing only the minimum legally required to address stakeholder's issue" (Jawaher and Mclaughlin, 1995, p.400). The fourth approach is the reaction approach which either neglects stakeholders' issues or manoeuvres in order not to respond to their issues.

Jawaher and Mclaughlin argued that different strategies could be used to address the concerns of the same stakeholders group according to their relative importance in each stage across the life cycle of the firm. Since firms are part of the accommodating environment, the relative importance of stakeholders will vary according to their importance for the firm's survival in each stage of the firm's life cycle, "because the needs of an organization change overtime, the relative importance of stakeholders will also change as the organization evolves through the stages of start-up, growth, maturity and transition" (Jawaher and Mclaughlin, 1995, p.405).

In the start-up stage, the firm's main concern is the survival and non-failure. Therefore, issues related to stakeholders having a key role in controlling the firm's resources will be managed actively. In this stage, sources of finance, shareholders and clients are highly important to kick-off the business. In the growth stage, companies focus on expanding their business and the need for more employees, presence in new locations and investment growth. Therefore, the relative importance of such groups of stakeholders grows and firms deal with them proactively, while the accommodation strategy will be adopted with other groups. In the mature stage, the company and its management feel confident and accept their success. Therefore, they deal with all stakeholders, with the exception of creditors, proactively, to maintain the maturity stage and maximise management benefit. Finally, in the decline or transition stage firms will deal proactively with customers, creditors and stockholders. Their issues and concerns are managed with great attention to minimise the effect of the downturn in the business, while the accommodation approach will be used with other types of stakeholders, such as suppliers.

The researchers concluded that dealing with stakeholders will vary according to their relative importance across the company's life cycle, "use different strategies to deal with the same stakeholders over time" (Jawaher and Mclaughlin, 1995, p.410). During the recent financial crisis, banks' concern was to minimise the negative implications of the financial crisis and to limit its influence, which is similar to the declining stage. Therefore, it is logical to assume that a thorough attention should be given to important stakeholders at this stage, such as customers and creditors, to absorb the crisis shock and decrease its effect on the bank.

While Jawaher and Mclaughlin divided the life of the firm into stages and mentioned that the relative importance of each stakeholder's group varies from stage to stage and consequently the way of addressing their issues, Rowley (1997) defined two main objectives to address stakeholders' related studies.

Rowley (1997) mentioned that the interaction between the organisation and its environment as well as predicting organisational behaviour is emphasised by the stakeholder theory identifying two main objectives when studying stakeholder-related research. The first objective is to identify stakeholders, and secondly to identify the influence of related stakeholders on the organisation. Therefore, organisations should predict methods and tools to manage stakeholders' influences, since they vary from company to company. Companies should satisfy the need of multiple groups of stakeholders having different patterns of pressures.

Donaldson and Preston (1995) described and justified stakeholder theory on the bases of three aspects, concluding that management is responsible to conduct activities and allocate resources to achieve stakeholders' acceptance. They argued that stakeholder theory is broad and not limited to describing observations, but it guides in structuring, developing corporations and estimating their behaviour. "It does not simply describe existing situations or predict cause-effect relationships, it also recommends attitudes, structures, and practices that, taken together, constitute stakeholder management" (Donaldson and Preston, 1995, p.67). In interpreting stakeholder theory, they divided it into three types, descriptive, instrumental and normative.

The descriptive aspect of the theory is used to explain and describe the firm's attitude and characteristics. "The descriptive aspect of stakeholder theory reflects and explains past, present and future states of affairs of corporation and their stakeholders" (Donaldson and Preston, 1995, p.71). Using this aspect, the theory describes, for example, the relationship between management and stakeholders and their practices to satisfy a wide scope of stakeholders and not only the shareholders.

The instrumental aspect goes beyond the description to identify the existence or absence of relationships by testing and analysing available data to support the descriptive explanation of the theory. "Many recent instrumental studies of corporate social responsibility, all of which make explicit or implicit reference to stakeholder perspectives, uses conventional statistical methodologies" (Donaldson and Preston, 1995, p.71).

The third and the core of the theory is the normative aspect. While the instrumental aspect is hypothetical, the normative is categorically diversifying between two events: what to do and what not to do. The normative aspect diagnoses the corporation and provides guidance and support based on philosophical and ethical principles. "The theory is used to interpret the function of the corporation, including the identification of moral or philosophical guidelines for operation and management of corporation" (Donaldson and Preston, 1995, p.71).

Gray, Kouhy and Lavers (1995) argue that among the theoretical perspectives, stakeholder theory draws a clear understanding to the motive behind voluntary disclosure information, in particular CSR and environmental disclosures. Similarly, Foote, Gaffney and Evans (2010) argue, "Stakeholder theory's support of CSR is much clearer as it

expands management's accountability past owners and to everyone affected by the company's practices and products which infers a responsibility to the public." (p. 809). According to stakeholder theory the firm will not be able to continue without stakeholders' support. Consequently, firms' internal governance mechanisms are likely to encourage activities that lead to stakeholders' acceptance to ensure continuity. The effort performed to achieve stakeholders' acceptance varies from company to another according to stakeholders' power. Therefore, companies facing powerful stakeholders need to show more concern for their issues to get stakeholders' approval. Gray et al. (1995) added that CSR disclosure forms part of firms' communication with stakeholders reflecting firms' appreciation and respect for society. For that reason, the quality of the communicated information might vary to answer the issues of powerful stakeholders.

As part of their society, companies should show coherence, appreciate society values, and behave to the best of its interest (Branco and Rodrigues, 2006). Stakeholder theory argues that a relationship exists between the firm and its society, and that the firm's success depends on how they are maintaining this virtual contract. CSR disclosure is one of the mechanisms used to communicate a firm's respect for society and the level of involvement, which is likely to assist in developing their reputation and shaping their image. In doing so, companies strengthen their link with stakeholders and maintain their existence, business growth, and continuity (Branco and Rodrigues, 2006). Indeed, the CSR concept evolved to be a significant form of firms' competitive strategy (Gugler and Shi, 2009). The use of CSR by effective corporate governance as a tool to resolve conflict among different stakeholders could be explained by stakeholder theory (Jo and Harjoto, 2011).

Communities, customers and key stakeholders have expectations of the firm, and management should act to meet these expectations to avoid disciplinary actions and dealing less with the firm (Foote, Gaffney and Evans, 2010; Reverte, 2009). Customers and shareholders, as key stakeholders, are important to the existence and progress of banks (Simpson and Kohers, 2002). Banks lost the stakeholders' trust, as a consequence of the financial crisis, and remedial actions should be taken by banks' management to maintain an acceptable level of trust and to obtain key stakeholders' approval. Stakeholder theory highlights that each group of stakeholders has diverse incentives to deal with a firm and is looking for different benefits from their relationship. Therefore, if a firm addresses the concerns of limited stakeholders groups and neglects other stakeholders, their advocacy might be compromised (Kolk and Pinkse, 2010). Communicating information in general and CSR information in particular through annual reports is a response to stakeholders demands for higher transparency and societal involvement as well as meeting the expectations of market actors (Li et al., 2010; Arvidsson, 2010). Stakeholder theory clearly refers to the influence of stakeholders' expectations on a firm's disclosure strategy, "corporate disclosure is a management tool for managing the informational needs of the various powerful stakeholder groups (employees, shareholders, investors, consumers, public authorities and NGOs, …)" (Reverte, 2009, p. 353).

Surveying 27 companies and interviewing investor relation managers (IRM), Arvidsson (2010) found that management sensitivity to the shift in market needs and stakeholders opinions is the driver behind the increasing trend of CSR involvement and communication, "IRMs put forward CSR as if not the most important area of information beside financial figures so one of the most important" (Arvidsson, 2010, p. 349). According to the above discussion, to achieve the trust of significant stakeholders, as well

as investors, banks might show their acknowledgement and response to society needs as well as a higher level of transparency in illustrating their CSR and RM practices. Disclosing CSR and RM information reflects banks' involvement in the community and efforts performed to safeguard assets. This is likely to share in developing positive interaction with their culture and manage stakeholders' expectations. Indeed, effective and continuous dialogue illustrates the firm's behaviour and assists in obtaining stakeholders' engagement (Hess, 2007) as well as attracting trust and providing competitive edge against peers (Simpson and Koher, 2002).

If considering stakeholder interest, through better CSR involvement and reporting, manages stakeholder attitude, strengthens their relationship with the firm and enhances their stakeholder supportive behaviour (Du, Bhattacharya and Sen, 2010), then banks with effective corporate governance are expected to be more inclined toward disclosing more CSR information. On the other hand, if reporting wider content of RM information enhances performance and manages stakeholders' expectations (Kotari et al., 2009; Hubbard, 2000; Perignon and Smith, 2010; Lajili and Zeghal, 2005) one might expect that banks with more effective corporate governance structure will disclose more RM information than banks with less effective corporate governance.

Based on the review of literature and the discussed theoretical framework, the study hypothesizes the following:

H1a. The larger the board size the higher the CSR disclosures score.

H1b. The larger the board size the higher the risk management disclosures score.

H2a. The higher the degree of board independence the higher the CSR disclosures score.

H2b. The higher the degree of board independence the higher the risk management disclosures score.

H3a. CEO duality is positively related to CSR disclosures score.

H3b. CEO duality is positively related to risk management disclosures score.

H4a. The size of the audit committee positively impacts the CSR disclosures score.

H4b. The size of the audit committee positively impacts the risk management disclosures score.

H5a. The number of financial experts in the committee is positively related to the CSR disclosures score.

H5b. The number of financial experts in the committee is positively related to risk management disclosures score.

The table below summarises the research techniques and results achieved in some of the previous studies:

Table 2.1

Summary of Previous Studies

Journal	**Article name**	**Research technique**	**Dependent variable**	**Significant with**	**Non-significant with**
European Accounting Review	The Association between Board composition and different types of voluntary disclosure. Lim, Matolcsy and Chow (2007)	Two-stage least square	Non-financial disclosures Quantitative and strategic disclosure	+ ROA + Board size	Independent directors Size of audit firm
Management International Review	Corporate social responsibility in emerging markets: the importance of the governance environment. Li, Fetscherin, Alon, Lattemann and Yeh (2010)	Multiple regression	CSR	+ Independent directors – CEO role duality + size (total assets)	

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Journal of Business Ethics	The impact of board diversity and gender composition on corporate social responsibility and firm reputation. Bear, Rahman and Post (2010)	Regression analysis	CSR	+ Firm reputation + CEO role duality	
Journal of Business Ethics	Corporate social responsibility as a conflict between shareholders Barnea and Rubin (2010)	OLS	CSR	– Leverage	CEO role duality
Academy of Management Journal	The effect of corporate governance and institutional ownership types on corporate social performance. Johnson and Greening (1999)	Structural equation model	CSR	+ outside directors	

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Journal of Business Ethics	Board members in the service industry: an empirical examination of the relationship between CSR orientation and directorial type. Ibrahim, Howard and Angelidis (2003)	Manova	CSR	+Outside directors	
Journal of Accounting and Public Policy	Association between independent non-executive directors, family control and financial disclosures in Hong Kong. Chen and Jaggi (2000)	OLS	Financial disclosures	+ Independent directors + size of audit firm	Liquidity Debt over equity
The International Journal of Accounting	Evidence on the efficiency of interest rate risk disclosures by commercial banks. Ahmed, Beatty and Bettinghaus (2004)	Cross sectional regression	Risk disclosure (maturity gap)	+ Change in interest rate	

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Journal of Banking Regulation	Risk disclosure: An exploratory study of UK and Canadian banks. Linsley, Shrives and Crumpton (2006)	U-test Pearson correlation	Risk management disclosures	+ Bank size	Profitability Risk level
Journal of Banking and Finance	The level and quality of value at risk disclosure by commercial banks. Perignon and Smith (2010)	Regression analysis	Value at risk disclosures	+ future trading revenue	
The International Journal of Accounting	Board composition, regulatory regime and voluntary disclosure. Cheng and Courtenay (2006)	Cross-sectional OLS regression	Voluntary disclosure	+ Independent directors + Firm size – Inside ownership	CEO duality Board size Leverage ROA

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Journal of Accounting and public policy	Corporate governance and voluntary disclosure. Eng and Mak (2003)	OLS	Voluntary disclosure	- increased presence of outside directors + Firm size – Managerial ownership + government ownership	Block-holders Profitability Industry type Auditor Growth opportunity
Journal of International Accounting, Auditing & Taxation	A study of the relationship between corporate governance structure and the extent of voluntary disclosure. Ho and Wing (2001)	Multiple regression	Voluntary disclosure	+ existence of audit committee – percentage of family members on the board + Firm size	Proportion of independent directors CEO role duality Profitability Leverage
Corporate Governance an International Review	Factors influencing voluntary disclosure by Kenyan Companies. Barako, Hancock and Izan (2006)	Multivariate regression	Voluntary disclosure	+ existence of audit committee –proportion of non-executive directors + Firm size + Foreign ownership + Institutional ownership	Liquidity Profitability

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Corporate Governance an International Review	Board structure, Ownership, and voluntary disclosure in Ireland. Donnelly and Mulcachy (2008)	Poisson regression	Voluntary disclosure	+ proportion of non-executive directors + Non- CEO role duality + Board size	Managerial ownership Institutional ownership
Journal of International Accounting, Auditing and Taxation	Family ownership, board independence and voluntary disclosure: evidence from Hong Kong. Chau and Gray (2010)	Multiple regression	Voluntary disclosure	–CEO role duality + Proportion of independent directors + Firm size –Family ownership	ROE Listing status Growth Size of audit firm
ABACUS	Culture, corporate governance and disclosure in Malaysian corporations. Haniffa and Cooke (2002)	Multiple regression	Voluntary disclosure	+ CEO role duality –Family members	Cultural variables

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Accounting and business research	Intellectual capital disclosure and corporate governance structure in UK firms. Li, Pike and Haniffa (2008)	Multiple regression	Intellectual capital disclosure	+ Board composition + Audit committee size + Firm size + ownership structure + ROA	CEO role duality Listing age
Accounting and Finance	Corporate governance and disclosures on the transition to International Financial Reporting Standards. Kent and Stewart (2008)	Regression analysis	Level of disclosure	+ board size –size of the audit committee + size of the audit firm	Audit committee independence CEO role duality
European Accounting Review	The Relationship between Voluntary Disclosure and Independent Directors in the Presence of a Dominant Shareholder. Patelli and Prencipe (2007)	Multivariate least squares regression	Voluntary disclosure	+ Proportion of independent directors + Firm size	ROI Leverage

Journal	Article name	Research technique	Dependent variable	Significant with	Non-significant with
Contemporary Accounting Research	Corporate Board Governance and Voluntary disclosure of Executive Compensation Practices. Laksmana (2008)	OLS	Voluntary compensation and corporate governance disclosure	+ Board size + Proportion of independent directors	
Accounting and Business Research	Corporate governance and disclosure quality. Forker (1992)	Multivariate analysis	Share option disclosure	– CEO role duality + Existence of audit committee + Proportion of non-executive directors	Big six auditors Proportion of the firm owned by management

2.3 Research Design

2.3.1 Sample Selection and Data Collection

The present study seeks to examine the effect of corporate governance on the content of CSR and risk management (RM) disclosures presented in the US national commercial bank's annual reports in the wake of the 2007-2008 financial crisis, i.e. years 2009 and 2010. The focus on annual reports rather than other reporting channels is since they are more controlled by firm management (Johnson and Greening, 1999; Bear et al., 2010) and the most scrutinised documents by both inside and outside stakeholders "The obvious place for signalling disclosures is the annual report" (Toms, 2002). The research focused on national commercial US banks in order to have a coherent sample subject to the same regulations and disclosure requirements. Therefore, I filtered the listed US banks to select only the national commercial banks and excluded credit unions, saving institutions and central reserve depositories. *Thomson One Banker* was used to retrieve the listed US banks and apply the needed search criteria. The initial obtained sample comprises 193 banks with total assets varying from $48 million to $2,223,299 million. The banks were then sorted according to their total assets as per the 2009 figures and banks having total assets less than $1 billion were omitted to avoid very small banks. Therefore, the initial sample was selected according to the following criteria:

- Active listed US bank
- National commercial bank
- Total assets greater than $ 1 billion

The initial sample selected according to the above mentioned criteria is 107 US listed national commercial banks (appendix C).

CSR disclosure content was measured based on banks' 2009 and 2010 annual reports. Data on the corporate governance variables, namely the board size, board independence, CEO role duality, audit committee size and number of financial experts were collected from banks' annual reports and proxy statements. The study collected financial data from *Thomson One Banker* and referred to *Thomson One Banker*, form 10-K and banks' websites to collect data not available in the annual reports. If one or more of the variables were not found in the mentioned data sources then the corresponding bank was omitted from the sample. The final examined sample comprises of 99 observations for year 2009 and 96 observations for year 2010.

2.3.2 Dependent Variable

This section illustrates the method used to measure the dependent variables: the CSR and RM disclosure content. In doing so, I will start by reviewing different methods used in previous studies to measure the disclosure practice in corporations, knowing that the selection of the disclosure measurement method depends on the type of the study and the objectives intended from it.

Some of the studies used the unweighted approach to measure the level of disclosures in annual reports. These studies prepared a checklist by the disclosure items and consequently the disclosure score was computed by counting the existing disclosure items. Raffournier (1995) developed a disclosure score sheet to measure the level of non-mandatory strategic, financial and non-financial information in the annual reports. He argued that the unweighted disclosure index avoids the inherent subjectivity in assigning weights for each disclosure item and provides equal importance to all users. Similarly, Eng and Mak (2003) reflected the level of disclosure as the total score of disclosed items in

three disclosure categories which were strategic, financial and non-financial disclosures. The unweighted score was also used by Chau and Gray (2010) by counting the disclosed voluntary items and dividing them by the maximum score a company could achieve. Using twenty-three disclosure items, Laksmana (2008) computed the disclosure score by giving one point for each disclosed item and dividing the total by the number of disclosure items in the checklist.

Other studies used the weighted disclosure score approach. In doing so, the importance of each disclosure item was considered and rates were given to reflect the relative importance of each item. Cheng and Courtenay (2006) prepared a disclosure checklist that consisted of three main categories: business data, management discussions and forward looking information. Each disclosure item was rated according to its importance in investment decisions according to investors and financial analysts. Barako et al. (2006) developed a disclosure checklist including 47 disclosure items rated based on a scale from 0 to 4 in order to weight the disclosure according to its importance.

Patelli and Prencipe (2007) employed both the weighted and unweighted disclosure score in examining the level of disclosures as an external monitoring tool and the same regression results were achieved. The two methods were also alternatively used by Chow and Wong-Boren (1987) to test the factors influencing the voluntary disclosures and similar results were also achieved.

While some of the studies adopted the weighted or unweighted approach to measure the disclosure score, other studies employed the content analysis approach to measure the richness of information provided. Holder-Webb, Cohen, Nath and Wood

(2009) defined the content analysis as "a way of codifying text and content of written narratives into groups or categories based on selected criteria, with the end goal of transforming the material into quantitative scales that permit further analysis" (Holder-Webb et al., 2009, p.504).

Kent and Stewart (2008) argued that even if there were a mandatory requirement to disclose a category of information, the extent of information provided and its comprehensiveness is determined by management. They measured the quantity of information by the number of sentences disclosed, since more disclosures will enhance informativeness and indicate higher transparency. Forker (1992) as well, developed the disclosure score according to the level of detail presented in the annual reports.

Gray et al. (1995a) drew a methodology to analyse the content of CSR disclosures in the annual reports, mentioning that the content analysis could be performed in different ways and vary in its complexity. The study emphasises three main mile-stones whenever performing a content analysis. First, a clear definition to the categories and types of CSR should be set to identify what will be classified as CSR and what should not be considered as CSR. CSR categories may differ over time to reflect changes in the CSR practice; however, maintaining the categories used by previous researchers is important for comparability purposes.

Secondly "where", defining where the researcher should look to review and assess the content of disclosures is essential, since it is impossible to cover all types of communications. The study used the annual reports since they reflect the financial status of the company that might conflict with its ability to conduct CSR activities. Presenting CSR

disclosures in the same document that presents the financial position of the company will convey the balance the company can afford, "The presentation, within the same document or reporting process, of the financial on the one hand and the social and environmental on the other, becomes an important element in demonstrating the extent (if at all) to which the organization reconciles these matters".

Thirdly "how": how the researcher will analyse the content of disclosures. The study identified two main measurement dimensions which are the amount and the number of disclosures. The researchers consider that the sentence count is the most suitable measurement unit if the researcher is concerned about the meaning imbedded in the disclosures.

Extending the research conducted by Toms (2002), Hasseldine, Salama and Toms (2005) investigated the effect of quantitative and qualitative environmental disclosures on corporate reputation. The researchers argued that not only should sentence count be used to reflect the extent of environmental disclosures, but also the content and quality of information provided should be weighted to test its significance. Their study, which was conducted on 139 UK firms listed by 'Most Admired Companies 200 survey', concluded that the quality of environmental disclosures is more important and has more impact than the quantity of disclosures on the development of a firm's reputation.

The examined quantitative disclosure score was developed by Hasseldine et al. (2005) using the content analysis. Sentence count was used as text measurement unit and the score was computed as the percentage of environmental sentences over the total number of sentences in the annual report. The researchers argued that sentence count

simplifies the identification of environmental disclosure, provides more reliable measure and avoids issues such as having proportions of pages. The researchers then developed "quality adjusted measure" to adjust the obtained quantitative disclosure score. The disclosure sentences were read and a score was assigned based on a scale from zero to five according to Toms' (2002) categories. The results of the scoring exercise were three environmental disclosures measures, which are the quantitative measures based on sentences count, the qualitative measure based on Toms' categories and the "quality adjusted measure".

The content of CSR disclosure of fifty listed US firms was examined by Holder-Webb et al. (2009) to identify the media mostly used to disclose CSR information and to analyse if the content varies with the industry type and firm size. The selected sample was diversified among several industries excluding the financial sector. Seven categories of CSR disclosures were developed in accordance with a 'Global Reporting Initiative' that identified eight groups of stakeholders ("communities, civil society, customers, shareholders and capital providers, suppliers, employees, other workers and unions"). A scale from 0 to 6 was used to evaluate each disclosure within the seven main categories, ("community, diversity and HR, environment, health and safety, human rights, political and others"). By using this scale the study argued that it combined between scoring the existence and the richness of provided information.

To ensure reliability of coding, a sample of five out of fifteen companies was selected by the researchers and the content of disclosures was coded by different coders. The new codes along with the initial coding were tested for agreement and a coefficient above 70% was obtained indicating that the disclosure scores are reliable and could be

used in the analysis. The results of the analysis showed that 46% of the firms in the sample used their websites to disclose CSR information and this result was consistent across all industries. Furthermore, the Chi-square test indicated that the format of reporting was associated with the firms' industry and size, however firms having the highest asset size showed an inconsistent trend in reporting content and frequency.

Using the data available in four data bases 'Dow Jones, Infotrac, Factiva and SEC EDGAR', Kothari, Xu and Short (2009) analysed the content of disclosures related to 889 US listed firms. Software was developed to retrieve and map the content of the disclosed information for a sample covering firms from the financial, technology, telecommunication and pharmaceutical sectors. The downloaded data was categorised according to the reporting cycle in quarterly format and coded by industry to simplify the analysis and future data manipulation.

Disclosures were then classified into one of six groups, which are: the market risk, firm risk (firm strategies), organisational risk (capital and human resource risk), reputation risk, performance and regulatory risk. Two dictionary categories were developed to facilitate filtering the negative and positive disclosures. Using the developed software, the disclosure texts were scanned to identify the frequency of selected disclosures' words that match with the words defined in the dictionary as well as the ratio of positive and negative words. The result of this process was a count of the words that matched with the dictionary compared to the total number of words in the disclosure text per company, per period.

The average score was then computed quarterly and the mean score for the six categories mentioned above was calculated. Therefore, the final disclosure score, which

was used in the analysis, was the mean score for the positive and negative disclosures classified by reporting period and data source.

2.3.2.1 Corporate social responsibility disclosures

The present study uses the content analysis approach in line with Gray et al. (1995a) and Holder-Webb et al. (2009) to measure the richness of the CSR and risk management disclosures in the annual reports. I avoid using rating agencies (Johnson and Greening, 1999; Barnea and Rubin, 2010; Bear et al., 2010) since the rationale for rating tends to be unclear and disclosure rating is not only affected by disclosures communicated by firms. I also prefer not to use word, sentence or page count (Li et al., 2008; Kothari et al., 2009; Haniffa and Cooke, 2005) since such approach, as previously discussed, has little to say about disclosure quality (Hasseldine et al., 2005). The content analysis approach used to measure the disclosure score is likely to reflect both the existence and the quality of information disclosed (Holder-Webb et al., 2009).

In examining the content of CSR disclosures presented in the annual reports, the study benefits from the previous studies and selects the most commonly used CSR categories. Using CSR categories similar to the categories used in previous studies is important for comparability purposes (Gray et al., 1995a). For example, research by Scholtens (2009) assessed the CSR performance of 32 international banks by examining among other categories the content of environmental management and social conduct disclosures. In studying CSR trends, Gray (1995b) divided CSR into four main categories, namely: employees, environment, community involvement and customer services. Similarly, Li et al. (2010) examined CSR and governance environment considering activities related to health and safety, community, employees, suppliers and customers as

part of CSR practice. Moreover, Johnson and Greening (1999) examined the determinants of people and product quality as two CSR dimensions dealing with "community, women and minorities, employees relations" and environment. In line with Gray et al., (1995b) and according to previous studies, Branco and Rodrigues (2006) grouped CSR disclosures into four categories "environmental, human resources, products and customers, and community involvement".

The study examines the content of four social responsibility categories which are community involvement, environment, human resources, and social products and service quality. Each CSR category is rated from zero to five according to the richness and support of information disclosed. A zero rate is given to a CSR category if no information is disclosed for the corresponding category. One point is given if the narrative content of the disclosed information in a CSR category is rated as fair; two points were given if the narrative content of the disclosed information is rated as marginal and three as a maximum narrative score if the content is rated as comprehensive. One additional point is given per category if the disclosures present quantitative figures supporting the narrative discussion, and another point if the disclosed quantitative figures are in comparison with previous or prospective figures. Therefore, a maximum of five points could be assigned to each category and twenty points as a total score across the four categories.

The disclosure score is computed as the ratio of points awarded over the maximum points a bank could achieve. For example, if the bank gets fifteen points in the four CSR categories then the disclosure score is equal to fifteen over twenty, i.e. 0.75.

Disclosure score = points obtained / maximum points a bank can achieve

CSRDS = ∑ points of CSR sub-categories (Community, environment, human resources and social products) / 20

Scoring the narrative content of the four CSR categories from zero to three is according to the existence and comprehensiveness of information disclosed in each category. A score of one point is given if the bank expresses its commitment to society and acknowledges the societal obligations as well as showing the interest and will to involve and support individuals and communities, but without demonstrating how this is implemented. If the disclosure illustrates a single dimension of a social category, addresses only one of the conducted activities (e.g. employees' compensation ignoring employees development, safety and satisfaction) or lists the types of social activities (e.g. types of community services, organisations approached, environmental initiatives, social products, indicators of employees development and satisfaction) along with a brief discussion, then two points are given. A comprehensive discussion that achieves a score of three is likely to include information clarifying topics not limited to geographical locations covered by a social activity, explanation on the nature of a social product and to whom it is addressed as well as the desired impact, nature of programmes offered to employees to learn and grow, available channels of employees feedback and ideas, reward programmes and event photos. For illustrative samples see appendix D.

The table below illustrates the discussion topics related to each sub-category:

	CSR category	**CSR sub-category**
1	Community involvement	• Contributions and donations to charities, NGOs and community activities • Educational programmes and sponsoring • Sponsoring health programmes • Sponsoring arts and culture • Supporting sports and/or recreational projects • Participation in government social campaigns
2	Environment	• Bank's environmental policies and concerns • Implemented systems for environmental management • Environmental projects such as recycling and protection of natural resources • Energy saving in performing business operations
3	Human resources	• Number of employees, health and safety policies and measures. • Equal opportunities in employment (e.g. minorities, women) • Training and education provided to employees (training policies and nature of training) • Employee assistance/benefits • Employee compensation • Employee expertise and backgrounds • Employee share purchase schemes • The confidence and self-esteem of employees • Employees' appreciation • Issues related to the recruitment process • Photos to document employees' welfare (e.g. at social activities, award ceremonies) • Discussion of employees' welfare • Policies adopted regarding staff profit sharing

	CSR category	**CSR sub-category**
4	Social products and services quality	• Diversity of social products (e.g. climate products, educational loans, etc.) • Discussion of the types of social products • Geographical distribution and marketing network of the offered social products • Discussions in relation to customers' feedback • Provision for disabled, aged, and difficult-to-reach customers • Investments in social responsibility activities • Strategies and plans for future expansion in social products and services • Loyalty programmes, awards granted to customers

Source: Based on categories identified by Gray et al., 1995b; Haniffa and Cooke, 2005; Branco and Rodrigues, 2006; Scholtens, 2008; Holder-Webb et al., 2009.

2.3.2.2 Risk management disclosures

The same approach used in measuring the content of CSR disclosures is used to measure the content of risk management (RM) disclosures in the management discussion and analysis section of the banks' annual reports. The management discussion and analysis is a window for management to discuss their financial condition and operational results. This section also incorporates references to related sections in the annual report that provide detailed information on a particular matter such as the consolidated financial statements and related notes. Management discussion and analysis contains information on various business aspects that include, but limited to, business overview, performance overview, economic environment, regulatory overview, risk factors, performance overview, financial highlights, analysis to the financial statements and risk management.

Forms 10-K or annual reports are on average larger than one hundred pages in length, which makes it not practical to read the whole document especially when examining a large sample of annual reports. This limitation requires defining the section that risk-management information is centred in and contains references to other risk-management information available in other sections. Therefore, the management discussion and analysis, which contains information on risk management as well as financial condition and operational results, is the starting point and where references are incorporated other sections are visited. This forms an efficient approach to cover a wider range of risk management information within annual reports. Understanding bank risk requires a look beyond the static balance sheet, which is limited in detailing with entity risk (Scholes, 2000). Management discussions on risk management are important to understand bank-risk dynamics and the impact of economic changes, such as interest rate or liquidity risk (Beaver et al., 1989; Scholes, 2000).

The risk management disclosure is classified into six categories according to the risk types. Therefore, the risk management disclosures cover information disclosed regarding the management of the credit risk, interest rate risk, liquidity risk, market risk, operational risk, legal and compliance risk. The identified risk categories were derived from previous studies as well as risk categories mentioned by the *"Committee of Sponsoring Organizations of the Treadway Commission"* (COSO).

A thought paper issued by the COSO highlighted for firms' boards and executive management the core elements to manage enterprise risks, and mentioned the main risk categories that include among others the financial risk, market risk, operational risk, reputation risk, strategic risk and compliance risk. The paper within the discussion of the improvement opportunities regarding risk management after the time of crisis referred to comments by the chairman of the Security and Exchange Commission "the Commission will be considering whether greater disclosure is needed about how a company and the company's board in particular manages risks". Linsley et al. (2006) examined the content of risk management disclosure by dividing it into six risk categories: "credit risk, market risk, interest rate risk, operational risk, capital structure and adequacy risk and risk management framework". Moreover, Beatty and Bettinghaus (2004) used a single risk-type disclosure, the interest rate risk disclosures, to explore its efficiency in the US banks.

Consequently, the disclosure score is computed as the ratio of points awarded across the six risk categories over the maximum points a bank could achieve, i.e. thirty. For example, if the bank obtains fifteen points across the six risk categories then the disclosure score is equal to fifteen over thirty, i.e. 0.5.

Disclosure score = points obtained / maximum points a bank can achieve

RMDS = ∑ points of risk types (credit risk, liquidity risk, interest rate risk, market risk, operational risk, legal and compliance risk) / 30

The narrative content of each risk type disclosure is assessed and scored from zero to three according to the information communicated in each of the corresponding risk indicators presented in the table below. Therefore, a score of one point is given if the bank, when discussing a risk management type, provides definition for the risk and its scope accompanied by a brief discussion on how they are approaching it. If the discussion is extended to include the policies, frameworks and techniques used (e.g. stress testing, calculating value at risk, portfolio classification and concentration, net portfolio value estimation and earning simulation) to assess their risk exposure as well as discussing the results of the testing conducted, then the disclosure is given a score of two points. If the assumptions employed and considered when applying the testing or adopting a framework and/or the rationale behind selecting a testing technique in particular is discussed then the disclosure is given a score of three points. For illustrative samples see appendix E.

	Risk type	**Risk management indicators**
1	Credit risk	• Definition • Policies developed to ensure loans are extended within tolerable risk measures • Mechanisms used to measure various credit risks (credit rating and related discussions and how they are impacting cost of funds and the ability to raise funds) • Monitoring tools to assess the portfolio performance (presentation to credit portfolio classified by industry, credit type, geographical concentration, etc.) • Loan restructuring (non-performing loans and borrowers experiencing financial difficulties) • Provisions for credit losses

	Risk type	**Risk management indicators**
2	Liquidity risk	• Definition • The framework implemented to ensure cash availability to lenders and depositors (discussion on employed liquidity testing and stress testing and the underlined assumptions) • The role of the ALCO committee • Cash and liquidity sources such as "available for sale securities" • Contingency funding plans, how the bank can response to liquidity stress events at various levels of severity
3	Interest rate risk	• Definition • Describing the techniques used to measure and monitor changes in interest rate ▪ re-pricing assets ▪ liabilities and derivatives ▪ earning simulation modelling and related assumption ▪ net portfolio value estimation and discussion on assumptions used in the estimation • Tools adopted to manage the interest rate risk
4	Market risk	• Definition • Trading and non-trading portfolios market risk exposures • Describing the tools used to monitor and manage risk exposures • Discussions on foreign exchange risk • Discussion on trading risk management (value at risk disclosure if available) • Discussion on commodity risk • Discussion on equity risk • Discussion on issuer credit risk (if available)
5	Operational risk	• Definition • Policies and procedures followed to manage operational risk • Trainings provided to minimise the occurrence of operational risk • The assessment and reporting of operational risk • Identifying and managing key human capital risks • Presenting information about employees turnover rates and performance • Policies and procedures adopted to mitigate IT risks • Tests and procedures employed to ensure the adequacy of IT controls
6	Legal and compliance risk	• Definition • Policies and procedures followed to manage fiduciary risk • Categories of risks covered under the fiduciary risk policies and procedures • The role of fiduciary risk management function (if any)

Source: COSO, 2009; Linsley et al., 2006; Baumann and Nier, 2004; Ahmed et al., 2004.

2.3.2.3 Disclosure score reliability

Communicated information is addressed to a wide range of users including but not limited to shareholders, investors and creditors. Each group of users has different needs and is looking for different types of information. This limits the ability to classify the best reported data that might be useful to interested parties (Benston, 1967). Previous studies highlighted the interest of different groups to different information types and the importance of each information type on firms' performance. For example, portfolio quality information and risk levels assist in managing clients' uncertainty (Hubbard, 2000), while financial indicators, such as maturity gap and non-performing loans, impact negatively on investors (Linsley at al., 2006). Ahmed et al. (2004) conclude that maturity-gap disclosure could be more informative than the information presented in banks' financial statements. Moreover, risk disclosures that reflect firms' internal control mechanism and decision making process are valued by institutional investors (Solomon et al., 2000). Jorion (2002) suggests that value at risk disclosure assists in forecasting the trading revenue volatility due to its importance in comparing the risk of banks' trading portfolios.

With respect to social reporting, it was found to reduce uncertainty and lower firms' risk, protecting firms' value (Godfrey et al., 2009; Richardson et al., 1999). Salama et al. (2011) provide evidence on the inverse relationship between environmental performance and firms' risk. Within the same context, Toms (2002) finds that environmental disclosures in annual reports significantly assist in developing a firm's reputation, which influences on the firm's systematic risk and cost of capital. Environmental disclosure might also be used by firms to maintain good relationships with stakeholders and appease pressure groups (Gray et al., 1995b). On the human resources dimension, Li et al., (2008) mention that human resource disclosure is significant to stakeholders to build their decisions, arguing

that intellectual capital information assists in reducing return volatility and enhances firms' value. Moreover, discussing different social responsibility topics is itself a measure and a reflection of management willingness to disclose firms' social responsibility (Bewley and Li, 2000).

In view of the absence of a clear guide that assists in prioritising among the different types of disclosed RM and CSR information or giving different weight to each type, the study provides equal weighting across the examined types, as each disclosure type is of equal importance (Branco and Rodrigues, 2006). This is likely to avoid the inherent subjectivity in providing weights for each disclosure type and to provide equal importance to all users (Raffournier, 1995).

In terms of the scoring scale used, a scale from zero to five might encounter some limitations. The distances between the intervals are not necessarily equal (Kothari, 2004, p.69-95), which might fail to measure the actual amount of disclosed information. Moreover, the rating provides ordinal measure with skewed distribution that raises statistical issues such as robustness, running regressions and calculating correlation (Norman, 2010). To avoid such limitations, the sum of points each bank achieves is divided by the maximum number of points a bank can obtain in either CSR or RM disclosure score. This transfers the score into a ration, which facilitates the use of statistical tests.

To limit the level of inherent subjectivity in coding disclosures, when using the content analysis, a scaling grid is developed and the thesis author coded the entire sample to maintain the stability in coding. Stability is considered as one of the issues required to achieve reliability of coding (Jones and Shoemaker, 1994; Linsley and Shrives, 2006).

Moreover, a sample was selected from the examined annual reports after a period from the first coding and re-coded to ensure consistency in coding. As accuracy is another concern (Milne and Adler, 1999), which is likely to arise from having vague standard and guidelines to follow when coding, a set of discussion topics is developed and illustrated in appendix A and B. A sample of annual reports was initially visited and coded to assist in aligning the developed appendices to meet the objectives of the study before using them in coding the complete selected sample. Having a single coder assists as well in mitigating the problem of reproducibility (Linsley and Shrives, 2006).

Dealing with the issues of stability, accuracy and reproducibility is not enough to guarantee score reliability, but assists in maintaining reasonable level of reliability. A primary attribute when employing a content analysis technique to measure disclosures is that the computed scores should be tested to indicate that the data collected is "objective", "systematic" and "reliable" (Krippendorf, 1980). However, some limitation should be kept in mind when interpreting the results as the inherent score subjectivity could not be avoided. A random sample of ten per cent of the examined annual reports was selected and provided to two independent coders along with the appendices and the scoring scale. A complete explanation on the coding approach was provided before asking them to code CSR and RM disclosures. Krippendorff alpha was calculated to measure the inter-code reliability.

The inter-code reliability of disclosure score is considered a significant principle when using content analysis to ensure that the assigned scores are reproducible and reliable. However, reliability testing could not provide full assurance regarding scoring objectivity, "Some subjectivity in coding is unavoidable even where reliability tests have been performed" (Linsley and Shrives, 2006).

Krippendroff's alpha is commonly used to assess the level of agreement between two or more coders. "Krippendorff's alpha is a reliability coefficient developed to measure the agreement between observers, coders, judges, rates, or measuring instruments. It emerged in content analysis but is widely applicable" (Krippendorff, 2007, p.1):

Alpha = 1- (D_o / D_e) (Krippendorff, 2007, p.1).

where D_o is the observed disagreement and D_e is the expected disagreement. If the observed disagreement D_o equals zero (no variation between coders), then alpha (α) will be equal to one, which is perfect agreement. If the observed disagreement D_o is equal to the expected disagreement D_e then α will be equal to zero and there is total disagreement between the coders. Thus, alpha could take any value between zero and one reflecting the level of agreement between different coders. The higher the value of alpha the higher is the level of agreement and consequently the reliability of the computed score.

Hackston and Milne (1996) used Krippendorff's alpha to examine the level of inter-coding agreement, mentioning that there is no threshold of reliability to be used as a benchmark for CSR content analysis in particular. They referred to previous studies that suggested an alpha value of 75% or above could be considered generally acceptable. Krippendorff's reliability testing was also used by Newson and Deggan (2002) to measure the agreement between the scores computed by the author and other coders.

Hasseldine et al. (2005) computed an alpha coefficient according to Krippendorff methodology to ensure coding reliability of the three score types and an alpha value of 85% and above was achieved. They achieved this result from the first reliability testing with the exception of "Quality weighted environmental disclosure" score, where other

rounds of testing were needed to reach agreement and achieve an alpha value of 85%. Moreover, Holder-Webb et al., (2009) selected a sample of five companies and had their disclosures recoded by different coders. A coefficient above 70% was obtained and considered a good indicator of score reliability. According to the discussed studies, an alpha value above 0.75 is assumed to be acceptable and reflects satisfactory score reliability.

To ensure the reliability of the computed CSR and RM disclosure scores, a randomly selected sample of twenty banks' annual reports covering 10% of the examined banks was selected. The corresponding annual reports of the selected sample were provided to two independent coders. The approach followed to score the CSR and RM disclosures along with the scoring sheet were explained to the coders and they were asked to assess the content of CSR and RM disclosures and assign related scores. The provided scores along with the score computed by the author were used to test the scoring process reliability, i.e. the inter-coding agreement using Krippendorff's. The test of reliability reported an alpha value of 80% for the CSR score from the first round and 81.5% for the risk management disclosure scores from the second round. Since the first reliability test for the RM disclosure score was below 75%, reconciliation between the three scores was performed. The scores with variation greater than 30% were selected and the coding was analysed with the second coder to identify the reason behind such differences. After agreeing on the adjusted scores another reliability test was performed and the reported alpha was 81.5 %.

2.3.3 Independent Variables

Pathan and Skully (2010) explored a sample of 212 US bank holding companies for the period between 1997 and 2004 to examine board of directors' determinants regarding size, CEO duality and composition. They found that powerful CEOs are not able to influence board size and independence, arguing that this result might be due to the highly regulated nature that limits CEO power. Pathan (2009) used the same sample to evidence that board composition and CEO power influence risk taking.

In a review of the corporate governance practice, one can notice that the Cadbury report demonstrates the importance of the board of directors in setting the tone of the company "Boards of directors are responsible for the governance of their companies" (Cadbury report, 1992, section 205, p. 15). The report emphasises the role of the chairman of the board and its non-executive directors stating that "The chairman's role in securing good corporate governance is crucial" and "Non-executive directors should bring an independent judgement" recommending high proportion of independent directors to influence board decisions "their views will carry significant weight in the board's decisions" (Cadbury report, 1992, p. 19-21).

Due to the importance of the non-executive directors and the separation between the role of the chairman and the CEO in maintaining adequate governance structure, the report states the minimum recommended number of independent directors to be three, "boards will require a minimum of three non-executive directors, one of whom may be the chairman of the company provided he or she is not also its executive head" (Cadbury report, 1992, p.20). It stresses the core role of the chairman for effective management "chairman, whose role in corporate governance is fundamental". Moreover, the report

recommends the establishment of an audit committee for all listed companies for more effective corporate governance "establish an audit committee, and places great emphasis on the importance of properly constituted audit committees in raising standards of corporate governance".

From a US governance perspective, the intent behind passing the Sarbanes-Oxley Act was to enhance companies' control system and to provide higher assurance to stakeholders. The audit function was given the responsibility to assess the adequacy and effectiveness of control mechanisms adopted by management, while the CEO is responsible for the design, the adequacy and the implementation of the internal control system. Section 302 of Sarbanes-Oxley Act requires the disclosure of internal control information and holds the CEO responsible for proper disclosure. The required disclosures are not only related to the financial statements but also cover non-financial information, and section 302 mandates the CEO certification on these disclosures. In addition, the SEC requires the disclosure of information describing the procedures developed to ensure that reliability of information.

According to the 'Committee of Sponsoring Organizations of the Treadway Commission', COSO principles, the board of directors enforces the process of internal control to reasonably assure the accomplishment of the set goals and strategies. The COSO framework consists of five attributes, which are the "control environment, risk assessment, control activities, information and communication and monitoring". The control environment is the control universe by which the company reflects its values, style of operations and integrity. The control environment is influenced by the tone at the top of the organisation, i.e. the board of directors have the ultimate power to assign roles and

responsibilities and set the philosophy by which management will run the operations. COSO assigns a major monitoring role to the board of directors highlighting their role in discussing and dealing with issues regarding serious deficiencies in the internal control system. These deficiencies should be identified through the continuous monitoring and assessment to the quality of the control system, "Management is accountable to the board of directors, which provides governance, guidance, and oversight".

Moreover, SOX section 302 states that the audit committee has a vital role in maintaining a proper internal control system and acts on behalf of the board of directors as well as the shareholders. The audit committee oversees the activities performed by the audit function to ensure an adequate control environment, governance practices and prevent shareholders from management dishonest behaviour.

Since, as discussed earlier, CSR activities and reporting as well as transparency in disclosing risk management information are important for firms' long-term interest, it is of interest to examine whether boards of directors and audit committee structure influence on US banks reporting.

2.3.3.1 Board size

The main role of the board is to provide advice to the CEO and senior management and to ensure that management activities are in the best interest of the shareholders (Guest, 2009). The board of directors is supposed to act on behalf of the shareholders and oversee management activities to ensure alignment with shareholders' interest, and discipline inefficient management practices (Li et al., 2008). Its role is not limited to overseeing management effectiveness but also enforcing the concept of social responsibility in business practices (Palmieri, 1979). The size of the board is an independent corporate

governance driver separate from the board structure (Beiner, Drobetz, Schmid and Zimmermann, 2004) reflecting firms' complexity (Krishnan and Visvanathan, 2009). From the CSR angle, boards are responsible for setting firm identity and adopting CSR agenda to respond to stakeholders needs (Jamali et al., 2008). Communicating CSR is a reaction to stakeholders' need for transparency and more commitment to society (Li et al., 2010).

Boards with a relatively large size may benefit from diversified expertise and increased monitoring ability due to the increase in board members (Guest, 2009; John and Senbet, 1998). John and Senbet (1998) addressed several issues related to corporate governance and board of directors' effectiveness focusing on the board as an internal factor of corporate governance. They indicated that the monitoring ability of the board may increase due to the increase in board size. However, the drawback of large boards is the communication complexity and the potential disagreement in decisions and firms' strategies. In this regard, research by Beiner, Drobetz, Schmid, and Zimmermann (2004) concluded that the accumulated management capabilities in boards having a large number of directors might compensate the weaknesses in coordination and communication. Consequently, the effectiveness of companies' boards of directors strengthens the firms' competitiveness and influences strategic decisions (Ibrahim et al., 2003).

While larger board size benefits from diversified experience, small board size might have better coordination and ability to manage conflicts between management and other contracting parties, less communication complexity between members, and each board member will act with higher responsibility to ensure satisfactory disclosures (Ahmed, Hossain and Adam, 2006). However, they mentioned that small board size might suffer high work-load, which might limit its monitoring ability. Dey (2008) found that

boards characterised by a small number of members are more likely to have low level of conflicting perspectives and be more efficient in exercising their monitoring role.

Using a sample of 51 Irish-listed companies, Donnelly and Mulcahy (2008) studied the effect of the board structure on the extent of strategic, financial and non-financial disclosures and concluded that board size significantly associates with the level of disclosures. In contrast, Cheng and Courtenay (2006) found that board size is not associated with the level of voluntary disclosure. Ahmed et al. (2006) analysed a sample of 604 New Zealand firms and concluded that earning informativeness is inversely related to board size and directly correlated with smaller board size, as they can benefit from more effective communication and coordination.

The relation between board size and company performance was examined by Yermack (1996) and several interesting results were obtained. Yermak based his examination on a sample of 452 US non-financial companies over an eight-year period, from 1984 to 1991. They found that board size ranged from four directors (the smallest board size) to thirty-four directors (the largest board size in the sample) with a median of twelve. Firms' performance was proxied by Tobin Q and firm size, age and industry were used as control variables.

Employing the OLS regression analysis the results of the time series and cross sectional analysis were consistent and supporting a negative relationship between the board size and the firm's value, “The loss in firm value when boards grow from six to 12 members, for example, is estimated to be equal to the value lost when boards grow from 12 to 24” (Yermack, 1996, p.186). The study mentioned that some US firms such as General

Motors and IBM shifted to smaller board size to avoid overhauls in their corporate governance structure. Moreover, the return on stock enhanced for a sample of companies that announced the change to a smaller board size. The researcher added that this conclusion should not be generalised without taking the remark that this association might not be true for very small boards. This limitation was difficult to test since there were very few firms with board size less than six in the selected sample.

The study also regressed three financial ratios, "sales over assets, returns on assets and return on sales", along with the board size, showing a negative relationship between the board size and the three ratios, "companies with large boards appear to use assets less efficiently and earn lower profits" (Yermack, 1996, p.201).

As board size may vary according to firms' characteristics, industry and complexity (Guest, 2009; Pathan, 2009; Krishnan and Visvanathan, 2009), and knowing the complexity of commercial banks and the wide range of regulations they are subject to, I suggest that boards with relatively large size will encourage management towards better reporting.

2.3.3.2 Board Independence

Independent directors are board members having no direct or indirect material relationship with the company. The executive directors are involved in the implementation of controls and the execution of the company's operations in addition to their role as directors on the board. This might scratch their objectivity in performing the monitoring role to ensure that the company is well governed and managed, since board of directors acts on behalf of the

shareholders overseeing management activities and ensuring its coherence with shareholders' interest (Li, Pike and Haniffa, 2008).

Literature discussed two different arguments regarding the proportion of independent directors on the board. The first point of view argued that independent directors can assess management performance more objectively than inside directors as they are not monitoring themselves. The diversified experience and background of the independent directors and being less dominated by the CEO, enable them to have a broader look at firm's performance beyond financial measures and to be more oriented toward social responsibility (Ibrahim, et al., 2003). Therefore, a board of directors with a higher proportion of independent directors is expected to lead to more effective monitoring and controlling as well as safeguarding shareholders' interests (Ahmed et al., 2006; Cheng and Courtenay, 2006). Furthermore, a low proportion of independent directors on the board is considered a weakness in the firm's governance and this deficiency might offset the benefit of having a well-structured audit committee (Krishnan and Visvanathan, 2009).

Other literature showed that independent directors may exercise over-monitoring and lack of industry knowledge to be efficient (Haniffa and Cooke, 2002). Moreover, the competence of the board of directors could not be guaranteed by the presence of independent directors on the board, since independent directors are most likely to be busy individuals (Palmieri, 1979). This might impact the effectiveness of board monitoring activities (Palmieri, 1979). By contrast, other studies concluded that inside board members have better networks and connections with the firm's internal community (Bear, Rahman et al., 2010), and consequently the agency conflict might be rectified by the composition of the board (Barnea and Rubin, 2010).

As the debate on corporate governance flows, John and Senbet (1998) surveyed previous studies to address several issues related to corporate governance and board of directors' effectiveness. They argued that issues of corporate governance rose as a result of the separation between firm ownership and management, which generates conflict not only between the management and the shareholders, but also with debt holders and regulators. The study concluded that the board of directors is an essential corporate governance mechanism. Its effectiveness in performing the monitoring role is influenced by the proportion of independent directors, which reflects its degree of independence, "the board of directors is central to corporate governance mechanisms in market economies" (John and Senbet, 1998, p. 379). They noticed that the majority of the US firms are tending to appoint most of the directors on the board as independent directors.

Eng and Mak (2003) examined the effect of board composition on voluntary disclosure using a sample of 158 firms listed in Singapore Stock Exchange at the end of 1995. They argued that independent directors are less aligned with management and avoid withholding information; however they found that firms with higher proportion of independent directors disclose less voluntary disclosure. Similarly, a study conducted by Barakko, Hancock, and Izan (2006) showed that the proportion of the independent directors on the board is negatively related to the level of voluntary disclosure.

In contrast, and as transparency is likely to enhance a firm's long-term benefit, firms with a higher proportion of independent directors are expected to encourage more voluntary disclosures. Indeed, research by Cheng and Courtenay (2006) found that a higher proportion of independent directors results in a higher level of voluntary disclosure. Moreover, Donnelly and Mulcachy, (2008), Chau and Gray (2010) and Li et al. (2008)

provided evidence on the positive relationship between board independence and voluntary disclosure level. Donnelly and Mulcachy, (2008) studied the effect of the board structure on the extent of voluntary disclosures showing that the level of disclosures is positively correlated with the proportion of independent directors. Chau and Gray (2010) found that the percentage of independent directors on the board is positively correlated with the extent of voluntary disclosures and its impact was mitigated by the effect of separating CEO and chairman responsibilities. Similarly, Li et al. (2008) found that there is a direct correlation between the board composition and the intellectual capital disclosure.

Analysing a sample of 371 companies in the years 2000 and 2001, Dey (2008) found that firms facing high agency conflict have better corporate governance structure. The effect of the governance structure varies across companies due to the difference in the agency problems and companies' performance. Dey concluded that firms facing high agency conflict enhanced their governance structure by having independent board of directors and audit committee, "The governance structure of a firm involves mechanisms to minimize the agency conflicts" (Dey, 2008, p. 1147).

Van den Berghe and Baelden (2005) conducted a survey on 81 listed companies in Belgium between 2002 and 2003 and found that boards differ in their monitoring role as they are appointed for a limited tenure and they need to balance between various responsibilities. They argued that the level of board monitoring is related to the level of delegation granted to management and the more delegation, the more the board effort to perform in monitoring management activities, "the concentration of power within management should affect the intensity of its monitoring role" (Van den Berghe and

Baelden, 2005, p. 689). The study evidenced that time allocated by boards for monitoring and developing strategies differs across boards and there is no single approach to fit all.

As independent directors encourage management to provide more information above what is required in order to maintain their reputation (Lim, Matolcsy and Chow, 2007) and reflect their appreciation to stakeholders (Li et al., 2008), it is expected that boards with a higher proportion of independent directors consider disclosing better CSR and RM disclosure content.

2.3.3.3 CEO role duality

The literature provides several arguments on the CEO role duality. The organisation theory argues that CEOs with role duality will strengthen the CEO position, reduce command disagreement and provide clear leadership (Krishnan and Visvanathan, 2009). From an agency theoretical view, CEO duality will scratch the objectivity of the board as a monitoring body (Krishnan and Visvanathan, 2009). Role duality might impair board governance perspective due to the power the chairman can exercise in setting the board agenda and selecting members, without ignoring the power of role duality in driving the company to the set objectives with minimum interruptions (Haniffa and Cooke, 2002). However, Haniffa and Cooke's own results contradicted their assumption and indicated that CEO duality is favourable for a better level of voluntary disclosures. As role duality might scratch the chairman objectivity and his governance role on the board, this might affect the type and volume of disclosed information (Li, Pike, and Haniffa, 2008).

The segregation between the two roles is supposed to mitigate governance failure, since acting as a CEO and chairman of the board may cause conflict of interest (Krishnan

and Visvanathan, 2009). Moreover, acting as the chairman of the board and the CEO will provide the CEO an edge and the final call in several decisions. As well, it might push other board members to accept decisions opposing their beliefs in order not to upset the chairman/CEO and to retain their positions (Krishnan and Visvanathan, 2009). This may scratch the board independence as well as the integrity of decisions (Dey, 2008).

Finkelstein and D'Aveni (1994) studied the relation between the CEO role duality and the board vigilance, concluding that acting as a chairman of the board and CEO is not always inefficient, but the impact of role duality varies according to company's characteristics. The results of the study showed that CEO role duality is associated with the board monitoring level supporting the organisation theory. On the other hand, when the CEO's informal power is high or the company has high performance, the association between the role duality and board vigilance was negative. Therefore, CEO role duality is a double-edged sword.

The empirical findings of the research into the relationship between voluntary reporting and CEO duality support the conclusion of Finkelstein and D'Aveni (1994) that CEO duality is not always inefficient and its consequences vary from firm to firm. Li et al. (2008) found that CEO duality is not associated with the intellectual capital disclosure. Similarly, Cheng, and Courtenay (2006) indicated that CEO role duality is not associated with the level of voluntary disclosure, while Haniffa and Cooke's (2005) findings show a direct association between CEO duality and voluntary disclosure. On the other hand, Donnelly and Mulcahy (2008) studied the effect of the board structure on the extent of voluntary disclosures, indicating that the level of voluntary disclosure is positively correlated with the separation between the chairman and CEO roles. The relationship

between the board independence, CEO duality and the level of voluntary disclosures, including, among others, employees information, social and product safety information, was assessed by Chau and Gray (2010). The reported results analysing a sample of 273 non-financial companies listed on the Hong Kong stock exchange in 2002 suggested that CEO duality is negatively correlated with the level of disclosures.

Yermack (1996) examined CEO duality from a financial perspective pointing out that no duality might lead to a higher firm value. Such a relation was also examined by Rechner and Dalton (1991) using a sample of 141 companies of 'Fortune 500' characterised by stable governance during the period between 1978 and 1983. The return on equity, return on investment and profit margin were selected as proxy of the firm performance. The Manova results showed that firms without CEO duality performed better. The results were consistent across the three performance measures, providing a strong support to the financial benefit of the segregation between the CEO and the chairman duties.

In contrast, previous research pointed that powerful CEOs, particularly in banks, might have a strong motivation to bind firm exposure against short-term oriented shareholders (Laeven and Levine, 2009; Lepetit and Tarazi, 2011) to protect their human capital (Fama and Jensen, 1983; Pathan, 2009). As bank risk cannot only be managed by investment and finance strategies (Pathan, 2009), but also through transparency and CSR activities involving key stakeholders (Gill, 2008; Scholtens, 2008; Ghoul et al., 2011; Salama, Anderson and Toms, 2011), it is expected that a CEO with a dual role will positively influence the content of CSR and RM disclosure. A CEO having a dual role can lead the bank with less interruption, facilitate reporting with higher transparency to achieve

stakeholders' acceptance and ease the adoption of CSR agenda, which are presumably needed after the crisis.

2.3.3.4 Audit committee

The audit committee role is to monitor the firm's financial statements' integrity, to review its risk management and control system and to ensure external auditors' independence and integrity (Goh, 2009; Sherman, Carey and Brust, 2009; Beasley, Carcello, Hermanson and Neal, 2009;, Krishhnan and Visvanathan, 2009). The audit committee is in the best position to judge the reliability of the disseminated information and according to Sarbanes-Oxley the audit committee functions assess the adequacy and effectiveness of control mechanisms adopted by management.

The audit committee is a subset of the board of directors acting as a monitoring body and overseeing management practices to ensure that risks are properly assessed and mitigated, controls are properly implemented and the company is in compliance with applicable regulations. Its members are responsible to maintain firm integrity and judge the information presented in the shareholders reports (Sherman, Carey et al., 2009). In exercising its role, the audit committee can influence the value and level of information disclosed (Li et al., 2008).

The independent audit committee serves as guardian to shareholders from any unpredicted practices by management. In doing so, they are practising the main duties of corporate governance (Beasley, Carcello et al., 2009). The size of the audit committee can play a vital role in enhancing and protecting the rights of minority shareholders (Melis, 2004). An active audit committee with more members might enforce governance

mechanisms, encourage transparency and influence the value and level of information disclosed (Li et al., 2008). A study conducted by Goh (2009), which examined the effectiveness of the audit committee, indicated that firms with a large audit committee and non-accounting financial members exercise more pressure on management to take corrective actions in a timely manner. Barako, Hancock and Izan (2006) found that the presence of an audit committee is a significant factor positively impacting the level of voluntary disclosure. Moreover, the presence of financial experts on the audit committee enhances the effectiveness of overseeing the reporting process and seeks quality reporting (Chen and Zhou, 2007).

The role of the audit committees as a major corporate governance tool elevates after the perpetration of several accounting scandals (Krishnan and Visvanathan, 2009). They can play a significant role in maintaining proper internal control systems, which in turn impacts the effectiveness of the governance practices. Audit committees have an important role in overseeing the process of preparing and issuing the financial reports (Krishnan and Visvanathan, 2009). By ensuring a reliable reporting process they tend to minimise information asymmetry between management and other stakeholders, forming a major component of any governance structure "audit committees are considered a necessary part of corporate governance" (McMullen, 1996, p.88).

Examining a sample of 475 companies listed on the NASDAQ and AMEX stock exchanges, McMullen found a direct association between the audit committee and the reliability of financial reporting. The study indicated that firms with an effective audit committee are less likely to violate SEC requirements regarding the disclosure of information. Moreover, audit committees are more involved in overseeing companies'

behaviour, and companies with audit committees are less likely to be involved in unethical behaviour or conflicts with their employees. However, audit committees are more inclined toward financial reporting reliability (McMullen, 1996) and seeking reporting quality (Chen and Zhou, 2007).

Knowing the complexity and workload of audit committees particularly in the banking sector, larger audit committees are likely to exercise more pressure on management and to be more effective toward more transparency and a higher level of voluntarily disclosed information (Melis, 2004; Barako et al., 2006; Li et al., 2008; Goh, 2009). Moreover, the presence of financial experts on the audit committee is suggested by voluntary disclosure and reporting quality literature to have a positive impact on the level and reliability of reporting (Bedard, Chtourou and Courteau, 2004; Karamanou and Vafeas, 2005; Chen and Zhou, 2007; Hoitash and Hoitash, 2009). Consequently audit committee size and the number of financial experts on the committee are expected to have a positive influence on disclosure content.

2.3.3.5 Control Variables

To avoid model misspecification, a set of control variables is introduced into the examined model to control for board and audit committee activity as well as the firm's profitability and leverage.

The number of audit committee and board meetings was used by Lee, Mande and Ortman, (2004) as a measure of diligence and consequently board and audit committee effectiveness. Frequency of meetings reflects persistent work and effort level performed, which might reflect effective monitoring. Kent and Stewart (2008) mentioned that the

frequency of audit committee meetings, which reflects activeness, reduces reporting problems. They showed evidence that the frequency of board and audit committee meetings result in a higher level of disclosures. Rechner and Dalton (1991) as well studied in addition to the corporate governance attributes the number of meetings and profitability as control variables.

The profitability of the bank might also affect their community involvement ability. Management of a profitable firm has the ability to be involved in more CSR activities and consequently disclosing their social commitment (Hannifa and Cooke, 2005). Management tends to disclose more information to reflect their success and maintain their position (Haniffa and Cooke, 2002). Li et al. (2008) argued that profitable firms disclose better intellectual capital disclosures to signal that their investment in such activities serves the firm's return on assets. Similarly, Lim et al. (2007) found a positive influence to the ROA on disclosure level. Therefore, it is significant to introduce bank profitability predicting a direct association between return on assets of the current year and the content of CSR and risk management disclosures.

The need of firms with high leverage to generate and hold cash to serve the debt might limit their ability to engage in CSR and consequently report on them (Reverte, 2009; Barnea and Rubin, 2010). In other words, higher leverage bound firm's capability to contribute in social activities due to the limitation in available cash (Barnea and Rubin, 2010). Revert (2009) found an absence of relationship between leverage and CSR disclosures, mentioning that two opposing argument are provided in the literature. The first view is built on agency theory assuming a direct relationship, since more information reduces agency cost. The second view assumes negative relationship due to the pressure

creditors can exercise on management to limit expenses not directly related to business success. Haniffa and Cooke (2005) assumed that highly-geared firms disclose more CSR information reflecting to creditors the management appreciation to the social contract and not ignoring it due to the high debt. However, the studies of Haniffa and Cooke (2002) and Haniffa and Cooke (2005) reported absence of relationship.

2.3.3.6 Regression Models

In analysing the data and studying the relationships between the dependent and the independent variables, the pooled regression model is implemented.

The regression models form the following equations:

$$CSRDS = \alpha + \beta_1 BS + \beta_2 BI + \beta_3 DUAL + \beta_4 ACS + \beta_5 ACEF + \beta_6 BM + \beta_7 ACM + \beta_8 ROA + \beta_9 Lev + \beta_{10} Y + \acute{\varepsilon}$$

$$RMDS = \alpha_b + \beta_{1b} BS + \beta_{2b} BI + \beta_{3b} DUAL + \beta_{4b} ACS + \beta_{5b} ACFE + \beta_{6b} BM + \beta_{7b} ACM + \beta_{8b} ROA + \beta_{9b} Lev + \beta_{10b} Y + \acute{\varepsilon}$$

Where:

CSRDS = corporate social responsibility disclosure score measured as the ratio of disclosure content points over the maximum score a bank can achieve.

RMDS = risk management disclosure score measured as the ratio of the points obtained on the content of risk management disclosure over the maximum points a bank can achieve

α = the intercept

$B_1 \ldots B_n$ = the regression coefficients

$\acute{\varepsilon}$ = the error term

Table 2.2

Independent Variables Measurement

Variable name	**Variable code**	**Variable descriptions**	**Predicted sign**
Board size	BS	The number of board members	+
Board Independence	BI	The number of independent directors to the total number of board directors	+
Audit committee	ACS	The number of members on the audit committee	+
Audit committee financial experts	ACFE	The number of financial experts on the audit committee	+
Chairman /CEO role duality	DUAL	Binary dummy variable: "0" if the chair of the board in not acting as a CEO and "1" otherwise	+
Board meetings	BM	Number of meetings held by the board	+
Audit committee meetings	ACM	Number of meetings held by the audit committee	+
Profitability	ROA	Net income over total assets	+
Leverage	Lev	Total debt over assets	-
Year	Y	Binary dummy variable: "0" if 2009 Annual year report, "1" if 2010 Annual report	

2.4 Data analysis and interpretation

2.4.1 Descriptive statistics

The following section analyses the descriptive statistics of the variables examined in the regression model. The descriptive statistics cover both the dependent and the independent variables across the 195 observations collected. Two presentation modes are illustrated; the first presents the descriptive statistics for the complete sample and the second compares the descriptive statistics of year 2009 observations with year 2010 observations.

The content of corporate social responsibility and risk management disclosures in the annual reports of 195 US national commercial banks were reviewed, coded and the score results are analysed below.

2.4.1.1 Corporate Social Responsibility Disclosures

Banks disclosed corporate social responsibility with different intensity and varied in their focus between the four social responsibility categories. The percentage of banks that disclosed CSR in their annual reports, as shown in Table (2.4), increased from 93% in year 2009 to 97% in year 2010 with an overall percentage of 95%. The highest CSR disclosure score is 16 points out of 20 (i.e. a ratio of 0.8) across the four CSR categories. The mean of the aggregate disclosure score is 4.51 points (i.e. a ratio measure of 0.225) and the standard deviation is 3.38 reflecting the level of dispersion from the mean.

The descriptive statistics shows that forty five per cent of the examined annual reports disclosed information related to community involvement and social activities. In

other words, more than half of the banks did not disclose in their annual reports any news related to community involvement and social commitment. Disclosing information related to community involvement and social activities decreased 4.5% in year 2010. The percentage of banks that disclosed community involvement information was 47.5% and 43% in 2009 and 2010 respectively.

The majority of the examined annual reports (87%) disclosed information related to their staff. This result is in line with Branco and Rodrigues (2006) concluding that banks are motivated to disclose social responsibility and in particular information related to their human capital as they are essential assets for banks and have their impact on investors' assessment.

45% of the banks in the selected sample disclosed information related to social products, services and customers safety and satisfaction. The scores vary from "1 point", 21% of the sample, "2 points" 13% of the sample, "3 points" around eight per cent (7.7%) of the sample, "4 points" three per cent of the sample and only 0.5% get a score of "5".

The lowest CSR category disclosed in the annual reports of the examined banks is the environmental category. Only eleven per cent of the examined banks disclosed in their annual reports information related to their environmental projects and initiatives. The distribution of the scores and the mean of the environmental category score were similar in both years with no major differences. The eleven per cent is distributed as follows: three per cent of the sample get a score of "1", two per cent get a score of "2" or "4", three point five per cent get a score of "3" and none get a full score of "5" points.

The table below summarises CSR descriptive statistics as aggregate score and per CSR category.

Table 2.3

Summary CSR Descriptive Statistics

Description	Total CSR score	Community involvement	Human Resources	Products and services quality	Environment
Number of banks disclosed CSR	185 95%	88 45%	170 87%	88 45%	21 11%
Maximum disclosure score	16 (0.8)	5	5	5	4
Minimum disclosure score	0	0	0	0	0
Mode	3 (0.15)	0	2	0	0
Mean	4.51 (0.23)	1.25	2.15	0.85	0.26
Standard deviation	3.38 (0.17)	1.65	1.19	1.15	0.84
Zero score	10 5.13%	107 54.87%	25 12.82%	107 54.87%	174 89.23%
Score of "1"		24 12.31%	23 11.89%	41 21.03%	6 3.08%
Score of "2"		11 5.64%	68 35.38%	25 12.82%	4 2.05%
Score of "3"		21 10.77%	55 28.21%	15 7.69%	7 3.59%
Score of "4"		25 12.82%	21 10.77%	6 3.08%	4 2.05%
Score of "5"		7 3.59%	2 1.03%	1 0.51%	0 0%

Note: data for disclosure ratio in brackets

The table below illustrates a comparative descriptive statistics analysis to CSR disclosures as total score and by each category type

Table 2.4

Summary Descriptive Statistics by CSR Category

Description	Total CSR score		Community involvement		Human Resources		Products and services quality		Environment	
	2009	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**
Banks disclosed CSR	92 92.9%	93 97%	47 47.5%	41 43%	83 83.8%	87 91%	45 45.5%	43 45%	11 11.1%	10 10%
Maximum disclosure score	16	15	5	5	5	5	5	4	4	4
Minimum disclosure score	0	0	0	0	0	0	0	0	0	0
Mode	2	3	0	0	2	3	0	0	0	0
Mean	4.22	4.81	1.19	1.31	1.87	2.45	0.88	0.81	0.28	0.24
Standard deviation	3.48	3.26	1.55	1.75	1.15	1.17	1.21	1.1	0.89	0.78

Description	Total CSR score		Community involvement		Human Resources		Products and services quality		Environment	
	2009	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**
Zero score	8	3	52	55	16	9	54	53	88	86
	7.1%	3.13%	52.5%	57.29%	15.2%	9.38%	54.5%	55.21%	88.9%	89.58
Score of "1"			15	9	15	8	20	21	3	3
			15.2%	9.38%	15.2%	8.33%	20.2%	21.88%	3%	3.13%
Score of "2"			9	2	42	27	14	11	2	2
			9.1%	2.08%	42.4%	28.13%	14.1%	11.46%	2%	2.08%
Score of "3"			10	11	19	36	6	9	3	4
			10.1%	11.46%	19.2%	37.5%	6.1%	9.38%	3%	4.17%
Score of "4"			10	15	6	15	4	2	3	1
			10.1%	15.63%	6.1%	15.63%	4%	2.08%	3%	1.04%
Score of "5"			3	4	1	1	1	0	0	0
			3%	4.17%	1%	1.04%	1%	0%	0%	0%

2.4.1.2 Risk Management Disclosures

All banks' annual reports examined in the sample disclosed information related to their risk management with clear variation in the comprehensiveness and informative level of the disclosed information. The variation is not only in the level of information disclosed but also in the discussed types of risk management. The highest risk-management score is 27 points out of 30 across the defined risk types, i.e. a ratio of 0.9 and the lowest score is 5 points, i.e. a ratio of 0.17. Forty two per cent of the examined banks obtained a risk management disclosure score above the mean (14.17). The standard deviation is 3.33 and the mode is 15 reflecting the score of 14% of the examined annual reports.

I find that all banks (100%) disclosed information related to their liquidity risk management and (99%) disclosed information related to their interest rate risk and credit risk management. Information related to market risk management was disclosed by 59% of the examined banks' annual reports but not as comprehensive as the liquidity, credit and interest rate risk disclosures. The lowest intention was given to the operational risk and legal & compliance risk management discussions. 26% of the reviewed annual reports disclosed legal and compliance risk management and 25% disclosed their operational risk management.

The credit risk management disclosures scores are clustered around the credit risk disclosure mean (4.19). 16.4% of the reviewed annual reports obtained a score of "3", 39% scored "4" and 42.5% were given the full score of "5". The mean is (4.16) and the standard deviation is (0.89) which is considered marginal deviation reflecting the concentration of scores around the mean.

The case is not different for the liquidity risk management. As mentioned earlier, all covered banks disclosed liquidity risk management in their annual report and the distribution of the scores is as follows: 30.8% scored "5", 48.7% scored of "4", 14% scored "3", four per cent scored "2" and 2.6% scored "1". The mean is (4) and the standard deviation is (0.92).

The results of the interest rate risk management disclosures scores were distributed similar to liquidity and credit risk management. 32% of the covered annual reports obtained a score of "5", 52% scored "4", ten per cent scored "3", 3.6% scored "2" and two per cent scored "1".

The disclosure scores related to the remaining risk management disclosure types are different. Only 4.6% of the banks disclosing market risk management obtained a score of "5" and 6.7% obtained a score of "4". The remaining banks obtain the following scores, score of "3" five per cent, score of "2" four per cent and score of "1" 38.5%.

Few banks disclosed information related to their operational risk management. Only half per cent of the visited annual reports obtained a score of "5", one per cent scored "4", 1.5% scored "3", and eleven per cent for each of "2" and "1" scores. Similarly, legal and compliance risk management is also poorly discussed in the banks' annual reports. The score distribution for the legal and compliance risk management is as follows: none of the covered banks obtains a score of "5" or "4", only 1.5% obtained a score of "3", around six per cent (5.6%) scored "2" and 18.5% scored "1".

The table below illustrates the analysis of the risk management as total disclosure scores and by each type of risk management disclosures:

Table 2.5

Summary Risk Management Descriptive Statistics

Description	Total RM score	Credit risk	Liquidity risk	Interest rate risk	Market risk	Operational risk	Legal and compliance risk
Banks disclosed RM	195 100%	193 99%	195 100%	194 99%	115 59%	48 25%	50 26%
Maximum disclosure score	27 (0.87)	5	5	5	5	5	3
Minimum disclosure score	5 (0.17)	0	1	0	0	0	0
Mode	15 (0.5)	5	4	4	0	0	0
Mean	14.17 (0.47)	4.19	4	4.07	1.12	0.44	0.34
Standard deviation	3.33	0.89	0.92	0.91	1.41	0.89	0.66
Zero score	0	2 1%	0	1 0.5%	80 41%	147 75.4	145 74.4
Score of "1"		1 0.5%	5 2.56%	4 2%	75 38.46%	21 10.77%	36 18.46%
Score of "2"		1 0.5%	8 4.1%	7 3.6%	8 4.1%	21 10.77%	11 5.64%
Score of "3"		32 16.41%	28 14.36	19 9.74%	10 5.13%	3 1.54%	3 1.54%
Score of "4"		76 38.97%	98 48.72%	101 51.8%	13 6.67%	2 1%	0
Score of "5"		83 42.56%	60 30.77%	63 32.31%	9 4.62%	1 0.5%	0

Note: data for disclosure ratio in brackets

The table below illustrates risk management disclosures comparative descriptive statistics

Table 2.6

Summary Descriptive Statistics by Risk Management Type

Description	**Total RM score**		**Credit risk**		**Liquidity risk**		**Interest rate risk**		**Market risk**		**Operational risk**		**Legal and compliance risk**	
	2009	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**
Banks disclosed RM	99 100%	96 100%	97 98%	96 100%	99 100%	96 100%	99 100%	95 98.9%	61 61.6%	54 56.6%	23 23.2%	25 26 %	14 14.1%	36 37.5%
Maximum disclosure score	27 (0.9)	24 0.8	5	5	5	5	5	5	5	5	5	4	3	3
Minimum disclosure score	5 (0.17)	10 (0.33)	0	3	1	1	1	0	0	0	0	0	0	0
Mode	11	15	4	5	4	5	4	5	1	0	0	0	0	0
Mean	13.25	15.11	3.97	4.43	3.66	4.35	3.86	4.29	1.14	1.09	0.41	0.46	0.2	0.49

Standard deviation	3.52	2.84	1.01	0.66	0.91	0.79	0.88	0.89	1.38	1.45	0.9	0.87	0.55	0.73
Zero score	0	0	2 2%	0	0	0	0	1 1.04%	38 38.8%	42 43.8%	76 76.8%	71 74%	85 85.9%	60 62.5%
Score of "1"			1 1%	0	4 4%	1 1%	4 4%	0	40 40.4%	35 36.5%	11 11.1%	10 10.4%	9 9.1%	27 28.1%
Score of "2"			1 1%	0	6 6.1%	2 2.1%	4 4%	3 3.1%	4 4%	4 4.2%	9 9.1%	12 12.5%	4 4%	7 7.3%
Score of "3"			23 23.2%	9 9.4%	21 21.2%	7 7.3%	10 10.1%	9 9.4%	7 7.1%	3 3.1%	1 1%	2 2.1%	1 1%	2 2.1%
Score of "4"			39 39.4%	37 38.5%	57 57.6%	38 39.6%	65 65.7%	36 37.5%	6 6.1%	7 7.3%	1 1%	1 1%	0	0
Score of "5"			33 33.3%	50 52.1%	11 11.1%	48 50%	16 16.2%	47 49%	4 4%	5 5.2%	1 1%	0	0	0

2.4.1.3 Corporate Governance factors (Independent Variables)

The board size of the national US banks, which are regulated and supervised by the Office of the Comptroller of the Currency (OCC), have to consist of between five and twenty-five directors. The selected sample reports board size that varies between five and twenty-one directors. The mean of the board size (12.5) in year 2009 is similar to the board size mean in year 2010 (12.29), reflecting no major changes in the trend of board size. This is aligned with Pathan and Skully's (2010) findings showing that bank holding companies had board size between 5 and 31 directors with a mean of (12.92). The difference in board size range compared to Pathan and Skully (2010) might be explained by the difference in the selected sample, as bank holding companies are not subject to OCC regulations. The results obtained also coincide with the study conducted by Yermack (1996) using 452 non-financial US companies. They found that the board size mean was 12.25 and ranged from four to thirty-four directors, mentioning that some US firms such as General Motors and IBM shifted to smaller board size to avoid overhauls in their corporate governance structure.

A lens on the board independence shows that the proportion of independent directors on the board has a mean of (0.81) and varies between 50% and 94% with a standard deviation of (0.1). The mean of the board independence enhanced slightly from 0.79 in year 2009 to 0.81 in year 2010, reflecting more commitment toward boards with more independence. Eight banks have either half of their board directors or half plus one of the directors as independent directors, which is the minimum independence level required. Conversely, 32% of the observations have only one executive director on the board, which is most commonly the CEO. Indeed, NASDAQ standards require that the majority of the directors on the board should be independent. Compared to Pathan and Skully (2010), they

found that in US bank holding companies the board independence in years 1997-2004 varied between 10% and 96% with a mean of 64.55%. The difference could be explained by the increased pressure on listed companies to increase board independence. According to section 303A of the NYSE's Listed Companies Manual, most listed firms were required from 2004 onward to have a majority of independent directors on their boards.

The third board characteristic examined is the CEO role duality. Around 55% of the examined banks separated the role of the chairman from the role of the CEO, compared to 42% reported by Pathan and Skully (2010). The mean of role duality decreased in year 2010 to (0.43) after it was (0.45) in year 2009. This decrease shows that the number of banks that separated the two roles is increasing but on a slow path. The decrease in CEO duality might be due to the pressure exercised by shareholders to abandon CEO duality if company performance is poor (Hermalin and Weisbach, 1998; Linck et al., 2008). It was identified that some banks, such as Regions Financial and Trustmark Corp, separate between the role of the chairman and the role of the CEO in 2010 contrary to previous years. On the other hand, some other banks, such as Park National and Community Bancorp, joined the two roles in 2010.

The Commonwealth Bankshares stated in their proxy statement that they separate the two roles for better governance "as of April 2010, the Company separated the roles of Chief Executive Officer and Chairman of the Board in an effort to strengthen corporate governance, accountability"; and FNB United mentioned in their proxy statement that one of the objectives behind separating the two roles is to minimise the influence of one individual on the board "One reason for the separation was to ensure that no one individual is able to assert a controlling influence over the Board".

The size of the audit committee was analysed as an attribute of the audit committee structure. The results show that the audit committee size of the selected sample varies from three members to a maximum of nine members. The most common audit committee size is four members, which is the size of 43% of the examined banks. The median of the audit committee size is four and the mean is (4.53) with a standard deviation of (1.18). The mean of the audit committee size decreased from (4.66) in year 2009 to (4.4) in year 2010 and the standard deviation decreased from (1.19) to (1.17). Compared to Cornett, McNutt and Tehranian's (2009) research, they reported based on exploring the 100 largest US bank holding companies between 1994 and 2002 that audit committee size varied between zero and thirteen with a mean of (5.15).

Section 407 of the Sarbanes Oxley Act 2002 required the disclosure of whether a financial expert is serving on the audit committee. The financial expert should have audit experience or equivalent and companies should disclose their financial experts' names and their independence of management. On the other hand, companies that fail to have financial experts in their audit committees should disclose the reason behind not having such experts.

Seven per cent of the banks covered in the selected sample failed to have a financial expert on their audit committee. The remaining banks have at least one expert and at most seven. Around half of the examined banks (47%) have one financial expert serving in the audit committee and 27% of the observations have two financial experts. It is identified that of the examined banks 9% in 2009 and 15% in 2010 have all their audit committee members qualified as financial experts.

The table below summarises the descriptive statistics of the corporate governance and control variables.

Table 2.7

Corporate Governance Summary Descriptive Statistics

	Board size	**Board independence**	**CEO role duality**	**Board meetings**	**Audit committee size**	**Audit committee financial experts**	**Audit committee meetings**	**ROA**	**Leverage**
Maximum	21	0.94	1	34	9	7	21	3.69	1.00
Minimum	5	0.55	0	4	3	0	3	-9.53	0.80
SD	3.2	0.1	0.5	5.12	1.18	1.29	3.55	1.88	0.06
Mean	12.5	0.81	0.44	11.1	4.53	1.8	8.46	-.032	0.90
Mode	12	0.8	0	11	4	1	5	0.43	0.93
Median	12	0.82	0	11	4	1	8	0.4	0.90
Skewness	0.27	-0.81	0.24	1.52	1.11	1.43	0.65	-1.88	-10.55
Kurtosis	3.20	2.90	1.06	7.05	4.40	5.36	2.82	6.91	135.9

The table below illustrates the comparative descriptive statistics performed on the corporate governance variables

Table 2.8

Corporate Governance Comparative Descriptive Statistics

	Board size		**Board independence**		**CEO duality**		**Board meetings**		**Audit committee size**		**Audit committee financial experts**		**Audit committee meetings**	
	2009	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**	**2009**	**2010**
Maximum	21	21	0.94	0.94	1	1	34	25	9	8	7	7	8	21
Minimum	5	5	0.55	0.55	0	0	4	4	3	3	0	0	1	4
SD	3.25	3.16	0.1	0.10	0.5	0.5	5.83	4.2	1.19	1.17	1.3	1.29	1.69	3.64
Mean	12.7	12.29	0.79	0.81	0.45	0.43	11.71	10.38	4.66	4.4	1.8	1.79	2.61	8.46
Mode	12	12	0.67	0.86	0	0	11	12	4	4	1	1	2	5
Median	12	12	0.82	0.83	0	0	11	11	4	4	1	1	2	8

2.4.2 Test of Hypotheses

STATA package for statistical analysis is used to analyse collected data and estimate relationships. The relationships between corporate governance factors and the content of corporate social responsibility (CSR) and risk management (RM) disclosures are examined by employing the TOBIT regression, which is one type of the censored regression analysis. The study also uses the OLS regression to test the sensitivity of the obtained regression results. This section illustrates and analyses the results obtained from the employed regressions.

The descriptive statistics results show that CSR disclosure scores vary from zero to 0.8 with a mean of 0.225. Five per cent of the covered observations did not disclose CSR and consequently they score zero. The characteristics of the dependent variable reconcile with the characteristics of a limited variable where the TOBIT regression is likely to be the best regression method to employ. TOBIT is the best to use when the dependent variable is limited and not only answering the question of 'shall the bank disclose or not' (zero or one) but answering the questions of 'shall it be disclosed and by how much?'. The dependent variable in this study is answering the questions of do banks disclose CSR and RM and how informative they are.

TOBIT regression model, which was developed by Tobin in (1958), is commonly used in studying cases of censored data. TOBIT regression becomes more efficient and provides more robust results when the dependent variable is limited. If the values of the dependent variable in some of the observations are grouped at a limiting amount, which is commonly zero, the TOBIT regression becomes more powerful than other regressions since it will make use of all observations regardless if they are at the limit or above. This

differs the TOBIT regression from other regressions that estimate the best fit only based on the above the limit values (McDonald and Moffitt, 1980).

The TOBIT model equation is formed as follows:

$$\begin{aligned} &\text{“}yt = X_t\beta + u_t && \text{if } X_t\beta + u_t > 0 \\ &= 0 && \text{if } X_t\beta + u_t \leq 0 \\ & && t = 1, 2, \ldots, N \text{ “} \end{aligned}$$

Where N denotes the number of observations, y_t denotes the dependent variable, X_t denotes the independent variables, β is the coefficient and u_t is error term (McDonald and Moffitt, 1980).

The Spearman correlations matrix and VIF are used to test for the existence of multi-collinearity between the examined independent variables. Table (2.9) shows the correlations between the independent variables and the results do not suggest any serious collinearity between the examined variables. The highest correlation (0.39) is between the board size and the audit committee size followed by the second highest correlation (0.31) between board independence and audit committee size. The highest VIF value is (1.29) to the board of directors meeting variable. I test for autocorrelation and heteroscedasticity using the Durbin Watson test and White’s test. Both report no threat of autocorrelation or heteroscedasticity. The Durbin Watson test reports 1.63 for CSRD and 1.5 for RMD. In general, the result of D-W statistic ranges between zero (positive autocorrelation) and four (negative autocorrelation). Results that are close to 2 reflect low risk of autocorrelation (Ghauri and Gronhang, 2010, p.181-181).

Table 2.9

Spearman Correlations Matrix

Variables	VIF	BS	BI	DUAL	BM	ACS	ACM	ACFE	ROA	Lev	Year
BS	1.27	1.00									
BI	1.16	-0.05	1.00								
DUAL	1.09	0.08	-0.03	1.00							
BM	1.29	-0.20	-0.00	-0.19	1.00						
ACS	1.28	0.39	0.31	0.10	-0.10	1.00					
ACM	1.09	0.16	0.08	0.04	0.17	0.03	1.00				
ACFE	1.14	0.16	0.04	0.12	0.09	0.04	0.25	1.00			
ROA	1.14	0.04	0.13	0.04	-0.28	0.07	-0.01	-0.07	1.00		
Lev	1.06	-0.10	-0.21	-0.11	0.01	-0.09	-0.20	-0.04	-0.16	1.00	
Year	1.06	-0.07	0.07	-0.02	-0.10	-0.12	-0.01	-0.01	0.14	-0.06	1.0

The impact of corporate governance on the content of CSR and RM disclosures in banks' annual reports is examined in three stages. The objective behind following such an approach is to estimate the effect of each group of corporate governance attributes, i.e. board characteristics and audit committee characteristics separately in order to isolate the effect of one on the other. In doing so, the relation between the board characteristics and the content of each of CSR and RM disclosures is examined first. Second, the relation between the audit committee characteristics and the content of each of the CSR and RM disclosures is estimated. Finally, both the board and audit committee characteristics as well as the control variables are introduced into one model to estimate the integrated impact on the content of CSR and RM disclosures. The results of the three regressions are interpreted and reconciled below.

2.4.2.1 Corporate social responsibility disclosures

The table below illustrates the TOBIT regression results estimating the impact of the board of directors and the audit committee characteristics on the content of CSR disclosures.

Table 2.10

TOBIT Analysis with Robust Standard Error of the Relationship between CSR Disclosures and Governance Structure

	Model I.a ***Board structure***		**Model II.a** ***Audit committee structure***		**Model III.a** ***Integrated governance structure***	
Independent variables	**Coeff.**	**t- value**	**Coeff.**	**t- value**	**Coeff.**	**t- value**
Constant	-0.38	**-2.7*****	0.01	0.06	-0.36	**-2.64*****
Board size	0.01	**2.93*****			0.01	**2.60*****
Board independence	0.25	**2.04****			0.24	**1.68***
CEO duality	0.06	**2.4****			0.05	**2.20****
Board meetings	0.09	**3.41*****			0.01	**2.75*****
Audit committee size			0.01	0.29	-0.01	-0.83
Audit committee financial expert			0.02	**2.1****	0.01	1.38
Audit committee meetings			0.01	**2.97*****	0.01	**2.33****
ROA	0.03	**3.88*****	0.02	**3.6*****	0.03	**3.94*****
Leverage	0.14	1.73	0.08	1.15	0.14	1.49
Year	0.03	1.42	0.02	1.01	0.03	1.25
Chi2		**0.000**		**0.000**		**0.000**
Chi-squared		5.26		4.87		4.68
Log likelihood		65.54		62.74		70.27

*P < 0.1, **P < 0.05, ***P < 0.01

The results of (model I.a) TOBIT regression show that the overall model is significant having a chi-square equal to 0.000, which is significant at $p < 0.01$. The board size is statistically significant and positively impacting the content of CSR disclosures at ($t = 2.93$, $p < 0.01$). On the other hand, board independence, CEO duality and the number of board meetings are significant at ($t = 2.04$, $p < 0.05$), ($t = 2.4$, $p < 0.05$) and ($t = 3.41$, $p < 0.01$) respectively. The signs of the coefficients for all variables are positive indicating a direct relation with CSR disclosures content.

The results of estimating the relation between the audit committee characteristics and the content of CSR disclosures presented in (model II.a) show that the overall model is significant at $p < 0.01$. Two audit committee attributes are statistically significant with the content of CSR disclosures. The audit committee financial experts' variable is significant at ($t = 2.1$, $p < 0.05$), while the number of audit committee meetings is significant at ($t = 2.97$, $p < 0.01$).

When estimating the relationships using the integrated model (model III.a), i.e. board characteristics, audit committee characteristics, ROA, leverage and year, the results do not report major differences except the exclusion of the audit committee financial expert variable. The significant board variables remain statistically significant with different P-values. Board size, board independence and CEO duality are significant at ($t = 2.6$, $p < 0.01$), ($t = 1.68$, $p < 0.1$) and ($t = 2.20$, $p < 0.05$) respectively. With respect to the control variables, board meetings variable is significant at ($t = 2.75$, $p < 0.01$), audit committee meeting is significant at ($t = 2.33$, $p < 0.05$) and ROA is significant at ($t = 3.94$, $p < 0.01$), while leverage and year are not significant. All coefficients have a positive sign indicating direct association with CSR disclosures content.

I find no evidence in any of the Tobit regressions to support the audit committee-related hypotheses, which assume a positive association between the content of CSR disclosures, the size of the audit committee and financial experts. The number of audit committee financial experts that was significant variable in (model II.a) turns to be not significant when examined in the integrated model. This result could be explained by the dominating impact of the board. The audit committee is a sub-set of the board (Sherman et al., 2009), replicating some of its characteristics and sharing in common some if not all the committee members. The role of the audit committee is overseeing and providing reasonable assurance on the sufficiency of the implemented control mechanisms over the operations and the financial reporting process. Moreover, the audit committee focuses on the regulatory and compliance side and is more inclined toward financial reporting reliability (McMullen, 1996) and quality (Chen and Zhou, 2007). This is to fulfil the long list of requirements mandated by the monitoring bodies' such as the Security and Exchange Commission (SEC), Federal Depositary Insurance Commission (FDIC), Sarbanes-Oxley (SOX) and Federal Reserve Bank.

By contrast, the estimation of the relationships between the content of CSR disclosures and the board of directors' characteristics reports interesting and consistent results. Board size is significant and positively associated with the content of CSR disclosure in both estimated models (model I.a and model III.a). Therefore, banks having larger board size are likely to disclose better content of CSR disclosures than those having smaller board size. This result suggests that boards having a larger number of directors are more efficient in bringing CSR to the discussed agenda. As banks are considered complex organisations and subject to wide range of regulations (Grove et al., 2011), larger boards characterised by experience diversity (Guest, 2009) might provide better opportunity to

share the work and have members highly motivated and committed to social activities and more community investments. They might support strategies that give consideration to adopt and communicate CSR initiatives and not only focusing on the provided financial services, as board role is not only monitoring financial performance but also promoting social concepts (Palmieri, 1979). This in turn paves the way to disseminate bank social responsibility performance to stakeholders to strengthen the link with them and bring new insights to the means of rooting the bank in the community. Indeed, boards are responsible for setting firms' identity and adopting a CSR agenda (Jamali et al., 2008). Communicating CSR and reflecting their understanding and participation to satisfy society needs lead to gaining public acceptance and maintaining the virtual contract with their stakeholders, which is important for firms to exist and grow (Kolk and Pinkse, 2010; Jamali et al., 2008).

The reported results are consistent with studies conducted previously on the relationship between board structure and voluntarily-disclosed information. For example, Lim et al. (2007) found significant positive association between the board size and the voluntary non-financial information. Donnelly and Mulcahy (2008) found also positive association between voluntary disclosures content and board size.

The discussion above is complemented by the direct association reported between the number of board meetings as proxy of board activity and the content of CSR disclosures. Bank boards that met frequently disclosed better content of CSR disclosures. This result suggests that active boards seem to be more able to consider social concerns and strategies in their discussions and have a look beyond monitoring management performance. Kent and Stewart (2008) obtained similar results evidencing a direct association between the number of board meetings and the level of disclosed information.

The number of board and audit committee meetings seem to be a good proxy for diligence and effort of relevant board members (Lee et al., 2004).

Hypothesis 2, expecting a positive relationship between the proportion of independent directors on the board and CSR disclosure content is supported by the obtained results. The results of (model III.a) and (model I.a.) indicate that a higher proportion of independent directors tends to lead to a higher disclosure content. The diversified backgrounds of independent directors (Ibrahin et al., 2003) make them more aware of the need to engage in, and report on, CSR activities and not only to think traditionally and focus only on shareholders' interest to enhance firm value. The presence of a higher proportion of independent directors is most likely to encourage management, due to the impact they have on management (Haniffa and Cooke, 2002), to adopt and communicate more CSR information. Higher disclosure content reflects their transparency (Li et al., 2010) and promote the bank's image to gain stakeholders' acceptance (Gray et al., 1995b). Moreover, encouraging CSR disclosure mechanism to communicate their commitment to society reflects their positive attitude toward shareholders interest due to the link they are maintaining between the bank and its society. Indeed, sponsoring activities that enhance the environment and product quality tends to improve long-term shareholders' value (Jognson and Greening, 1999), while communicating CSR enhances a bank's financial performance (Schottens, 2009).

The reported results support the significant association between the percentage of independent directors and the intensity of CSR disclosures found by Li et al. (2010), Ibrahim et al. (2003) and Johnson and Greening (1999). Other studies conducted on voluntary disclosures also found a direct association between the proportion of

independent directors and disclosures level (Chau and Gray, 2010; Cheng and Courtenay, 2006; Donnelly and Mulcachy, 2008).

Conversely, the reported results contradict with some of the previous studies. Lim et al. (2007) provided evidence showing that no relationship exists between the board composition and the level of non-financial disclosures. The study was conducted on 181 non-financial Australian companies, which might be one of the reasons behind the contradicting results. Moreover, Eng and Mak (2003) found a negative association when examining a sample of both financial and non-financial companies, while the present study examined a unique sample from the banking sector.

CEO duality is significant in both examined models, (model I.a) and (model III.a), supporting the set hypothesis suggesting that CEO duality tends to enhance the content of CSR disclosures. CEO duality is not always inefficient (Finkelstein and D'Aveni, 1994), and handling these two key positions seems to facilitate the decision of engaging in, and communicating on, CSR. The consolidated power might assist in adopting social agenda more easily (Barnea and Rubin, 2010) and drive the firm with less interruption (Haniffa and Cooke, 2002). The chairman-CEO benefits from the enhancement in CSR profile and the conveyed information. Disseminating more CSR information shows bank leadership appreciation and involvement for a better society. Moreover, CSR reflects firms' alignment with society values (Matten, 2006) and disclosing information beyond what is required satisfies the need for information and decreases stakeholders' vagueness (Meek et al., 1995). This behaviour assists in convincing stakeholders that the bank is giving back to community and consequently gains stakeholders' commitment. By obtaining stakeholders commitment, the bank will be able to achieve targeted objectives and better results

(Donaldson et al., 1995; Branco et al., 2006), which assist in promoting the CEO's alignment with shareholders interest.

The results of the study support some of the previous studies and contradict with others. Bear et al. (2010) found positive association between CEO duality and CSR. In contrast, Li et al. (2010) found negative relationship between CEO duality and CSR when examining a sample of companies drawn from the emerging market; which might be one of the reasons explaining the opposing results. On the other hand, Barnea and Rubin (2010) found no statistical significance between CSR and CEO role duality. Their study depended on Kinder Lydenburg Domini (KLD) rating to develop the CSR score, which was a binary dummy variable. The present study employed the content analysis technique to develop the CSR score. Li et al. (2008) also found that CEO duality is not associated with the level of intellectual capital disclosure. The study estimated the relationships using a sample of both financial and non-financial UK-listed firms contrary to the current study, which is based on a unique sample from the US banking industry.

ROA is significant and positively associated with the content of disclosed CSR suggesting that banks performing better are more able to invest in social activities (Hannifa and Cooke, 2005) than banks suffering from poor returns. Investing in social activities and community reinvestments reconcile with stakeholder theory. Banks are showing how they are sharing their profits with the society they belong to, which assisted them in generating their returns. The reported result is in line with Li et al.'s (2008) study which mentioned that profitable firms disclose more intellectual capital disclosures to signal that investment in intellectual capital serves a firm's return on assets. Similarly, the conclusions drawn by Scholtens (2009), Simpson and Kohers (2002), Johnson and Greening (1999), and Li et al. (2010), indicating the existence of a positive link between bank performance and CSR, are

supported by the reported results. With respect to leverage, the reported results show evidence of an absence of relationship with CSR disclosures content, which intersect with Revert (2009) and Hannifa and Cooke (2005). Moreover, years were not significant in explaining changes in CSR disclosures.

2.4.2.2 Risk management disclosures

The following section illustrates the TOBIT regression results estimating the impact of corporate governance factors on the content of RM disclosures.

Table 2.11

TOBIT Analysis with Robust Standard Error of the Relationship between RM Disclosures and Governance Structure

	Model I.b		**Model II.b**		**Model III.b**	
	Board structure		***Audit committee structure***		***Integrated governance structure***	
Independent variables	**Coeff.**	**t- value**	**Coeff.**	**t- value**	**Coeff.**	**t- value**
Constant	0.168	**2.00****	0.445	**9.60*****	0.17	**2.06****
Board size	0.005	**2.14****			0.004	**1.75***
Board independence	0.235	**3.34*****			0.226	**3.05*****
CEO duality	0.046	**3.22*****			0.041	**2.91*****
Board meetings	0.004	1.52			0.003	1.12
Audit committee size			0.002	0.28	-0.007	-1.18
Audit committee financial expert			0.014	**2.49****	0.010	**1.94***
Audit committee meetings			0.007	**3.10*****	0.006	**2.67*****
ROA	0.009	**2.12****	0.007	**2.23****	**0.009**	**2.18****
Leverage	-0.044	-1.02	-0.103	**-2.34****	-0.045	-0.94
Year	0.062	**4.31*****	0.058	**3.90*****	**0.058**	**4.15*****
Chi-squared		**0.000**		**0.000**		**0.000**
F-test		9.54		10.11		7.45
Log likelihood		171.22		169.4		178.18

*P < 0.1, **P < 0.05, ***P < 0.01

The TOBIT regression estimating the association between the content of RM disclosures and the board structure, table (2.11), shows that the three examined models are significant at $p < 0.01$. The three board variables (board size, role duality and board independence) examined in model I.b are statistically significant and positively impacting the content of RM disclosures. The board size is significant at ($t = 2.14$, $p < 0.05$), while the CEO duality and board independence are significant at ($t = 3.34$, $p < 0.01$) and ($t = 3.22$, $p < 0.01$). With respect to the control variables, the reported results show that ROA and Year are significant at ($t = 2.12$, $p < 0.05$) and ($t = 4.31$, $p < 0.01$) respectively, while, leverage and the number of board meetings as proxy of board activity are insignificant variables. The coefficients' signs of the board variables are positive, indicating a positive relationship with the content of RM disclosures. The coefficients magnitudes of the significant variables, with the exception of board independence, are not high. This indicates that a one-unit change, i.e. increase or decrease in the number of board directors, board meetings or CEO duality, will cause marginal variation in the content of RM disclosures.

The results of analysing the relationship between the audit committee and the content of RM disclosures suggest that the number of audit committee financial experts and the frequency of audit committee meetings relate to the content of RM disclosure. The audit committee financial experts' variable is significant at ($t = 2.49$, $p < 0.05$), while the number of audit committee meetings is significant at ($t = 3.10$, $p < 0.01$). In contrast, the audit committee size shows no statistical relationship with the content of RM disclosures. The coefficients' signs are positive; indicating a direct relation between the explanatory variables and the dependent variable.

Employing the TOBIT regression to estimate the relationships between the content of RM disclosures and the complete set of corporate governance variables, i.e. the board of directors and the audit committee structures in addition to the control variables, reports generally consistent results as in model I.b and model II.b. The three significant board variables in model I.b remain significant in the integrated model III.b where the board size is significant at ($t = 1.75$, $p < 0.1$), board independence is significant at ($t = 3.05$, $p < 0.01$) and CEO duality is significant at ($t = 2.91$, $p < 0.01$). The audit committee significant variables in model II.b maintain their positive association with the content of RM disclosures. The number of financial experts and audit committee meetings are significant at ($t = 1.94$, $p < 0.1$) and ($t = 2.67$, $p < 0.01$) respectively. With respect to the control variables, the reported results show positive association to ROA at ($t = 2.18$, $p < 0.05$) and year at ($t = 4.15$, $p < 0.01$).

The reported results support hypothesis (1) that expects that banks with larger board size tend to disclose more RM disclosures. The results indicate that in highly-regulated and complex industries (Grove et al., 2011) larger board size, with diversified experience (Beiner et al., 2004; Guest, 2009) and ability to distribute responsibilities and workload among board members (Ahmed et al., 2006; Dey, 2008), are more likely to influence the quality of monitoring and advice. Consequently, boards with larger size encourage management to reveal risk management information effectively to promote their risk management strategies to their key stakeholders. The obtained results are in line with previous studies conducted on the relationship between board size and voluntary disclosures. Lim et al. (2007) showed the relationship with the level of forward looking and strategic voluntary disclosures. Similarly, Donelly and Mulcachy (2008) found positive association between board size and the level of voluntary disclosures. Kent and

Stewart (2008) also evidenced a direct relation between board size and the level of financial information when examining a transitional financial reporting standard period in Australia.

Hypothesis (2.b) suggesting that higher percentage of independent directors on the board leads to better content of RM disclosures is supported by the regression results in both model I.b and III.b, i.e. when the board is examined alone and when it is examined along with the audit committee variables. Board independence reports the highest t-value and coefficient. This result indicates that the change in the board independence (increasing or decreasing the percentage of independent directors) causes higher variation to the content of RM disclosures. This is compared to the variation that might be driven by the change of any other examined variable, keeping the effect of other variables constant.

Boards with a higher percentage of independent directors provide diversified experience (Ibrahim et al., 2003), which might be more able to monitor the content, quantity and quality, of disclosed risk management information (Ahmed et al., 2006; Cheng and Courtenay, 2006). The positive association between the board independence and the content of RM disclosures suggests that boards with higher independence are more capable of expressing the need and convincing management to be more transparent in communicating their risk-management practices, which aim to maintain acceptable risk levels and safeguard stakeholders' rights. In other words, independent directors on the board are likely to facilitate the alignment of management interest with investors' interest (Li et al., 2008; Guest, 2009), through higher transparency in disseminating risk management procedures and related figures. In doing so, they are providing assurance to both shareholders and stakeholders that they are efficiently monitoring bank-risk exposure

by maintaining proper risk levels and operating within acceptable risk appetites. On the other hand, providing comprehensive disclosures might improve transparency and minimise stakeholders cost to obtain information that will help them in monitoring management activities. This will help in the management of the agency conflict and lower uncertainty levels regarding the risk management strategies and adopted practices.

Chen and Jaggi (2000) found similar results showing that independent directors on the board enhance transparency and the comprehensiveness of financial disclosures. Similarly, Cheng and Courtenay (2006) and Donnelly and Mulcachy (2008) found positive association between board independence and voluntary disclosures. On the other hand, Eng and Mak (2003) provided opposing results that show negative association between the level of voluntary information and the presence of independent directors on the board. One of the explanations of the contradicting results might be the difference in the ownership structure. Eng and Mak (2003) examined a sample of Singapore firms having a high level of block-holder ownership (the mean was 62%), which relaxed the need for information transparency, since they may have direct access.

The CEO role duality is positively associated with the content of RM disclosures at ($t = 2.91$, $p < 0.01$). Banks' CEOs having two hats, the hat of the chairman of the board and the hat of the CEO, seem to give more attention to the content of risk management disclosures than CEOs with separated roles. The role duality seems to trigger CEOs to be more concerned about the content of RM disclosures and be willing to communicate their courtesy toward managing bank risk exposure in order to limit the firm's risk and the interest of short term shareholders (Laeven and Levine, 2009; Barry et al., 2011). This was exercised by comprehensive discussion on how the bank is considering policies and

procedures to manage various risk types facing the bank in particular or the banking sector in general. Moreover, the sensitivity of handling the two key positions in the bank is likely to encourage higher transparency and better disclosure content, where RM disclosures mechanism offers suitable channel to communicate management practices and behaviour toward risk issues. The comprehensive content of RM disclosure is assumed to minimise the gap between the shareholders and management and consequently achieves their acceptance and reduces agency conflicts.

Some of the previous studies found evidence supporting the association between CEO duality and the level of voluntary disclosures as did Haniffa and Cooke (2002). Others, such as Chau and Gray (2010) found a negative relationship between the CEO duality and the level of voluntary disclosures, while Forker (1992) found a negative relation between CEO duality and share option disclosures.

The audit committee financial experts and audit committee meeting are significant in both models. The reported results are reasonable and aligned with the duties assigned to audit committees. The audit committee has an important role in overseeing the process of preparing and issuing the financial reports (Krishnan and Visvanathan, 2009), as well as judging and maintaining the integrity of the disclosed financial information (Sherman et al., 2009). Therefore, having a higher number of financial experts, and being more knowledgeable in financial reporting, seem to give more consideration and exercise pressure on management to enhance the content of risk management disclosure. The frequency of meetings enables the audit committee to move from what should be disclosed, in order to comply with the regulatory requirements, to what is better to be disclosed.

Indeed, the audit committee plays an essential role in maintaining the quality of financial reporting (Goh, 2009).

The results also reconcile with some of the previous studies such as (Kent and Stewart, 2008). The results of their study indicated a positive relationship between the number of audit committee meetings and the quantity of financial disclosures. Mangena and Pike (2005) investigated the effect of audit committee characteristics on the financial disclosures and found that audit committee size was neutral and not significant with the level of disclosure, while the financial expert enhances the extent of disclosed information. Moreover, voluntary disclosure research by Bedard et al. (2004), Chen and Zhou (2007) and Hoitash and Hoitash (2009) found a positive impact to financial expert on corporate reporting level.

The results of the integrated model report positive and significant association between ROA and the content of RM disclosures. ROA is statistically significant at ($t = 2.18$, $p < 0.01$). Banks with better performance are more willing to disclose comprehensive information when discussing their risk management policies, risk exposure, as well as monitoring and measurement procedures. The higher returns locate bank's management in a comfort zone helping them feel more confident about the effectiveness of the adopted risk management practices and safe to communicate them.

Comparing the estimated relationships explaining the variation in the content of CSR and RM disclosures identifies different governance determinants to the content of CSR and RM disclosures. The board variables are relatively better determinants to the content of CSR disclosures, with no significance reported to the audit committee

characteristics. This could be explained by the audit committee role as assuring compliance with regulations, reviewing internal control and monitoring financial reporting integrity. On the RM disclosures side, the audit committee characteristics share in the explanation of the variation in RM disclosure content due to their financial perspective. Moreover, the financial experts and audit committee meetings in addition to the board independence and role duality are also impacting the content of RM disclosures.

2.4.2.3 Sensitivity testing

To check the robustness of the estimated relationships between corporate governance and the content of CSR and RM disclosures, another set of regressions are conducted using the OLS regression analysis. The OLS regression with robust standard error is employed to estimate the significance and relationships directions of the examined variables.

The table below illustrates the results of the OLS regression with robust standard error estimating the relationships between CSR and corporate governance variables.

Table 2.12

Linear Regression Analysis with Robust Standard Error of the Relationship between CSR Disclosures and Governance Structure

	Model I.a ***Board structure***		**Model II.a** ***Audit committee structure***		**Model III.a** ***Integrated governance structure***	
Independent variables	**Coeff.**	**t- value**	**Coeff.**	**t- value**	**Coeff.**	**t- value**
Constant	-0.37	**-2.67*** **	-0.09	-0.11	-3.54	**-2.56** **
Board size	0.01	**2.99*** **			0.01	**2.55** **
Board independence	0.23	**1.9***			0.21	1.53
CEO duality	0.06	**2.64*** **			0.55	**2.43** **
Board meetings	0.01	**3.63*** **			0.01	**2.99*** **
Audit committee size			0.01	0.44	-0.01	-0.66
Audit committee financial expert			0.02	**2.01***	0.01	1.30
Audit committee meetings			0.01	**2.88*** **	0.01	**2.26** **
ROA	0.03	**4.07*** **	0.021	**3.85*** **	0.03	**4.10*** **
Leverage	0.16	**1.96***	0.10	1.36	0.16	1.62
Year	0.03	1.42	0.023	0.99	0.03	1.27
R- squared		0.18		0.15		0.21
Prob > F		**0.00**		**0.00**		**0.00**
F-test		5.32		5.02		4.57

*P < 0.1, **P < 0.05, ***P < 0.01

The results of the OLS regression report a positive significant relationship between the board variables and the content of CSR disclosures. The board size and CEO duality are significant at ($t = 2.99$, $p < 0.01$) and ($t = 2.64$, $p < 0.01$) respectively, while board independence is statistically significant at ($t = 1.9$, $p < 0.1$). The board meetings variable is

only significant at $p < 0.1$. These results are consistent with the TOBIT regression results. The board structure variables explain 18 % (R-squared 0.18) of the variation in the content of CSR disclosures. R-square is "A measure of how well the regression line fits the data" (Barrow, 2006, p. 252).

Using the OLS regression to estimate the relationships between the audit committee variables and the content of CSR disclosures reports consistent results with TOBIT. The audit committee financial experts' variable is significant at ($t= 2.01$, $p < 0.1$) and the audit meetings variable is significant at ($t = 2.88$, $p < 0.01$). These results are similar to the results obtained when the TOBIT regression was employed. The only exception is to the audit committee financial experts' variable, which is significant at $p < 0.1$. When employing TOBIT regression the variable was significant at $p < 0.05$, while lower significance level is reported when employing the OLS.

The results of OLS regression with robust standard error estimating the relationships between CSR and the complete set of corporate governance factors report general consistency with the results obtained when employing TOBIT. The only exception is to the board independence. The board independence which was significant at $p < 0.05$ when TOBIT was employed is no longer significant when using the OLS regression. All other variables remain significant at 95% level of confidence and the ROA at 99% level of confidence. The integrated model explains 21% of the variation in the content of CSR disclosures.

These results support the selection of TOBIT regression as censored regression, which presumably achieves better results when having a limited dependent variable.

The table below illustrates the results of OLS regression with robust standard error estimating the relationships between the content of RM disclosures and corporate governance variables.

Table 2.13

Linear Regression Analysis with Robust Standard Error of the Relationship between RM Disclosures and the Governance Structure

	Model I.b		**Model II.b**		**Model III.b**	
	Board structure		***Audit committee structure***		***Integrated governance structure***	
Independent variables	**Coeff.**	**t- value**	**Coeff.**	**t- value**	**Coeff.**	**t- value**
Constant	0.167	**1.96***	0.444	**9.49*****	0.170	**1.99****
Board size	0.005	**2.09****			0.004	**1.96***
Board independence	0.236	**3.32*****			0.227	**3.03*****
CEO duality	0.045	**3.15*****			0.041	**2.82*****
Board meetings	0.004	1.49			0.003	1.09
Audit committee size			0.002	0.29	-0.007	-1.15
Audit committee financial expert			0.014	**2.44****	0.010	**1.88***
Audit committee meetings			0.007	**3.06*****	0.006	**2.61****
ROA	0.009	**2.10****	0.007	**2.22****	0.009	**2.14****
Leverage	-0.043	-0.99	-0.102	**-2.30****	-0.044	-0.89
Year	0.062	**4.24*****	0.058	**3.83*****	0.058	**4.04*****
R- squared		0.21		0.19		0.26
Prob > F		**0.000**		**0.000**		**0.000**
F-test		9.25		9.84		7.16

*P < 0.1, **P < 0.05, ***P < 0.01

Estimating the relationship between the board characteristics (board size, board independence and CEO role duality) and the content of RM disclosures, using the OLS with robust standard error, reports consistent results with the TOBIT results. Board size, board independence and role duality variables remain significant at ($t = 2.09$ $p < 0.05$), ($t = 3.32$, $p < 0.01$) and ($t = 3.15$, $p < 0.01$) respectively and positively associated with the content of RM disclosures. The coefficient values for all examined variables are similar in both models. Board structure variables explain 21% of the variation in the content of RM disclosures and the overall model is significant at $p < 0.01$.

The OLS analysis reports significance for the audit committee financial experts and audit committee meetings at ($t = 2.44$, $p < 0.1$) and ($t = 3.06$, $p < 0.01$) respectively. These results are similar to the results derived from the TOBIT regression. The coefficient values for the tested variables are the same and the P-values are almost similar. This provides additional evidence that supports the results obtained when estimating the relations using the TOBIT regression. The audit committee structure explains 19% of the variation in the content of RM disclosures. This reflects that the board structure is relatively more influential in explaining the variation in the content of RM disclosures than the audit committee structure.

When estimating both the board and audit committee variables in addition to the control variables (model III.b), the OLS regression reports significance for the board size, board independence, CEO duality, audit committee financial experts, audit committee meetings, ROA and year, same as the TOBIT results. All mentioned variables maintain significant levels consistent with TOBIT results, with the exception of the audit committee meeting variable. The audit committee meetings variable is significant at ($t = 2.61$, $p <$

0.05) instead of ($t = 2.67$, $p < 0.01$). It is identified that the coefficients values and signs are consistent in both models and that the integrated model explains 26% of the variation in the content of RM disclosures.

As reverse causality might be a challenge to my analysis, I ran a chi-square test to establish whether the CSR disclosure score and ROA are independent. The chi-square test reports a significance of 0.984, indicating that reverse causality between ROA and CSR is unlikely. Moreover, I ran the TOBIT regression replacing current year ROA by one year lagged ROA and arrived at similar results consistent with the original regressions.

2.5 Conclusion

One of the main turning points in countries' economies was the 2008 financial crisis. The financial crisis was centred on the banking sector, but its negative impacts shadowed on all other industries (Barth and Landsman, 2010). The wide umbrella of the financial panic was not a surprise, since banks are the backbone of the economy and play a crucial role in supplying money and linking between depositors and investors (Howells and Bain, 2008). In executing their role as financial intermediaries, banks need to maintain among other things two main pillars. The first pillar is the pillar of trust, corporate image and reputation, which according to stakeholder theory, firms will not be able to grow and sustain without having stakeholders' trust and acceptance (Branco and Rodrigues, 2006; Rowley, 1997). The effectiveness of the dialogue between the bank and its stakeholders addressing their concerns assists in shaping bank image and managing trust level, which are likely to lead to the development of strong stakeholders' link and commitment (Simpson and Koher, 2002; Hess, 2007; Gray et al., 1995).

The second important pillar is the pillar of risk. Banks facing high risk levels will find difficulties in attracting investors and depositors. Investors generally seek information to understand firms' risk profile and balance between the investment risk and the expected return (Linsley et al., 2006). This means that banks providing poor risk-related information will not be able to convince investors to be shareholders, as well as convincing depositors that their wealth is safeguarded (Hubbard, 2000; Merton, 1987). Generally, having effective communication with stakeholders might share in reducing uncertainty levels, enhancing transparency and providing a clear image on how the bank is being managed (Meek et al., 1995; Poshakwale and Courtis, 2005). Therefore, banks' management should maintain safe risk exposure and be transparent in communicating their practices seeking acceptable risk levels, wise portfolios and off-balance sheet transactions. However RM is expected to reduce information asymmetry and provide more stability (Oishakwale and Courtis, 2005; Linsley and Shrives, 2005). To my knowledge few studies have investigated the impact of the internal corporate governance mechanism on RM disclosures content.

A volume of literature shares a common conclusion regarding how CSR relates to firms' performance and reputation. These studies showed that firms' involvement in CSR and communicating their involvement assist in building better corporate image and achieve better financial performance as well as stakeholders' acceptance (Aguilera, 2006; Gray, 1995; Branco and Rodrigues, 2006; Toms, 2002; Simpson and Koher, 2002; Money and Schepers, 2007). However, engaging in CSR and communicating firm CSR activities are considered a signal for, or part of, good corporate governance and have desirable financial consequences; there is little research into the relation between CSR reporting and corporate governance (Gill, 2008; Kolk and Pinkse, 2010), particularly in the banking context.

The present study explores the association between corporate governance and the content of CSR and RM disclosures using a sample of US national commercial banks' annual reports. Previous studies generally focused on either examining the interrelationships between banks' characteristics, such as profitability, number of branches, listing status and their CSR or disclosure practices in general, or examining the trend of CSR. In contrast, the present study explores the impact of banks' corporate governance on the content of CSR and RM disclosures in the wake of the financial crisis. Moreover, the content analysis technique is employed to measure the content of CSR and RM disclosures in a sample of 195 national commercial banks' annual reports in years 2009 and 2010.

The TOBIT regression is used to estimate the relationships between corporate governance attributes and the content of CSR and RM disclosures. The corporate governance variables are divided into two groups. The first group is the board of directors' characteristics and the second group is the audit committee characteristics. The first group, i.e. board characteristics, constitutes of board size, board independence, CEO duality and the number of board meetings. The second group, i.e. audit committee characteristics, constitutes of the audit committee size, audit committee financial experts and the audit committee meetings. Initially, each group of variables was regressed separately along with the control variables to isolate the effect of one on the other. Secondly, all corporate governance variables along with the control variables were regressed in the same model. The results of the first two regressions were compared with the results of the integrated model regression. The study also used the OLS with standard robust error to estimate the above-mentioned models and compare results to ensure robustness.

The reported results are consistent across all examined models and provide evidence supporting all board related hypotheses assuming a positive relationship between the content of CSR disclosures and board size, board independence as well as CEO duality. The reported evidence suggests that larger board size, which is accompanied by higher accumulated experience (Beiner et al., 2004), is more efficient in bringing CSR to the discussed agenda and encourages management to enhance the content of disclosed CSR. This association between the board size and the content of CSR disclosures supports the results obtained by other researchers such as Lim et al. (2007) and Donnelly and Mulcahy (2008). Board independence in addition positively influences the content of CSR, pointing the importance of independent directors in bringing different perspectives and supplementing board discussions due to their diversified experience and backgrounds (Gray et al., 1995b; Ibrahim et al., 2003; Guest, 2009). They will introduce a new way of thinking, outside the bank's box, to approach different mechanisms in order to achieve strategic plans. The positive association between board independence and the content of disclosures reconciles with the results obtained by Li et al. (2010), Ibrahim et al. (2003) and Johnson and Greening (1999).

The results of the study reconciles with stakeholder theory. Boards with larger size and a higher proportion of independent directors encourage wider content of CSR disclosures, as they are expected to benefit firms' transparency (Li et al., 2010) and stakeholders' long-term mutual relationship (Gray et al., 1995b; Meek et al., 1995; Aguilera et al., 2006; Money and Schepers, 2007; Kolk and Pinkse, 2010). In using CSR as a way to do business and communicating their commitment and interest in society, they are maintaining the link with key stakeholders to secure their commitment. This in turn enables bank management to achieve short- and long-term plans as well as ensuring growth and profitability.

The findings also suggest that CEOs with a dual role are more sensitive and motivated to disclose CSR information. It seems that having both authorities facilitate the decision of engaging and communicating CSR related information (Barnea and Rubin, 2010; Haniffa and Cooke, 2002). However, further research is recommended to understand the reason behind this positive relationship, which might be for personal reasons (Davis, 1960; Barnea and Rubin, 2010; Porter and Kramer, 2006; Hennigfeld et al., 2006) or the competitiveness of relevant goods, labour and capital markets (Fama, 1980; Hermalin and Weisbach, 2003). This result matches the results reported by Bear et al. (2010) and Haniffa and Cooke (2002). Disclosing CSR reflects appreciation to communities and assists in achieving stakeholders' acceptance (Branco and Rodrigues, 2006; Donaldson et al., 1995), which leads to better results. These are important to satisfy shareholders and reflect the alignment of the CEO decisions with shareholders' interest.

Board governance structure is dominant and relatively more powerful in explaining the variation in the content of CSR disclosures. Both audit committee size and the number of financial experts are not significant. Consequently, I find no evidence to support related hypotheses. This result implies that there is differences between the influence of audit committee on financial or voluntary revealed information in general (Chen and Zhou, 2007; Goh, 2009; Hoitash and Hoitash, 2009) and CSR disclosures in particular. This might be explained by the role and mission of the audit committee, which is more oriented toward providing reasonable assurance regarding the appropriateness of risk management, financial reporting process and compliance with rules and regulations (McMullen, 1996).

In addition to the governance variables, the return on assets as control variable reports high significance in explaining the variation in the content of CSR disclosures.

Banks with higher return on assets were capable of investing in communities and able to communicate their involvement comprehensively.

With respect to risk management disclosure, the reported results support the board hypotheses assuming a positive relationship between board characteristics, namely board size, board independence and CEO duality, and the content of RM disclosure. These results suggest that banks having larger board size and higher proportion of independent directors exercise pressure on management to disclose RM information in a comprehensive way. The diversified experience and backgrounds of directors (Guest, 2009; Ibrahim et al., 2003) as well as directors' diligence (Lee et al., 2004) encourage more transparency and enhance the level of disclosed information. The evidenced positive relationship is in line with the results of Chen and Jaggi (2000) and Cheng and Courtenary (2006). Quality RM disclosure assists in reducing uncertainty gap and consequently maintains the relationship between the bank and significant stakeholders. According to stakeholder theory, the strength of the link between the bank and stakeholders determines banks' existence and their ability to develop and grow.

To show the effort performed by the bank leadership in safeguarding shareholders assets and conducting wise management practices, CEO with a dual role seems to be more inclined toward more transparency and disclosing informative RM disclosures. Disclosing information related to risk management beyond what is required is likely to assist in the management of agency conflict (Humbbard, 2000; Meek et al., 1995; Linsley et al., 2006). The content of communicated information shares in reducing uncertainty levels (Patelli and Prencipe, 2007; Li et al., 2008) and provides reasonable signals toward CEO objectivity and judgment in running business operations aligned with shareholders interest.

While the results of the study provide no evidence to support the relationship between the size of the audit committee and the content of RM disclosures, the results evidence a positive correlation between the content of RM disclosures and the number of audit committee financial experts as well as the frequency of the audit committee meetings. The audit committee financial experts presumably exercise pressure on management to enhance the content of disclosed RM information. This complies with their role in overseeing the process of preparing and issuing the financial reports (Krishnan and Visvanathan, 2009) as well as judging and maintaining the integrity of the disclosed financial information (Sherman et al., 2009). Frequency of meetings provides additional time to discuss issues over and above complying with required disclosures. This enables the committee to move from discussing and ensuring the disclosure of what should be disclosed to what is better and more informative to be disclosed.

Further research could be conducted and expand the present study in several dimensions. In this study I focused on the content of CSR and RM disclosures presented in the annual reports. Further research might consider information disclosed through multiple channels other than annual reports, such as bank websites, when measuring the disclosure content to capture a wider range of disclosed information. Other limitation researchers could benefit from is the sample-time horizon. Examining a sample across several years will not only explore the relationships between the corporate governance factors and the content of CSR and RM disclosures, but also helps in monitoring the trend in the disclosure practice and governance attitude toward the content of disclosed information. Moreover, the study could be expanded to cover other types of financial institution within the financial sector and not only banks.

Chapter 3. Do Social Disclosures Show Improvements on Stock Price?

Chapter Three

Do Social Disclosures Show Improvements on Stock Price?

3.1 Introduction

The 2007 financial crisis was the largest shock to the financial system not only in the US but in the world since 1930 (Cornett et al., 2011). The confusion in the financial market during the years 2007 and 2008 led to the financial crisis where banks' market capitalisation declined sharply. Eight trillion US dollars in wealth were lost on stock markets between October 2007 and October 2008 (Brunnermeier, 2009). Most of the security prices dropped sharply and the volatility in financial markets was at a peak (Ivashina and Scharfstein, 2010). The panic in the financial market and the shrink of trading activities were partially driven by the lack of information that limited the assessment of assets risks (Gorton, 2009). Moreover, illiquidity in the market was led by the information asymmetry concerning asset value and stressed on asset pricing. Finding a buyer of a distressed asset was one of the main difficulties during the crisis (Acharya et al., 2011).

Bank transparency and disclosure informativness is important to lower the degree of asymmetry left in the market as a result of the banking crisis. Companies satisfy the need for information to assess their future position and uncertainties by providing voluntary information (Meek et al., 1995). Reducing the degree of information asymmetry and improving disclosure practice are most likely reflected on firms' financial performance "rich disclosure environment and low information asymmetry have many desirable consequences" (Kothari, Xu and Short, 2009, p.1640). Simpson and Kohers (2002) found a

positive link between social performance and banks' financial performance. Indeed, long-term potential investors consider corporate social and environmental behaviour as material to investment decisions, since they value CSR profile due to the competitive advantage that it might give to the firm (Aguilera et al., 2006).

However, uncertainty and information asymmetry will decrease by disseminating more information to the market, a trade-off between the cost of disclosing information and the desired benefit should be considered; "Disclosures are not costless" (Dye, 1986, p.334). Cormier and Gordon (2001) referred to private information as proprietary information. Proprietary information is information known by firms' insiders but not publicly known and is relevant to stock price or debt. Disclosing proprietary information represents additional cost, while not disclosing it might lead investors to have a negative perception about the firm, which might influence stock price and debt interest rate. In other words, management will not disclose environmental or social responsibility information if this will be accompanied with high proprietary cost. Dye (1985) argued that managers' private information might influence firms' value, for example expected reduction in cash flows could be the reason behind not disclosing related information. Salama, Anderson and Toms (2011) drew an example on how CSR activities might expose shareholders to more risk, as social investments having long term cash outflow commitments might lead to an undesirable change in cash flow.

Providing information will cost the firm in addition to the cost of preparing the data the competitive disadvantage cost if competitors use the communicated information against the firm. Banks incur cost in order to disseminate information to the public which is derived from the cost of preparing and communicating information, as well as the hidden

cost resulting from providing information that might benefit competitors. Therefore, banks should balance between the cost of disclosed information and the expected benefit (Baumann and Nier, 2004). Third parties might benefit from a firm's specific information in negotiating contracts and enhancing their competitiveness. More information might expose the firm legally and politically and therefore management might not disclose information over and above what is mandatory to avoid additional costs (Cormier and Magnan, 1999). Companies might disclose less information when it embraces their competitive advantages (Depoers, 2000). Therefore, corporate managers concern when disclosing information is how it will impose on the firm's reputation, performance, negotiation with stakeholders, competitors' behaviour and their relationship with regulators (Dye, 1986). Cormier and Magnan (2003) concluded that information costs were key determinants in understanding the strategy adopted by a firm for environmental reporting, which is a category of CSR disclosures.

On the other hand, investors incur cost to obtain information regarding a financial asset such as stocks, and this cost will influence the expected required return. Investors favour and choose to deal with financial assets having low information cost. From the depositors' perspective, risk premium will be higher and consequently demanded interest rates will increase if information is not available and easy to collect (Hubbard, 2002). From investors' view, wise investors consider the cost over benefit when collecting proprietary information (Cormier and Gordon, 2001). Uninformed investors ask for higher returns due to the higher risk driven by the amount of private information available to other investors, which enables them to hold a better-weighted portfolio, "private information thus induce a new form of systematic risk, and in equilibrium investors require compensation for this

risk" (Easley and O'Hara, 2004, p.1554). Therefore, the content of disclosed and received information is important to all parties interested in a financial asset.

Kim and Verrecchia (1994) found that voluntary disclosures enhanced the volume of information that flows to the capital market and reduces information asymmetry between informed and non-informed stock participant. They added that less information asymmetry enhances investors' trust in firms having improved disclosure practice and encourages them to trade in their stocks since they relatively reflect the fair market value. This in turn results in more stock liquidity and better prices. Diamond and Verrecchia (1991) found that when investors have higher certainty about the firm, resulting from information they have, large orders are placed in the market and consequently large positions for stocks are taken.

Information asymmetry as well as the agency conflict are the main reasons behind the demand for information. Disclosures presented in annual reports provide investors with more details, which will be reflected on the stock price, liquidity and return volatility. More disclosed information assists investors in better estimation to the rate of return, reduces the information asymmetry, which increases stock liquidity and enables more precise prediction of the expected cash flows. All these will result in lowering the cost of capital and reducing stock return variability (Kothari et al., 2009). According to agency theory, agency cost increases when shareholders have no clear understanding of management practices and how they are running the business. This uncertainty regarding management activities and their alignment with the interest of shareholders widen the gap between the two parties and elevate the agency cost (Kothari et al., 2009). Providing more information reduces uncertainty and lowers the cost of capital (Watson et al., 2002). Therefore, management discloses more information to present their success and convince

shareholders that they are properly managing firm's assets. Moreover, Welker (1995) concluded that better disclosure practice positively impacts management-investors information asymmetry levels due to the advantage of having a higher number of informed investors.

Several other factors motivate managers to disclose better information in addition to the impact of reduced information asymmetry on decreasing the cost of capital due to the higher degree of certainty. Shareholders and investors evaluate corporate managers' performance according to the stock value, which might be influenced by more informed investors. Moreover, information enhances stock liquidity and adjusts undervaluation, which maximises corporate managers stock compensation value (Healy and Palepu, 2001).

From a signalling view point, signalling theory assumes that undervalued firms are more responsible for eliminating information asymmetry, since investors have no incentive to obtain costly information. Signalling the firm's performance by disclosing firm-specific information could be utilised to bridge asymmetry gap and attract the attention of market participants (Lee et al., 1983). Therefore, quality firm management sends signals to shareholders and investors to differentiate their firms and benefit from a higher share price, as the strength of the signal will be reflected in more stock participants and more participants indicate higher firms' value (Levy and Lazarovich-Porat, 1995).

Ample literature examined stock price reaction to revealed information. However, to my knowledge, few studies investigated the impact of corporate social responsibility (CSR) as dedicated segments of voluntary disclosed information on bank stock prices. Welker (1995) argued that the level of communicated information between management

and interested investors minimises the information asymmetry, which in turn influences market liquidity and share price. Similarly, Kothari et al. (2009) mentioned that disclosing more information will reduce information asymmetry between the firm and different groups of interested parties and consequently the capital structure will be affected. The researchers suggested that better information, which increases the certainty of expected cash flows, results in more improvements in investments and consequently lowers the cost of capital and stock volatility. Moreover, Akhigbe et al. (2008) concluded that firms might enhance the level of disclosures to face increasing risk.

Previous literature evidenced positive impact of CSR disclosures on both firms' performance (Simpson and Kohers, 2002; Scholtens, 2009) and firms' reputation (Gray, Kouhy and Lavers, 1995; Li et al., 2010). Pava and Krausz (1996) found that socially-responsible firms tended to be more risky, relying on the impact of CSR on performance. Alexander and Buchholz (1978) found that within efficient market conditions the dissemination of social responsibility information was mirrored in stock price. Richardson, Welker and Hutchinson (1999) surveyed CSR studies across twenty years and concluded that disclosing information reduces information asymmetry and enhances market performance. Moreover, CSR activities protect and enhance firms' and shareholders' value especially when the firm faces negative events (Godfrey, Merrill and Hansen, 2009).

The seriousness and drastic drop in the banking sector stock prices during the financial crisis encourage me to explore the influence of CSR disclosures content on the changes in banks' stock prices. This study is addressing an interesting empirical question and contributing to the literature by providing evidence and drawing conclusions on whether improved content of CSR disclosures shows improvement in stock prices. These

results might be valuable to banks' corporate managers considering their reporting strategies. The evidence is based on examining a unique sample from the US-listed national commercial banks covering the years 2009-2010, the period after the financial crisis; and not a mix of listed companies. Previous studies refer to years 2007 and 2008 as the period of financial crisis (Grove, Patelli and Victoravich, 2011; Yeh, Chung and Liu, 2011). This allows us to understand the impact of dedicated types of disclosures, different from the information types previously examined, to have better understanding of the variation in bank stock prices and whether CSR is discounted or disregarded in financial markets. This area, to my knowledge, is not addressed to the extent that conclusions are drawn and relations are evidenced and empirically supported.

Most of the previous studies that examined the impact of information on stock response dealt with the topic using financial risk measures such as stock return volatility, abnormal returns and spread (Kothari et al., 2009; Bushee and Noe, 2000; Akhigbe et al., 2008; Godfrey et al., 2009). The present study examines the impact of a selected type of disclosure on stock price changes proxied by the change in stock price between two consecutive years standardised by the base year price. In addition, two alternative measures reflecting the total investment return and average monthly return are used. Content analysis technique is employed to measure the content of CSR disclosures in banks' annual reports contrary to most of the previous studies that relied on rating agencies or used the word count to measure disclosures (Bushee and Noe, 2010; Gelb and Zarowin, 2002). Disclosure ranking provided by rating agencies such as the 'Association for Investment and Management Research' AIMR and 'Kinder Lydenburg Domini' (KLD) are used in previous studies without having clear understanding of the criteria used in scoring firms' disclosure practice. AIMR data produces ranking for aggregate and disaggregate voluntary

disclosures in annual reports and form 10-Ks. The process of selecting the firms to be ranked and the approach followed in ranking firm disclosures are not clearly understood (Healy and Palepu, 2001).

The results of the linear regression with robust standard error examining a sample of 194 observations support the link between CSR disclosures and stock price behaviour. Information content of CSR disclosures was valued by stock participants and shows improvement in stock prices. However, the content of CSR disclosures is not highly significant and the change in disclosures content will result in marginal stock price change; the reported results provide evidence indicating that financial market participants discount CSR information economically and management involvement and communication of CSR information might enhance shareholders' value. Therefore, banks that have a higher CSR disclosure score were able to reduce the degree of information asymmetry and improve the position of their stock price. With respect to the examined control variables, the reported results evidence the improvement of stock price when banks achieved lower leverage and book to equity ratios.

The study consists of four main sections. The first section covers the literature review and theoretical framework. The second section illustrates the research design and examined models. The third section addresses the results of data analysis and hypotheses testing. The conclusion of the study is drawn in the final section.

3.2 Literature review and theoretical framework

3.2.1 Literature review

In reviewing the literature of CSR disclosures and market reaction, focusing on stock price changes, I was faced with limited number of studies that explored this area. The majority of studies I encountered through my search examined the impact of CSR on firm performance and few on market risk, rather than return and stock price changes in particular. A critical review of the most relevant studies that assist in building the desired model is presented. The review also addresses studies that examined the impact of disclosures or information in general on market reaction or stock abnormal returns as well as the cost of capital.

Starting from the 1970s, Alexander and Buchholz (1978) viewed the relationship between CSR and stock performance by examining a sample of 41 firms across the financial and non-financial sectors for a period of five years. Their conclusion, based on a survey completed by businessmen and students to provide the social responsibility ranking, showed no relationship between stock price and social responsibility ranking. They explained that by the absence of differences between stock returns and market-adjusted stock returns that characterised the selected sample. However, they mentioned that under the conditions of efficient markets the dissemination of social information might be mirrored in stock price due to the impact of information related to prospective earnings on stock prices.

With the intention to explore the association between corporate social responsibility and firms' performance, Pava and Krausz (1996) surveyed 21 empirical studies covering a

ten-year period. They address several accounting and financial performance measures such as change in stock price, return on equity, risk-adjusted market return and earnings-per-share growth. Among the surveyed studies, the researchers found that twelve studies evidenced positive relationship between CSR and firms' financial performance; one study evidenced negative association, while the remaining studies failed to find any association. The second part of the study investigated empirically using a sample of 53 companies from several industries the relationship between CSR and three categories of financial measures. The first category represented market-based measures and consisted of market return, market to book ratio and price to earnings as proxy of performance. The second category represented the accounting measures and consisted of return on assets and equity as well as EPS as proxy of performance, while the third category represented risk measures such as current and quick ratio and debt to equity ratio (leverage).

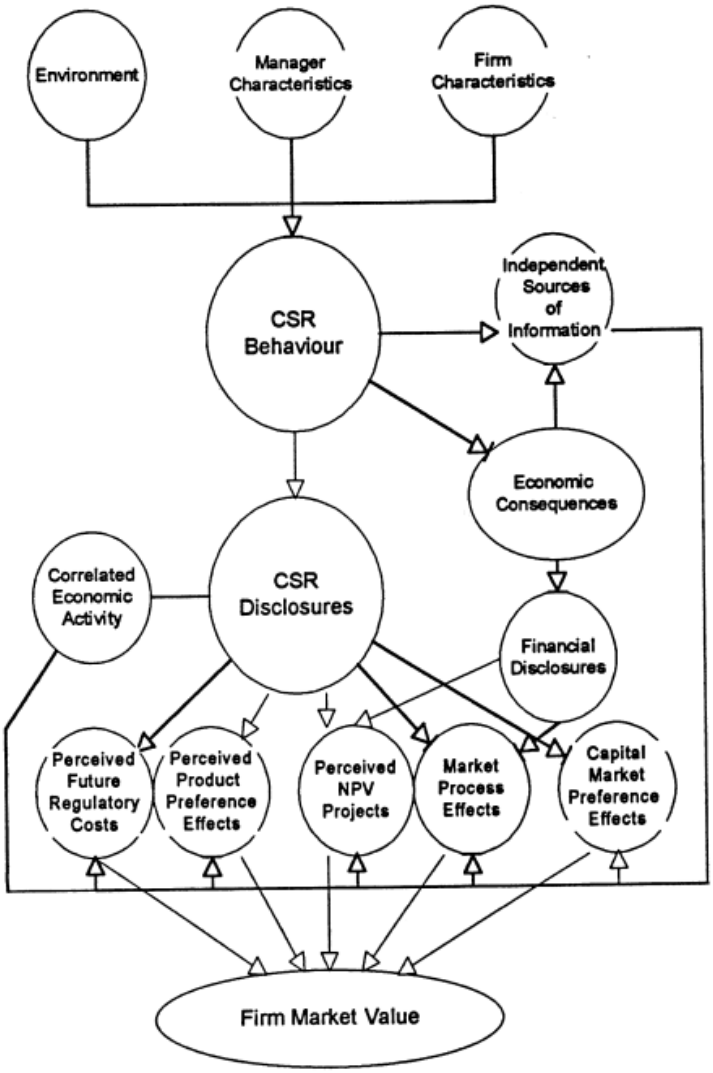
The relationship between CSR and each of the mentioned categories was examined alone and then along with firms' characteristics, such as size and lines of business as control variables. The results of the study evidenced direct relationship between CSR and some of the examined financial measures such as ROA, ROE, leverage and market to book value; showing that socially-responsible companies are more risky using the debt-to-equity ratio as proxy of firm risk. On the contrary, earning per share and price-to-earnings ratio were not significant in all examined models. It was mentioned that shareholders are more willing to accept lower return compensated by improved CSR practice, and managers are more willing to consider CSR investments in their strategic decisions and remove constraints due to the impact of CSR on firm financial performance.

Richardson, Welker and Hutchinson (1999) expanded the CSR survey conducted by Pava and Krausz (1996) and built a model explaining the mechanism between CSR and market performance. They mentioned that the social attitude of the firm varies over time according to stakeholders' expectations, corporate managers' characteristics and firm nature. On the other hand, CSR can influence on investors and the purchase decisions impacting on capital market and reflecting management performance.

They argued that disclosing CSR information regardless of the news type reduces uncertainty concerning future cash flows and lowers firm risk. This in turn leads to lower cost of capital and enhances share liquidity. Disclosing CSR information that reduces the possibility of future social and environmental issues, such as staff claims and discriminations, as well as having less probability of lawsuits and legal cost provides indicators for a better present value for the expected cash flows. This might positively impact stock price, "Disclosures of CSR may be used by the market to assess the likelihood of future regulatory actions and hence the impacts future cash flows" (Richardson et al., 1999, p.22).

The researchers surveyed CSR literature and summarised the work of twenty-two studies conducted between 1977 and 1997, identifying only two studies that estimated the association between CSR, cost of capital and market liquidity. The remaining studies were either examining CSR trend and determinants or CSR impact on firm performance. All these studies were conducted using either a sample of mixed industries or a single industry such as chemicals or energy. The study concluded that the impact of disclosing information on reducing asymmetries enhances market performance and stock liquidity, which lowers transaction cost and consequently reduces the cost of capital.

The model, designed by Richardson, Welker and Hutchinson (1999) to explain the mechanism between CSR and market performance, is presented below:



Source: Richardson, Welker and Hutchinson (1999). Managing capital market reaction to corporate social responsibility. *International Journal of Management Review*, Vol. March 1999, p.19.

In an attempt to understand the inconsistent results explaining the reaction between CSR disclosures and firm performance, McWilliams and Siegel (2000) reviewed the literature and grouped CSR studies into two main streams. The first stream of studies examined the short term financial impact for firms involved in more CSR investments using the event studies and abnormal returns. The second stream examined the impact of CSR on firm performance using accounting measures. The results of both types of studies

were inconsistent and conclusions can't be drawn. The researchers argued that results inconsistency might be due to omission of a control variable, such as R&D, due to the existence of theoretical literature that links between R&D and performance. The study then examined the impact of CSR along with leverage, size and industry on firm performance first without including the R&D variable and found positive significance. When the R&D variable was introduced the goodness of fit increased but CSR turned to be not significant. This was explained by the high positive correlation between R&D, CSR and performance variables and that both CSR and R&D are important determinants to firm performance but can't be used in the same model. McWilliams and Siegel concluded that researchers should be cautious when studying and interpreting results about CSR and firm performance avoiding the inclusion of strategic variables into the examined model. They added that it was noticed that in recent years more pressure was exercised on firms to consider more CSR investments. Some of the firms responded to stakeholders' encouragement and the rest resisted, fearing the decrease in profit if CSR investments were undertaken.

Contributing to the continuing debate on the link between CSR and market reaction, Murray Sinclair, Power and Gray (2006) examined the impact of CSR disclosures on market behaviour using a sample from the largest 100 UK companies. The continuous compounded return formula, i.e. computing the natural logarithm of the ratio of current year price to previous year price, was used as proxy of financial market performance. The results of the study reported absence of relationship between CSR disclosures and stock returns. This was explained by the traditional view of investors as not considering the social perspective when taking financial decisions. They highlighted that results should not be explained in the direction that CSR disclosures have no added value to management, but how they are absorbed by markets is not clear yet. Moreover, they mentioned that they

found few studies and no proven evidence in the previous literature explaining the association between social disclosures and stock sensitivity, and, how these disclosures are signalling to cause changes to economic factors. However, there is growing demand for social disclosures from investors. It is worth mentioning that the formula used to measure the dependent variable, stock return, is commonly used in cases of high frequency, while the study used yearly stock price where a simple return formula might be recommended.

Using the change in stock price (the unexpected changes) as proxy to shareholders value, Godfrey et al. (2009) reach a conclusion supporting the relation between CSR and stock performance contrary to the above studies. Godfrey, Merrill and Hansen (2009) hypothesised that CSR activities may protect the firm's value and consequently the stockholder value, especially after negative events. The researchers defined CSR as a firm's contributions to stakeholders, due to its voluntary perspective, grouping stakeholders that benefit from CSR activities into two groups. The primary group of stakeholders that has legitimacy power, and firms respond to their issues urgently; and the secondary group that also has legitimacy power but its issues are not addressed urgently. The researchers argued that when CSR activities are directed toward the secondary stakeholders, it reflects the firm's interest in addressing all stakeholders issues even for groups having less power and not only primary stakeholders. This behaviour enhances the firm’s relation with other stakeholders and provides signals showing the firm's interest in the community and how they are acting to the best of its interest. This in turns will give the firm the necessary social acceptance.

The study used the Kinder Lydenburg Domini (KLD) database to obtain the CSR data for 99 firms across the years from 1992 to 2002. The results of the study supported the

hypothesis set and evidenced that CSR enhanced shareholder's value, especially if the firm were faced by a negative event. Moreover, CSR directed to secondary stakeholders was found to enhance a firm's value in companies having high or low market to book value. Market to book value was introduced into the model as a control variable. The results were explained by the effect of disclosing CSR in providing a buffer of goodwill and protection as well as signalling the expected reaction of major stakeholders. The added value of the moral capital generated from the CSR activities led to lower impact on stock prices in case of negative events.

Another study that could be grouped with Godfrey et al. (2009) in supporting the impact of CSR on firm value is the study conducted by Salama, Anderson and Toms (2011) and Belkaoui (1976). Salama, Anderson and Toms (2011) evidenced inverse relationship between firms' community, environmental performance and firms' risk. The evidence was based on analysing UK firms rated by 'Management Today Magazine survey' throughout the years 1994 - 2006. Controlling for firms' characteristics (liquidity, gearing, asset growth, size, return and industry) the results showed that community and environmental reputation marginally impacts firms' systematic risk. With respect to the control variables, the study reported a direct relationship between size and firm's systematic risk and inverse relationship with gearing and asset growth. The researchers explained the negative association by the impact of community and environmental reputation in mitigating risk of claims, which in turn benefits investors.

Belkaoui (1976) examined the interaction of environmental disclosures on markets arguing that disclosing better environmental disclosures might enhance stock price. The results of examining fifty companies showed that more environmental disclosures enhance

stock price temporarily; as the stock price dropped back after four months from the disclosure date. Two explanations were provided by the author: the first explanation was that the market reacted positively to the newly-disclosed information and hence the stock price rose. When the market participants identified that these stocks are fully valued, the selling of shares started and consequently the price started to go down. Secondly, it was explained by the reaction of ethical investors. When information was disclosed, ethical investors reacted to the social image reflected by the environmental disclosures and participated in stock purchase. This led stock prices to increase; however, this event stood for only a short period and therefore after that the price went down.

While the above studies addressed the impact of social responsibility disclosures on firms' performance and market response, the following set of studies addresses the impact of other non-financial information on stock price behaviour.

Jennings and Starks (1985) examined the impact of information content on stock price, mentioning that the effect of new information on stock price received attention and was examined from both finance and accounting perspectives. Finance studies were interested in understanding the sensitivity and speed of price adjustment as a response to information, while accounting studies focused on the sensitivity of price toward the content of disclosed information. To test the impact of disclosures content on stock price, the researchers selected two groups. The first group contained firms that provided poor information to investors and the second group provided better information content. The results of the study showed that information content was not only associated positively with stock price but also the impact of high information content lasts longer. The impact of informative content explained the fifteenth price change, while low informative content lasts only to the third change in price.

Similarly, Healy, Hutton and Palepu (1999) investigated firms' benefit from enhancing their voluntary disclosure practice using a mixed sample from the US market. They argued that however the credibility of disclosures is not assured, expanded disclosure might assist firms to correct asset undervaluation and enhance stock liquidity. This argument was supported theoretically and empirically by the authors through listing several studies evidencing that expanded disclosure lowers the information asymmetry between management and investors, which in turn enhances stock liquidity and attractiveness. The AIMR rating was used to compute the improvement in firms' disclosure practice, while risk, size and growth in return were used as control variables. The univariate and multivariate tests were conducted and similar results were reported. They showed that expanded disclosures triggered investors to adjust stock valuation according to the disclosed information and consequently stock price improved. Moreover, earnings changes standardised by equity and risk were significant with stock price change, i.e. return, while firm size and earnings changes were insignificant.

Healy and Palepu (2001) surveyed disclosures and capital market literature and provided additional explanations on management-reporting decisions within a capital market context. Management takes the advantage of reporting and disclosing information to communicate its performance to shareholders and investors. The reported information includes both mandatory and voluntary information to satisfy the demand for information generated from the information asymmetry that causes agency conflict between the principal and agent. The gap of information between agent and principal enforces the agent to communicate information that allows the principal to follow-up on the agent performance and monitor the alignment of management practices with the principals' interest.

As information could be treated as public good, firms might provide efficient extent of information based on the trade-off between the costs of providing information and the generated benefit. Healy and Palepu (2001) argued that management has information not known by investors, which might affect future earnings, even if the firm is trading within an efficient capital market. They concluded that according to the surveyed studies they identified several effects from voluntary disclosures on capital markets. First, they enhance stock liquidity due to the decrease in information asymmetry among investors (investors having inside information), which increases investors' confidence by the fairness of the stock price. The second disclosure effect on capital market is the reduction in cost of capital. Low uncertainty about the firms' specific risk increases the required returns by investors, while disclosing high levels of information that lower information risk might decrease a firm's cost of capital relatively to other firms with poor disclosure practice. Consequently their stock performance might be enhanced.

Within the same context, Gelb and Zarowin (2002) examined the impact of informative disclosures on stock price changes. The AIMR annual disclosure rating was used as proxy to the level of voluntary corporate disclosure. The stock price changes were measured by the difference in stock pricing for two consecutive years plus dividends. The result was scaled by the previous year's closing stock price. Expected market capitalisation, earning price ratio and growth were introduced to the examined model as control variables in addition to expected future returns. The results indicate that firms with better disclosure level had better stock prices relative to firms with low disclosure ranking. Moreover, stock price of firms with high disclosure level showed more predicting power to future earnings. This was explained by the benefit of disclosures in providing stock participants with needed information. It was also mentioned that communicating information that helps

investors better estimate future cash flows reduces uncertainty and enables them to predict future returns, "more extensive disclosures do indeed provide information benefit to the stock market" (Gelb and Zarowin, 2002, p.35). With respect to the control variables, the pooled OLS regression showed that earning price ratio and growth were positively significant with stock price changes, while market capitalisation was negatively associated.

From the angle of both information quality and quantity, Easley and O'Hara (2004) demonstrated a model under equilibrium conditions showing that asset pricing is influenced by both information aspects "In general, more information, even if it is privately held, is better than no information at all" (Easley and O'Hara, 2004, p.1554). They mentioned that previous studies dealt with the subject of information from three angles. The first addressed the impact of private information; the second addressed the role of information under the conditions of incomplete information and not asymmetric, while the third explored the role of disclosures in determining asset prices. Their own analysis indicated that firms with more public information witnessed lower cost of capital. Two arguments were used to explain the relation between information and stock prices. First, the risk of stock decreased with improved information, which implies that more informed traders will participate in the corresponding stock, shifting stock prices upward. The second explanation was through the indirect effect on stock price, arguing that private information available to informed traders was revealed by other traders, lowering stock risk and enhancing its value.

Examining stock reaction from the cost of capital perspective, Poshakwale and Courtis (2005) investigated the relationship between voluntary disclosures and the cost of equity capital using a sample of both European and non-European banks. The researchers

mentioned that their study is important since literature lacks similar studies conducted specifically on financial firms. The examined sample consisted of 135 banks from Europe, US, Australia and Canada. The capital asset pricing model (CAPM) was used to measure the cost of equity, arguing that providing a high level of information to the market will reduce the level of uncertainty, lower the cost of capital and consequently attract investors. Having a lower level of uncertainty drives investors to accept lower returns and this in turn enhances stock prices. The results of the linear regressions reconcile with the researchers' argument showing negative correlation between the level of voluntary disclosure and the cost of capital. Consequently, banks that provided a higher level of voluntary disclosure were faced with lower cost of equity capital.

Kothari et al.'s (2009) results match with Poshakwale and Courtis (2005) when they investigated the relationship between disclosures content and company's risk proxied by the volatility of stock return and cost of capital. The content of the information disclosed by companies through the annual reports, business press, and information provided by analysts was assessed. The sample covered the financial, technology, telecommunication and pharmaceutical industries for the period between 1996 and 2001 inclusive. The researchers argued that the information asymmetry as well as the agency conflict is the main reasons behind the demand of information. Disclosures presented in annual reports or issued in the press releases provide investors with more details and consequently this will be reflected in stock price, liquidity and return volatility. More disclosed information assists investors in better estimation of the rate of return and reduces the information asymmetry, which increases stock liquidity and enables more precise prediction to the expected cash flows. All these will result in lowering the cost of capital and reducing stock return variability.

The results of the multivariate analysis showed that improved disclosures reduced the uncertainty gap resulting in reduced cost of capital and return volatility. The study evidenced a strong relationship between the type of disclosed information (positive or negative) and the stock return volatility. This relationship was consistent regardless of the disseminating channel, i.e. annual reports, business press releases or analysts. Moreover, leverage (debt to assets), book-to-market value of equity and firm size (market capitalisation) were used as control variables in the examined model and showed significance with tested risk measures. Firm size was added since large firms can diversify their projects and asset portfolio. The study concluded that there is responsibility on companies to disclose reliable and informative disclosures in a timely manner and that disclosure will remain an important field for further empirical testing.

Bushee and Noe (2000) examined also the impact of corporate disclosures on the level of stock-return volatility. But the study used the disclosure score of all companies having their disclosure practice ranked by the 'Association for Investment and Management Research' (AIMR) during the period from 1982 to 1996. In addition to examining the impact of disclosures on the stock volatility, the examined model introduced among others the book-to-market value of equity to control for growth and leverage to control for company risk. The regression results showed that better disclosure rank assists in having lower stock return volatility, evidencing the inverse relationship between disclosures and stock volatility. They argued that better disclosure mitigates uncertainty that eliminated vagueness around firms' performance and consequently reduces the volatility in firms' stock price. The examined control variables were positively associated showing that higher leverage measured as debt-to-assets and a higher ratio of book-to-market value of equity lead to more stock return volatility.

3.2.2 Theoretical framework

The theoretical framework is considered the foundation on which the complete study will be developed. Theories provide explanations and general understanding to relations between different subjects as well as directions on what might be done and what might not be done.

3.2.2.1 Agency Theory Overview

The relationship formed between the principal that owns the firm and delegates the decision-making process to a second party, the agent, is known as agency relationship. Agency theory argues that the separation between firm ownership and its management creates agency conflict and consequently increases the agency cost. If a firm is managed by its owners, then there is no agency conflict and the agency cost is almost zero. On the other hand, firms with a wide shareholder base and spread ownership, that delegates the responsibility of decision taking to corporate management, faces agency conflicts and experiences high agency cost (Eisenhardt, 1989). In large corporations, where shareholders are dispersed, business decisions and operations are delegated to corporate management. The intention of stockholders is concentrated in reducing the firm's risk and enhancing the firm's value, while management might have a different agenda and act according to their interest. These differences in perspectives between shareholders and management are most likely to cause conflicts known as the agency conflict "Agency theory derives from the conflict of interest between corporate managers, outside stockholders, and bondholders" (Crutchley and Hansen, 1989, p.36).

Smith and Jensen (2000) reviewed studies on agency theory that provide implication for management, shareholders and creditors conflict resolutions. They defined

agency theory as "an agency relationship is a contract in which one or more persons (the principal(s)) engage another person (the agent) to take actions on behalf of the principal(s) which involves the delegation of some decision-making authority to the agent" (Smith and Jensen, 2000, p.2). Heath (2009) defined agent from a legal perspective "an agent is one who is entitled to negotiate on behalf of a principal, or bring the principal into a contractual relation with some third party" (Heath, 2009, p.499). An agent tends to conduct actions and behave according to their interest whenever possible "whenever it is advantageous for them to do so" regardless of the prior commitments with the principal "on the part of the agency theorist, to view that individuals will behave opportunistically whenever given the chance to do so" (Heath, 2009, p.504, 502) . The conflict in objectives and risk-taking between the principal and agent and the level of difficulty the agent might face to verify the appropriateness of decisions and behaviour lead to various agency conflicts (Eisenhardt, 1989). The cost of agency conflict resulting from the separation between ownership and management includes the "contracting cost, transactions cost, moral-hazard costs, and information cost" (Smith and Jensen, 1985, p. 3). Jensen and Smith mentioned that agency issues might be eliminated by separating management from control, which could be achieved by developing a system of structured approvals that allow decisions taken by a manager to be controlled by another agent.

The agency cost increases when shareholders have no clear understanding of management practices and how managers are running the business. This uncertainty regarding management activities and their alignment with the interest of shareholders widens the gap between the two parties and elevates the agency cost. Communicating information that lowers the uncertainty gap and clarifies management practices assists in managing agency conflicts and lowers its cost, "Demand for financial reporting and

disclosure arises from information asymmetry and agency conflicts between managers, outside investors, and intermediaries" (Kothari et al., 2009, p.1640).

The agency theory was described by Heath (2009) as a "critical diagnostic tool" that addresses different circumstances and explains the consequences when lack of morality exists. It identifies organisational weak points where agency risk might appear: "agency theory proves to be an invaluable tool in understanding what went wrong" (Heath, 2009, p.521). Heath described the shareholders' relation with the firm as complex relation and not to be simplified to a relationship between principal and agent, where principals hire and monitor the agent "The relation between the firm and its shareholders is in turn very complicated" (Heath, 2009, p. 506). However, external incentives might explain the avoidance of agency cost, since having system in place enforces the agent to behave in an institutional manner mitigating opportunistic actions and limiting their negative impacts.

Principals will not perform extra monitoring as long as the principal is convinced that the agent is behaving according to its preferences. Principal monitoring is performed to compensate the loss of control resulting from the delegation of authority process, as agent practices might not be consistent with the principal perspectives. Agents might conceal information that benefits the principal but harms the agent and might also conduct actions and hide them knowing that they will not be accepted by the principal. Moreover, the delegation might put the agent in more powerful position than the principal, but this doesn't mean that the principal is powerless due to the power they have in hiring and renegotiating contracts (Nielson and Tierney, 2003).

Eisenhardt (1989) mentioned two types of agency theory researchers, the "positivist agency theory researchers" and "principal agent researchers". Positivist researchers were concerned by recognising conflicting situations between agent and principal and explaining the mechanisms that control agent behaviour. The other school, principal agent researchers, tried to put assumptions and derive them mathematically "principal-agent research includes many more testable implications". Positivist and principal agent are complementary streams as the first identifies different contract options and the second tests the efficient contract.

The agency conflict could be either the result of "moral hazard" or "adverse selection". The first refers to the reduced effort provided by the agent contrary to the agreed level of effort, while the second type arises due to the principal's inability to verify the agent's capability to manage appropriately. In all cases, the concern of the agency theory is to offer optimal relationship structure and its relevance increases in cases of complex contracting problems, "Agency theory provides a unique, realistic, and empirically testable perspective on problems of cooperative effort" (Eisenhardt, 1989, p.72). Eisenhardt listed several factors that influence the principal-agent relationship such as agent outcome measurability, access to information, principal risk averseness, programmability of agent tasks and the length of agent principal relationship. It was mentioned that information systems, according to agency theory, are treated as a commodity that has a cost and could be purchased. The level of information provided through the information system is important to address shareholders' concerns and manage agent opportunism.

Depoers (2000) examined French companies' annual reports and related the level of disclosures to economic determinants. The tested sample comprises 102 annual reports

randomly selected from the industrial and commercial French-listed companies in the year 1995. The hypotheses were derived from the agency theory that assumes disagreement between the shareholders and management from one side and management and lenders from the other side. Depoers (2000) mentioned that in solving the agency conflict that arose from the separation between ownership and control, management could disseminate information in the form of disclosure in their annual reports to act as monitoring tool. Therefore, according to the agency theory I can assume that the cost, which will be incurred by the company to disclose information, will be explained by minimising the monitoring cost if the desired benefit will exceed the incurred cost.

In times of crisis, the agency conflict might be more sensitive and management strategies as well as practices need to be more transparent and accessible to provide shareholders and investors with needed information. The content of the delivered information that approaches the need of different users might help management in maintaining trust, which in turn might reflect on firm's value. Presumably, enhanced stock prices that reflect management ability to lead the company might lower the agency cost (Richardson et al., 1999).

3.2.2.2 Agency theory and stock price

From an agency theory perspective, each component of the capital structure, debt and equity, has its benefits and reflects a different level of control. The power of equity is reflected by the right of equity holders to change management and negotiate contracts. Moreover, equity governance becomes more important when shareholders have more ability to monitor and assess corporate managers' performance. Therefore, managers have incentives to reduce the degree of uncertainty with shareholders to lower the agency

conflict that arises from the lack of monitoring; consequently, efforts provided to lower the agency conflict will be reflected on stock prices (Kochhar, 1996). Watson, Shrives and Marston (2002) interpreted that according to agency theory, management discloses more information to present their success and convince shareholders that they are properly leading the company. At the same time, providing more information will reduce uncertainty and lower the cost of capital.

Healy and Palepu (2001) illustrated several factors that motivate managers to disclose information for better stock market performance. The first motive is lowering information asymmetry that will reduce risk and cost of capital due to higher certainty resulting from better disclosed information. The researchers referred to previous literature that evidenced that disclosures were enhanced prior to the period of equity offering. Secondly, shareholders and investors evaluate corporate managers according to the stock performance and their ability to maximise the firm's equity value. Therefore, the theory of voluntary disclosures argues that managers provide better disclosure practice to lower the risk of undervaluation and maintain their positions. Another link between information and stock performance is related to stock compensation. Managers have incentives to provide inside information to enhance stock liquidity and price to maximise their benefits.

In summary, voluntary disclosures enhance the volume of information flowed to the capital market and reduce information asymmetry between informed and non-informed stock participants, “more public information reduces or eliminates potential information asymmetries” (Kim and Verrecchia, 1994, p.60). Less information asymmetry enhances investors trust in firms having improved disclosure practice and encourages them to trade in their stocks, since they relatively reflect the fair market value. This in turn results in

more stock liquidity and better prices (Kim and Verrecchia, 1994). Moreover, the release of public information, in an attempt to decrease information asymmetry, reduces the cost of capital as a result of higher investors' demand attracted by stock-enhanced liquidity (Diamond and Verrecchia, 1991). The larger the information asymmetry gap, the higher the increase in price when the gap is reduced (Diamond and Verrecchia, 1991).

3.2.2.3 Signalling Theory

Signalling theory forms another approach that provides understanding to the potential relationship between the content of disclosures and stock price. Signalling theory was initially studied in production and labour market and then used to explain equilibrium and information issues. The concept behind signalling is reducing the information asymmetry through the transfer of information from the party having more information (management) to market participants, and the success of a signal relies on its credibility (Ross, 1977).

Levy and Lazarovich-Porat (1995) addressed the effectiveness of signalling by examining experimentally the entrepreneur participation in buying stocks issued to finance a project after quality signals. They argued that the strength of the signal will be reflected in more stock participants, and more participants indicate a higher firm's value. The results of the study evidenced the influence of signals on stock prices mentioning that in short terms the stock price is determined by the perceived risk rather than the real risk.

As information provides opportunities for investors to identify the type of investment best to choose, Campbell and Kracaw (1980) argued that even private information that is known by a limited number of investors can provide signals to other

investors to identify undervalued assets "private information immediately becomes a public good" (Campbell and Kracaw, 1980, p.866). Investors having private information tend to concentrate their investments in selected assets triggering their prices to increase. The upward shift in price is a signal to other investors to trade in the same asset and avoid other assets that might be overvalued. The cost of private information to non-private information owners is reflected in the extra cost paid to acquire the asset however; this will not result to "Rational Expectations Equilibrium" as named by the authors. This equilibrium might be achieved when information producers provide low-cost information due to competition. The low cost and reliability of information assist in recognising and differentiating between undervalued and overvalued firms. Therefore, the challenge in the market is to determine information producers' incentive to mislead the firm's identity "the emergence of a signal of reliability in the production of information enables the market to identify the true value of firms" (Campbell and Kracaw, 1980, p. 876). Only when the market perceives that the information provided is reliable, information asymmetry problem will be eliminated and the price for undervalued assets might be enhanced in relation to the cost and efficiency of producing information.

Signalling theory assumes that undervalued firms are more responsible to eliminate information asymmetry as investors have no incentive to obtain costly information and the transmission of information is almost controlled by the firm. Signalling approach could be utilised to satisfy this need and attract the attention of market participants (Lee et al., 1983). The signalling theory links the company performance to the level of voluntary disclosure. Therefore, companies with good standing, clear strategy and future growth will favour signalling their good news in the form of voluntary disclosures to the public (Watson et al., 2002). The value of signalling is derived from the fact that

information is not distributed equally across users. Managers have more information concerning firms' risk and profitability and can signal it through various channels, which might impact the firm's value, especially when information asymmetry exists. Moreover, quality firm management sends signals to shareholders and investors to differentiate their firm and benefit from higher share price, which low-quality firms cannot imitate (Levy and Lazarovich-Porat, 1995).

According to the review of literature, it is noticed that communicating firm's specific information has its influence on stock performance, as agency cost increases when shareholders have no clear understanding of management practices and their alignment with shareholders' interest (Kothari et al., 2009). Providing more information, that reduces uncertainty, assists in the management of agency conflicts and enhances shareholder value (Watson et al., 2002). Management, according to agency theory, might consider enhancing the content of disclosed CSR information to reduce the degree of uncertainty, enhance stock prices and manage agency conflicts. Agency theory perspectives, argue managers, have incentives to eliminate uncertainties in order to lower agency conflicts and enhance a firm's value, i.e. stock price (Kochhar, 1996). The release of public information decreases information asymmetry, which reduces cost of capital due to higher investors' demand, and the larger the information asymmetry gaps the higher the increase in price when gaps are reduced (Diamond and Verrecchia, 1991). Moreover, less information asymmetry enhances investors' trust and encourages them to trade in the firm's stocks as they relatively reflect the fair market value, resulting in more stock liquidity and better prices (Kim and Verrecchia, 1994).

The agency theory frames the relation between information and changes in stock prices. Providing information that reduces the degree of information asymmetry and shows

that management is acting to the best of shareholders interest assists in the management of agency conflict and enhances investors' confidence. As CSR disclosure assists in the management of uncertainties concerning future cash flows, decreases cost of capital, enhances market performance and assists in correcting asset undervaluation (Richardson et al. 1996; Baumann and Nier, 2004; Gelb and Zarowin, 2002; Kothari et al. 2009; Healy et al. 1999; Healy et al., 2001), it is arguable that providing more CSR disclosure is expected to assist in reducing information asymmetry, enhancing trust and causing improvements to stock prices. Therefore, corporate managers have incentives to disclose more CSR information in annual reports to shift up their stock prices and reduce the agency conflict.

From a signalling theory perspective, disclosing information that addresses a bank's social responsibility commitment might signal the bank's social attitude and convince interested parties by management behaviour and the bank's ability to sustain and grow. Convincing investors is most likely to be reflected in stock price, which in turn is a sign of corporate managers' capacity for effective management. Indeed, firms favour to signal their good news in the form of voluntary disclosure (Watson et al., 2002) and the higher the impact of the signal the more the stock participants and firm's value (Levy and Lazarovich-Poeat, 1995).

Therefore, it is hypothesised that stock price will respond positively to the score of corporate social disclosure.

Accordingly:

H1: the higher the score of CSR disclosure the higher is the stock return.

3.3 Research Design

3.3.1 Sample Selection and Data Collection

The present study examines the influence of CSR disclosure content on banks' stock prices in the wake of the financial crisis. The examined sample is selected from the US national commercial banks and consequently the annual reports for years 2009 and 2010 were reviewed to measure the content of disclosures. Annual reports are annual statutory communication where firms disclose valuable messages that express their perspectives, practices and visions to stakeholders "anything considered important enough to be said would be conveyed in that document" (Campbell and Slack 2008, p.8). Most disclosures' studies have examined the annual reports due to their importance as a key information channel "research has centred on the annual report" (Campbell and Slack, 2008, p.8). Indeed, annual reports are the most widely distributed disclosure media (Gray, Meek and Roberts, 1995) illustrating CSR conducted and communicated activities throughout the year. The examined observations covered years 2009-2010, i.e. the period after the initial financial crisis. Yeh et al. (2011) refer to years 2007-2008 as the period of financial crisis when examining the impact of independent directors on the performance of financial institutions during the financial crisis. Similarly, Grove et al. (2011) examined the impact of corporate governance on US commercial public banks' performance during the financial crisis, i.e. years 2006 - 2008, arguing that this period covers the financial crisis.

To have an acceptable level of coherence across the selected banks, criteria are defined to select the targeted sample. *Thomson One Banker* is used to identify the listed US banks and filter them according to the defined criteria. To avoid a biased sample and selecting a sample of banks providing similar services and subject to same disclosures

regulations, I filter the active listed national commercial banks and drop all credit unions, saving institutions and central reserve depositories. The total sample size was 193 banks varying in asset size from 48 million to 2,223,299 million. Banks are then sorted according to 2009 total assets figures and banks having less than 1 billion are omitted to avoid small banks that represent only a small proportion of the market share. Therefore, the initial sample is 107 banks comprising of active listed US national commercial banks with total assets greater than 1 billion US dollars.

The annual reports are reviewed to measure the content of CSR disclosures according to the developed scale. *Thomson One Banker* is used to obtain balance sheet, income statement and other financial data to compute the stock price change (return), profitability, leverage and growth ratios. For validation, some of the data is reconciled with the figures presented in the corresponding annual reports. Due to missing data, some banks were omitted from the initial sample and consequently the examined sample size is 194 US national commercial banks' annual reports in both years.

3.3.2 Dependent Variable: Price changes (Return)

Changes in stock prices are a sign of efficiency reflecting stock participants' reaction to newly-available information (Ross, Westerfield and Jaffe, 2005). Stocks, as financial assets, generate two types of cash flows: the dividend paid by the company to stockholders and the selling price of the stock. Therefore, the value of the stock is affected by the expected returns and stock prices will adjust in relation with the return certainty (Ross et al., 2005). Stock price, theoretically, is the present value of expected cash flows and selling price where the benefit of shareholders will be in the expected dividends and capital gain. While dividends might not be paid constantly and their value is defined by firms'

management, capital gain is the change in stock price in capital markets. Therefore, investors buy stocks for two main reasons. Either, holding stocks for a short term period with the intention to benefit from stock growth, i.e. capital gain generated from stock price appreciation in the market, or holding stocks for longer periods with the intention to benefit from the dividends paid and therefore they choose income stocks (Brealey, Myers and Marcus, 2001).

Firm stock price, i.e. equity value is a reflection of market assessment to a firm's performance. Changes in stock prices imply that market assessment to the corresponding financial asset has been changed due to changes in its expected cash flows. Accordingly, share price reflects market assessment to both current financial performance and future performance; in other words, stock traded price reflects the overall market valuation to the firm's value (Klassen and McLaughlin, 1996). Improvement in stock price is highly important to companies in general and companies with undervalued stocks in particular, since undervalued stocks are costly to shareholders if the firm wants to raise equity and to management if stock options held by management will expire shortly (Hely, Hutton and Palepu, 1999). Breen, Simon and Korajczyk (2002) found that stocks that experienced appreciation in their prices benefit from increased liquidity, as price appreciation creates its own demand.

Stock price behaviour was examined from different angles other than information impact and several interpretations were provided in the literature. Lynch and Mendenhall (1997) analysed the movement of stock prices for companies added or removed from Standard and Poor’s index and found that information and liquidity were sufficient to explain changes in stock prices. Lobo (2000) mentioned that asset pricing is affected by the

monetary policy since it impacts on the capitalisation rate of the firm's cash flow and that risk aversions increased prior to the Federal Fund announcements. However, disclosure policy showed no impact on the stock markets. Chambers and Penman (1984) examined the impact of earnings report issuing time on stock price changes. The results of the performed analysis showed that stock prices witnessed considerable changes for firms that issued their report before the expected date compared to stock price changes for firms issuing their reports on time or after the expected date. Early reports were perceived by the market as a batch of good news since firms will not rush bad news. The analysis also evidenced that markets considered delays in reporting as postponing bad news and the market reacted accordingly.

Stock expected price at the end of a period is the stock price at the beginning of the period compounded by the expected rate of return. Accordingly, stock return could be computed by the difference between the beginning and end of period stock price divided by the beginning period price (Lambert, Leuz and Verrecchia, 2007). Reflecting the change in stock price as the difference between two consecutive prices is limited by the effect of scale domination. The absolute value of change in stock price might be big for stock with a high price but at the same time not a big change compared to small change for stocks with small prices. For example, the percentage change in stock price from 100 to 110 is less than a change from 10 to 7. The absolute value of the first change is bigger, while the actual change for the second is higher. Therefore, the change in stock price should be deflated and scaled by the original stock price (Benston, 1967).

Price series should be transferred to returns since it is not recommended to use them directly in the analysis as the change in stock price, i.e. stock returns is more representative than price differences (Brooks, 2008). Scaling price changes by the base

period stock price provides a more meaningful measure, which is better for comparability (Breen et al., 2002). Moreover, returns or price changes are unit free which is an additional benefit not found when using price series (Brooks, 2008). Two methods in financial modelling are available to compute returns. The first method is the simple return, which is the difference between the beginning and the end of period price over the beginning period price. This is used when there is low frequency of compounding. The second method is the continuously compounding method used when there is high frequency of compounding, e.g. daily or weekly returns. It is computed by having the natural logarithm of the ratio of two consecutive stock prices. Therefore, the return over a week could be computed as the natural logarithm of stock price at day five over stock price at day zero (Brooks, 2008). Since returns on stocks are formed of the capital gain and dividends components, dividends might be added to the numerator of the simple return formula; however if the holding period of the stock is short the effect of dividends will be negligible (Brooks, 2008).

Both formulae, with and without dividends, were used in previous studies. In predicting the impact of equity liquidity on stock price behaviour, Breen et al. (2002) refer to the simple return formula to compute the equity return. Similarly, Pereira and Zhang (2010) considered stock price changes resulting from trading activities as the difference between two prices over the base price. On the other hand, Gelb and Zarowin (2002) measured the change in stock price as the difference in stock prices between the end of the current year and the end of the past fiscal year plus dividends, scaled by the previous fiscal year closing stock price. Alexander and Buchholz (1978) also adopted stock market return used by Fama (1972) which was computed as the change in stock price plus the dividend over the base year stock price.

The simple return formula, i.e. the difference between two consecutive periods' stock prices with and without dividends over the base year price are used alternatively to measure price change. In other words, both stock return and the total investment return are computed to be used alternatively in the estimated regressions. In addition, the average monthly return is computed to examine its impact seeking more robust results. When computing the change in stock price, I reviewed the history of the stocks that witnessed large change in their stock prices between the end of the observed year and the end of the previous year to ensure that this difference is not due to a stock split.

3.3.3 Independent Variables

Reported data is addressed to a wide range of users including, but not limited to, shareholders, investors and creditors. Each group of users has different needs and is looking for different types of information. Therefore, it is not simple to identify the best reported data that might be useful to interested parties (Benston, 1967). Management has information not known by investors and might affect future earnings, even if the firm is trading within an efficient capital market. Therefore, management might take the advantage of reporting and disclosing information to communicate its performance to shareholders and investors. The reported information includes both mandatory and voluntary information to satisfy the demand for information generated from the information asymmetry that causes agency conflict. The gap of information between the agent and principal enforces the agent to communicate information that allows the principal to follow up on the agent performance and monitor the alignment of management practices with principal interest (Healy and Palepu, 2001). Moreover, disseminating firm-specific information is most likely recognised by stock participants and has its influence on

the market performance, "Corporate disclosure is critical for the functioning of capital markets" (Healy and Palepu, 2001, p.406).

3.3.3.1 Corporate social responsibility disclosures

Corporate social responsibility (CSR) was defined as the voluntary interaction between the firm and its stakeholders through addressing their social and environmental issues within business activities (Reverte, 2009). Godfrey, Merrill and Hansen (2009) identified two features that reflect the strength of CSR activities. First, CSR activities should be communicated effectively to the largest group of stakeholders "must be public knowledge, be it through firm self-report or the reports and analysis of others" (Godfrey et al., 2009, p.428). Second, the level of involvement and their impact on communities should be significant to reflect a firm's commitment and unselfishness.

Reporting on CSR was defined by Campbell and Slack (2008) as "Voluntary disclosure containing information on the company's impacts upon a range of social and environmental constituencies or stakeholders. Typical contents include information on human resources, communities, environmental resource consumption and environmental impact", (Campbell and Slack, 2008, p.8). Therefore, communicating CSR through annual reports informs shareholders and third parties by firm commitment and level of involvement to society (Campbell and Slack, 2008). CSR reporting enhances a firm's transparency by providing information that held management accountable for their practices (Hess, 2007).

Effective corporate management identified the importance of CSR in managing the needs of not only a broad group of stakeholders but also shareholders (Pava and Krausz, 1996) as the involvement in CSR activities enhances banks financial performance (Simpson and Koher, 2002). Presumably, in efficient markets all available information, financial and non-financial, is reflected in the equity value, however some of the communicated information might not be audited and there is no assurance of its reliability (Richardson et al., 1999).

The relationship between banks' financial performance and corporate social responsibilities was examined by Simpson and Koher (2002) using evidence from the US banking industry. The researchers mentioned that previous studies used various measurements to assess the social performance and none of them could be considered as an ideal method that represents a comprehensive measure to follow. Examining a sample of 385 national banks in 1993 and 1994, the researchers found significant and inversely proportional relation between corporate social performance (using "Federal Deposit Insurance Corporation" (FDIC) rating as proxy of CSR performance) and the ratio of loan loss to total loans. In other words, banks having high social performance have lower loan loss to total loans ration. Based on the obtained results the study concluded that there is a clear linkage between banks' social performance and its financial performance.

The content analysis approach is adopted to measure the richness of CSR disclosures presented in annual reports. It was defined by Holder-Webb, Cohen, Nath and Wood (2009) as "a way of codifying text and content of written narratives into groups or categories based on selected criteria, with the end goal of transforming the material into quantitative scales that permit further" (Holder-Webb et al., 2009, p.504). Content analysis

technique could be performed in different ways that vary in their complexity (Gray et al., 1995) to mirror both the existence and the comprehensiveness of the information disclosed (Hasseldine, Salama and Toms, 2005). The importance of capturing the comprehensiveness of disclosed information is due to the fact the quality of communicated information is more important than quantity (Hasseldine et al., 2005).

To measure the content of CSR disclosures, I first define four social responsibility categories according to the most commonly used categories in previous literature. Using similar CSR categories as in previous studies is important for comparability purposes (Gray et al., 1995). The measurement of CSR disclosures' content was based on four categories, which are: community involvement, environmental, employees, and products and customer service (Scholtens, 2009; Gray et al., 1995; Branco and Rodrigues, 2006). Scholtens (2009) assessed the social responsibility performance of 32 international banks by examining among other categories the content of environmental management and social conduct disclosures. In studying the trend in CSR, Gray et al., (1995b) divided CSR into four main categories, which are: employees, environment, community involvement and customer services. Similarly, Branco and Rodrigues, (2006) grouped social responsibility disclosures into four categories according to previous studies: "environmental, human resources, products and customers and community involvement".

Each social responsibility category is rated from zero to five according to the richness of information disclosed (no disclosures, poorly, marginally and comprehensively discussed). Discussion topics of each CSR category are illustrated in appendix A. A maximum of three points per category are assigned to the narrative disclosures if they are not supported by quantitative figures. The additional two points are given if quantitative

figures as well as comparative figures are disclosed supporting the narrative discussion and reflecting their social performance and trend. Therefore, a maximum of five points could be assigned to each category and twenty points as total score across the four categories. Consequently, the disclosure score is the ratio of points awarded over the maximum points a bank could achieve.

CSRDS = ∑ points of CSR categories (Community, environment, human resources, social products) / 20

The advantage of the adopted method over using rating agency disclosure score, such as the 'Association of Investment Management Research' AIMR or 'Kinder Lydenburg Domini' KLD, is the clarity of the approach followed in coding and avoiding sample selection limitation if selected banks were not rated by the rating agency. Healy et al. (1999) mentioned that however AIMR rating presents comprehensive disclosure score for both formal and informal disclosures and rated by experienced analysts, it suffers from several limitations. For example, they mentioned that the rate is not constructed by the researchers and therefore the criteria and motive behind the rating process is not clearly understood. Analysts might also be influenced by the firm's performance and their relation with its management that might affect the disclosure score. Moreover, AIMR reports target firms with improved disclosure practice, meaning that selecting a sample of companies rated by an AIMR report will omit average and poor disclosure companies. On the other hand, KLD ranking classifies firms as socially responsible or irresponsible without understanding the extent of social practice (Barnea and Rubin, 2010).

3.3.3.2 Disclosure score reliability

The inter-code reliability of disclosure score is considered a significant principle when using content analysis to ensure that the assigned scores are reproducible and reliable. However, reliability testing could not provide full assurance regarding scoring objectivity (Linsley and Shrives, 2006).

Krippendroff's alpha is commonly used to assess the level of agreement between two or more coders "Krippendorff's alpha is a reliability coefficient developed to measure the agreement between observers, coders, judges, rates, or measuring instruments. It emerged in content analysis but is widely applicable" (Krippendorff, 2007, p.1). Several disclosure studies (Hasseldine et al, 2005; Holder-Webb et al., 2009; and Newson and Deggan, 2002) used Krippendorf's alpha to measure the inter-rate agreement and alpha varies between 70% and 85%.

Twenty annual reports covering 10 per cent of the examined sample were randomly selected to test for disclosures' score reliability. The corresponding annual reports of the selected sample were provided to two independent coders. The approach followed to score the CSR disclosures along with the scoring sheet were explained to the coders and they were asked to assess the content of CSR disclosure and assign related scores. The scores provided by the two independent coders along with the score computed by the author were used to test the scoring process reliability. Krippendorff's alpha is used to check the inter-coding agreement. The test of reliability showed an alpha value of 80per cent for the CSR score from the first round, which is considered an acceptable agreement level.

3.3.3.3 Control variables

The control variables introduced into the examined model are selected based on the theoretical link and evidenced explanatory power to the dependent variable. First, the selected variables are commonly used in previous studies that recognized their determination to stock prices. Second, they are theoretically related to changes in stock prices. The third reason behind selecting the control variables is data availability through the presentation of banks' financial statements in both the annual reports and used database. The selected control variables are profitability, leverage and growth.

3.3.3.3.1 Book-to-market value of equity (Growth rate)

A firm with opportunities to grow and which has more potential investments will be able to utilise its free cash flows and this in turn will assist in controlling the agency problem (Fama and French, 2002). Sibilkov (2009) argued that according to agency theory corporate managers tend to use the cash-flow generated internally to finance their new investment opportunities instead of external financing, since higher free cash might lead to higher agency cost. Therefore, according to agency theory I can assume an inverse relationship between growth and agency cost, which impacts firms' value.

Book-to-market value of equity was used by Kothari et al. (2009) as a control variable when examining the impact of disclosures on cost of capital and return volatility. They argued that successful firms have expected streams of cash flows and consequently high equity value; therefore, they experience less return volatility and cost of capital. Similarly, Bushee and Noe (2000) introduced book-to-market value of equity ratio to control for growth and noticed that better ratio of book-to-market value of equity led to lower stock return volatility. Moreover, Fama and French (2002) used market-to-book

value as proxy for growth (investment opportunity) and mentioned that this ratio also signals firm's current profitability.

The impact of growth on stock price when firms offer new equity or debt financing was examined by Pilotte (1992) using a sample of US-listed firms. Several growth opportunity variables were introduced to estimate their influence on stock price. The growth variables used were Tobin Q, growth rates in sales, income, assets, stock market value and the ratio of price to earnings. The results of the 'Weighted least square regression' showed that growth rates in net income, sales and assets were positively correlated and highly significant with price responses. It was noticed that firms that experienced significant growth were able to eliminate drops in stock prices. Moreover, the study found that price responses was a function of growth and not related to the type of offered security. They argued that growth signals new investment opportunities and expected future returns under the assumption that positive net present value is expected from the new investments. This in turn was reflected positively on stock price leading to positive price response. Supporting results were obtained by Gelb and Zarowin (2002) evidencing positive significant association between growth and stock price.

Kothari et al. (2009) as well investigated the relationship between disclosures' content and companies' cost of capital and return volatility controlling for book-to-market value of equity. They mentioned that book-to-market value of equity is one of the firm's characteristics that showed significance in explaining stock return volatility and cost of capital in previous studies. They argued that book-to-market value, computed by dividing the book value of equity to market capitalisation, reflects a firm's risk and expected cash flows. Less risky firms with consistent future cash flows experience higher confidence and

appreciation in their market value; consequently they have low book-to-market ratio. Therefore, firms with low book-to-market ratio are considered as firms with low risk in the market. The results of the study supported their argument and showed positive association between book-to-market ratio and cost of capital.

Book-to-market value of equity and asset growth are used in the current study as proxy of growth. Book-to-market value is one of the measures commonly used to assess a firm's market value and growth which could be computed as the ratio of the book value of equity to market value of the shares, i.e. market capitalisation (Berk, DeMarzo and Harford, 2009, p 30). This ratio reflects the growth of the company since the equity of the firm represents the cost historically invested by shareholders, and the market value represents the current value of the firm. Therefore, if the market value of equity is greater than the book value, it implies that the firm succeeds in enhancing shareholders equity. If the market value of equity is less than the book value of equity, it implies that the firm fails to create value to shareholders and the firm could be incurring losses (Ross, Westerfield and Jordan, 2010).

3.3.3.3.2 Profitability

According to agency theory higher profitability assists management in reducing the agency conflict and lowering the agency cost (Kochhar, 1996). Agency cost could be figured as the loss in the firm's value compared to a hypothetical firm with perfect shareholders-management alignment, therefore the minimum the agency cost the better the firm's value (Grinblatt and Titman, 2002, p.645). Profitable firms can manage agency conflicts and lower its cost by dedicating a portion of their profits to be distributed as dividends (Fama and French, 2002) in addition to the role of profitability in convincing shareholders by

management performance (Kochhar, 1996). The higher profitability means higher shareholders' return, which reflects the ability of the firm to have proper cash flows that could be utilised in new investments, which is likely to enhance the firm's value (Kochhar, 1996).

Shareholders of a low profitable firm will incur high agency cost resulting from the complexity of identifying and replacing poor performing managers and pointing the decisions that misaligned the firm's objectives from shareholders interest (Berger and di Patti, 2006). The losses of accounting profits are relatively proportional to the losses of shareholders resulting from agency conflicts (Berger and di Patti, 2006). Berger and di Patti (2006) summarised the link between firm profit efficiency and changes in equity ratio. They mentioned that firms having a high profit efficiency are expected to have low cost of bankruptcy and are less impacted by financial stress, since profit efficiency enhances expected returns and might protect the firm from expected crisis. The researchers added that this positive relation between profit and expected returns in the banking industry was evidenced by several previous studies.

Accounting profit is generally computed by the difference between revenues and expenses. However, accounting profit should be standardised to avoid scalability and enable comparability. Return on assets is a common measure used to assess management efficiency and performance. Firms might enhance their return on assets either by having higher profit margins or higher asset turnover. However, having higher profit margins and/or better turnover will be faced by competition and management should find the optimal balance between them (Ross, 2005, p. 36-38). Return on assets was used by Flannery and Sorescu (1996) as a bank accounting risk measure to examine its impact on

subordinate notes and debenture pricing. They argued that high return on assets signals a firm's efficiency and provides compensation for additional risk-taking, showing that better ROA reduces spread. Baumann and Nier (2004) introduced return on assets to control for profitability when examining the impact of disclosures on stock return volatility. The reported results were consistent with their assumption that better performance signals bank quality and leads to lower return volatility.

Beak, Kang and Park (2004) noticed that poor performing companies are more sensitive to financial difficulties and lack resistance to external shocks. They argued that firms with a history of good performance will be more able to benefit from growth opportunities and have a better firm's value. This conclusion was also reached by Yermak (1996) when controlling for profitability using the net income over total assets, arguing that a firm's profitability influences its market value. The results of Yermak study showed that the return on assets for the current year and two prior years are highly significant with a firm's value evidencing that firms with better ROA have higher market value.

Pava and Krausz (1996) mentioned that return on equity is considered an important profitability measure to shareholders since it reflects their investment profitability. Hubbard (2002) illustrated, however, that shareholders don't own the assets of the bank and their interest is limited to equity; shareholders care about bank return on assets since it reflects the efficiency of asset utilisation. Bank profitability shares in eliminating the moral hazard and consequently mitigates agency problems. Return on equity, which reflects the returns on shareholders' investment, is linked to return on assets. It could be computed by multiplying the return on assets by the ratio of assets to equity. Therefore, shareholders will benefit from higher ROE if the bank has high ROA and low capital ratio. Whereas, the

opposite is not true; high ROE does not necessarily mean that assets are efficiently utilised and the ROA will be relatively high (Hubbard, 2002, p.321-322).

Based on the discussion above, it is reasonable to assume that banks with higher profitability are more able to eliminate agency conflicts and achieve higher stock prices and returns. The return on assets, which is commonly used as proxy of performance and proved its explanatory power to the variation in stock prices in previous studies, is used to control for bank profitability.

3.3.3.3.3 Leverage

Liquidity is a focal point in all financial intermediation theories; banks as financial intermediaries help creditors retain their liquidity through extending loans and credit facilities and at the same time they should ensure fund availability when cash is requested by depositors (Cornett, McNutt, Strahan and Tehranian, 2011). From a market perspective, liquidity is related to the ease of selling assets for the purpose of raising funds. In other words, finding investors interested in buying the asset at acceptable price (non-depressed) (Brunnermeier, 2009). Gatev, Schuermann and Strahan (2009) mention that banks' liquidity could be summarised in their ability to have sufficient funds to meet the risk of random depositors' withdrawals. During a crisis, banks faced liquidity difficulties that stressed on their asset pricing, and information asymmetry related to the value of bank assets impacted its liquidity (Acharya et al., 2011).

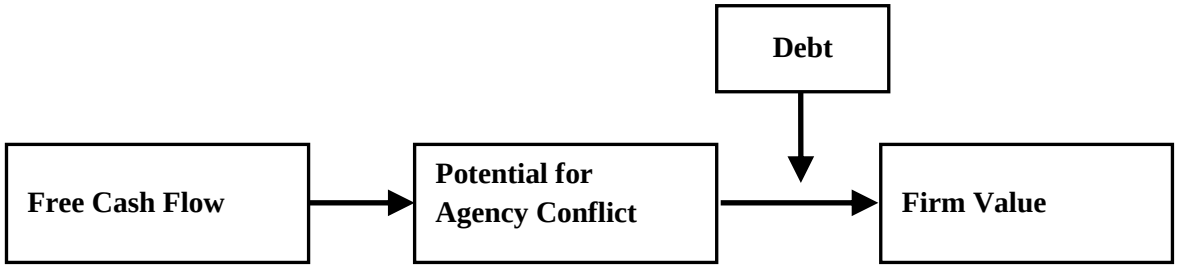
The advantages of holding liquid assets or having relatively high liquidity is not only to protect depositors' assets but also to provide the bank with the opportunity to acquire new assets and portfolios at fire-sale prices during crisis time. When banks are facing financial stress and looking to sell some of their assets or perform balance sheet

restructure, liquid banks are the obvious potential buyers and the party that will benefit from the distressed cheap assets (Acharya et al., 2011). Liquidity is also cyclical; banks tend to be more liquid in economic downturns and less liquid during upturn, therefore incentives to liquidity increase when the difficulty to obtain external financing increase. But in view of the fact that liquid assets are of low return, banks should maintain equilibrium in holding risky and safe investments to achieve healthy liquidity levels (Acharya et al., 2011).

Liquidity was a significant dilemma not only to banks as individual financial institutions but also to central banks and the international financial market. It threatened their ability to support banks with liquidity in both local and foreign currencies and turned liquidity risk to become of a higher concern after the 2008 credit crisis (Allen and Moessner, 2011). Firms' liquidity has various financial consequences and changes in liquidity could be shown in equity value "liquidity in the market, decreased cost of capital, lower return volatility, and high analyst forecast accuracy" (Kothari et al., 2009, p.1640). Leverage was used by Kothari et al. (2009) as a control variable when examining the impact of disclosures on cost of capital and return volatility, arguing that high levered firms are more risky, which might impact on their market value. Palmrose, Richardson and Scholz (2004) also mentioned, when investigating the reaction of stock price to restatement announcements, that firms' debt levels have different impacts on markets. Ross (1977) argued that a firm's value is affected by its capital structure and the increase in leverage is perceived by the market as a sign of added value. Aligned with the discussed studies, Smith and Jensen (2000) noticed that changes in leverage have their positive implications on shareholders' returns "leverage increasing events are generally associated with positive stockholders returns" (Smith and Jensen, 2000, p.27).

As debt component represents funds to be repaid along with their interest to creditors, the increase in debt decreases the agency cost due to the reduced free cash-flow. In cases of high debt, managers have incentives to utilise firm's assets effectively and avoid expenditure on non-efficient actions to ensure debt payment. Failing to pay a firm's debt may lead to bankruptcy and corporate managers will lose their positions. Therefore, leverage might be perceived by the principal as a control tool, reflecting the extent of free cash flow and triggering management toward efficient investments and less personal expenditures "As debt is an alignment device that reduces the agency conflict, its presence is reflected in improved stock price" (Kochhar, 1996, p.717). Corporate managers as well could use leverage as a mechanism to manage agency conflict. Its relative importance in lowering agency conflict becomes more significant when profitable investments are limited due to the absence of profitability effect in managing agency conflict. However, debt is not a cost-free fund and a trade-off between the cost of interest paid to creditors and the decrease in agency cost should be considered. Especially, since the debt cost increases when debt holders doubt the safeguard of their assets and ask for an inflated interest rate to compensate for the unpredicted risk (Kochhar, 1996).

The figure below was presented by Kochhar (1996) to explain the association between the agency theory and capital structure.



Source: Kochhar, R., (1996). Explaining Firm Capital Structure: The Role of Agency Theory VS. Transaction Cost Economics. *Strategic Management Journal*, Vol. 17, 713-728.

As part of capital structure, firms' debt policy "optimal choices of debt-equity ratio" is important and may signal information to shareholders regarding future expected earnings (Lee et al., 1983). Signalling theory suggests that managers benefit from communicating information reflecting their future performance as a result of management financial decisions. Leverage reflects immediately the financing mode adopted by management and signals to shareholders the expectation of future performance as a result of current investments "signaling theory further suggests that higher leverage should also be associated with higher future cash flow" (Shenoy and Koch, 1996, p.310). Therefore, corporate managers might use leverage as a signal of quality due to the cash flows that might result from the undertaken investment decisions (Shenoy and Koch, 1996). Furthermore, it might also be used by management to convince investors of a firm's ability to grow and to reflect management confidence "the use of leverage as a way to signal good information to investors is known as the signalling theory of debt" (Berk et al., 2009, p. 508-509).

Previous literature and academic text books rely on several measures to assess a firm's liquidity risk. Liquidity ratios are intended to measure the short-term liquidity, i.e. solvency and the long term liquidity, i.e. leverage. Current and quick ratio measures the short-term solvency and debt to equity ratio measures the long-term solvency or leverage, reflecting a firm's risk regarding their ability to pay their obligations at maturity (Alexander and Buchhols, 1978).

The debt to equity ratio, which is widely used by other scholars and academic books to measures the leverage of the firm, shows the percentage of debt covered by a firm's equity and reflects the firm's ability to settle long-term obligations (Ross et al., 2010). Firm's leverage is considered one of the powerful ratios derived from the balance

sheet (Berk et al., 2009) which predicts bank failure, since banks facing high leverage ratio are more risky and subject to bankruptcy (Helbok and Wagner, 2006). As an alternative measure, some previous studies used market leverage computed as total debt to market value of equity (Rajan and Zingales, 1995; Flannery and Sorescu, 1996; Bushee and Noe, 2000 and Fama and French, 2002). The market leverage or using the market value of equity rather than the book value of equity to calculate the leverage ratio might be considered of added value in analysing firm risk due to its influence on stock performance "It is more informative to compare the firm's debt to the market value of its equity" (Berk et al., 2009, p.31).

Leverage or debt to equity used in the current study was used by Pava and Krausa (1996) to measure firm risk and indicate firm's ability toward meeting their commitments on timely manner. Indeed, the extent of risk the bank can take is disciplined by the market due to the incentives the market provides and the reaction of bankers to them (Hannan and Hanweck, 1988). The increasing risk of bank failures as well as understanding the determinants of bank risk taking decisions drove several researchers to explore this area. Bushee and Noe (2000) introduced the leverage ratio to control for firm risk and noticed that higher leverage measured as debt to assets led to lower stock return volatility. Similarly Kothari et al. (2009) showed that changes in leverage affect company's equity value and accordingly stock return volatility decreased, while liquidity was not significant in determining changes in default risk premium. Avery, Belton and Goldberg (1988) examined the effect of bank risk measures on the default risk premium using the largest 100 bank holding companies. They introduced liquidity into the examined model, as a balance sheet bank risk measure, showing that liquidity was not significant in determining the change in default risk premium, which was more related to maturity. Flannery and

Sorescu (1996) used market leverage as proxy of bank accounting risk measure among others to examine their impact on subordinate notes and debenture pricing, evidencing that higher market leverage ratio, which reflects higher probability of bank default, leads to wider spread. They concluded that providing information, that enables investors to evaluate bank activities and anticipate expected future risk levels, acts as a process to discipline the market and bank management.

3.3.3.4 Regression Models

In analysing the data and estimating the relationship between the price changes proxied by stock return, total investment return and average return and the independent variables the pooled regression model with robust standard error is implemented.

The regression model forms the following equation:

$$PCh = \alpha + \beta_1 CSRD + \beta_2 Lev + \beta_3 BtoM + \beta_4 AG + \beta_5 ROA + \acute{\varepsilon}$$

Where:

PCh = the change in stock price measured as the difference between the closing price of the observed year and the preceding year, scaled by the preceding year closing price. As alternative measure, the dividends are added to the numerator to calculate the total investment return. Moreover, the average monthly return is also calculated for additional sensitivity testing.

α = the intercept

$B_1 \ldots B_n$ = the regression coefficients

$\acute{\varepsilon}$ = the error term

The table below illustrates the independent variables measurement along with the predicted signs.

Table 3.1

Independent Variables Measurement

Variable name	Variable code	Variable descriptions	Predicted sign
Corporate social responsibility disclosure score	CSRD	Corporate social responsibility disclosure score measured as the ratio of disclosure content points over the maximum score a bank can achieve.	+
Profitability	ROA	Net income over total assets	+
Leverage	Lev	Debt divided by the book value of equity	+
Book-to-market value of equity	BtoM	Book value of equity divided by the market value of equity (market capitalization)	-
Asset Growth	AG	The difference in asset size between the beginning and end of year divided by the beginning of year asset size	+

3.4 Data analysis and interpretation

3.4.1 Descriptive statistics

The following section illustrates and analyses the descriptive statistics of the variables forming the examined model. The descriptive statistics cover both the dependent and the independent variables across the 194 observations collected.

Stock price change in the examined sample varies between 1.07 and -1.00. Only 24% of the banks covered in the examined sample witnessed enhancements in their stock prices during 2009, which was as observed more stressing on asset prices than 2010. Year

2010 was better since 65% of the covered banks witnessed improvements in their stock prices and around 6% showed no changes in their stock prices. Negative stock price changes were not limited to a certain range of banks, where 50% in 2009 and 20% in 2010 of the largest ten banks, according to asset size, showed declines in their stock prices. The mean of the price change is (-0.06) and the standard deviation is (0.41).

The content of corporate social responsibility disclosures in the annual reports of 194 US national commercial banks were reviewed, coded and the score results were analysed. Corporate social responsibility was disclosed in banks' annual reports with different concentrations and levels of informativeness. The highest CSR disclosure score is (0.8) across the four social responsibility categories. Around one third 36% of the banks covered in the selected sample obtain CSR disclosure score above the mean (0.23) and the most common CSR score (0.15) is the score of 21.5% of the examined annual reports. On the other hand, ten banks did not disclose any information related to CSR in their annual reports. Based on these results the standard deviation is 0.17 reflecting the level of dispersion from the mean.

A lens on the control variables shows that leverage ranges between (37.8) and (0.09). The mode of the sample is (13.57) and the median is (9.15). Generally, the leverage ratio for banks is expected to be higher than other firms in other industries due to the unique capital structure of banks where customer deposits are classified under bank liabilities. The standard deviation is (4.23) which is considered of high variation from the sample mean (10.23), reflecting the wide spread in leverage ratio among the examined sample.

Book-to-market value of equity is also introduced into the examined model as a control variable. The book-to-market ratio varies between (72.74) and (0.313) having a mean of (2.289) and standard deviation of (5.745). The median of the sample is (1.092); banks management of more than half of the observations (55%) failed to drive the market value of their banks above its book value. The results show that 60% of the banks in 2009 and 48% in 2010 have market value of equity less than their book value of equity. The high skewness (10.17) is also reflecting the unstable period banks were witnessing and the difficulties in enhancing equity value.

The second growth measure used in the examined model is asset growth. The asset growth varies from (0.81) to (-0.22) having a mean equal to (0.02). The standard deviation is (0.11) showing a wide variation in the ability of banks to attract new assets. Furthermore, the skewness is (2.35) reflecting the non-normal distribution of the changes in asset size within the selected banks. 62% of the banks in 2009 and 47% in 2010 have positive asset growth.

Return on assets varied widely during 2009-2010. The highest ROA was (3.69) and the lowest was (-9.53) with a standard deviation of (1.84) and a mean of (-0.29). The percentage of banks that were able to have positive ROA during 2009 and 2010 is 60% and 67% respectively. These results are different from the stock price change reported results, which showed a low percentage of banks that reported enhancements in the stock prices during 2009 and more than two-thirds of them reported enhancement during 2010. It is worth mentioning that I screen the observations with negative ROA and check their corresponding CSR score and noticed that most of the observations have low CSR disclosures score.

The skewness of the examined variables and the non-normal distribution, especially for the financial figures, namely leverage and book-to-market value and asset growth, reflect the financial turbulences and difficulties the US banks were facing during 2009 - 2010.

The table below summarises the descriptive statistics for both the dependent and the independent variables.

Table 3.2

Descriptive Statistics for the Dependent and Independent Variables

Description	Price Change	Price Change with dividends	CSR	ROA	Lev	Book-to-Market	Asset Growth
Mean	-0.06	-0.04	0.23	-0.29	10.23	2.29	0.02
Mode	0	0	0.15	0.43	13.57	14.88	0
Median	-0.02	-0.01	0.15	0.4	9.15	1.09	0.01
Maximum	1.07	1.08	0.80	3.69	37.77	72.74	0.81
Minimum	-1.00	-0.81	0.00	-9.53	0.09	0.313	-0.22
Standard deviation	0.41	0.41	0.17	1.84	4.23	5.745	0.11
Skewness	0.12	0.14	1.2	-1.93	2.75	10.17	2.35

3.4.2 Test of Hypotheses

STATA package for statistical analysis is used to analyse collected data and estimate relationships. The relationship between stock price change and the content of CSR disclosure is examined by employing the linear regression analysis with robust standard error. This section illustrates and analyses the results obtained from the employed regressions.

The Spearman correlations matrix is used to test for the existence of multi-collinearity between the examined independent variables. Table (3.3) shows that low risk of multi-collinear variables exists in the examined model with the exception of the high correlation between return on assets and book-to-market value of equity (0.72). The variance inflation factor (VIF) test reports results aligned with the Spearman correlation showing low risk of collinear variables. The highest reported VIF value is 1.503 to the return on assets variable, knowing that the closer the VIF value is to one, the lower the presence of multicollinearity. Therefore, the VIF will take a value less than ten (Reverte, 2008) and might approach one if the variables are not correlated (Gujarati, 2003). The Spearman's rank correlation and the VIF test shown in table (3.3) suggest that statistically there is no serious problem of multi-collinear variables with the exception of return on assets.

Brooks (2008) mentioned that correlation equal to or above 0.8 between two variables is considered highly correlated. Haniffa and Cooke (2005) and Jing et al. (2008) mentioned that a correlation less than eight and VIF that does not exceed ten are considered results that relax the assumption of multicollinearity. They based their thresholds according to previous studies and econometrics books such as Gujarati (1995), Neter, Wasserman and Kutner (1983) and Kennedy (1992). I test for autocorrelation and heteroscedasticity using Durbin Watson test and Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. Both report no threat of autocorrelation or heteroscedasticity. Durbin Watson test reports 1.382. In general, the result of D-W statistic ranges between zero (positive autocorrelation) and four (negative autocorrelation) and the closer results to 2 the less the autocorrelation threat (Ghauri and Gronhang, 2010, p. 180-181).

Table 3.3

Spearman Correlations Matrix

Variables	VIF	Price Change	CSR	ROA	Lev	Book-to-Market	Asset Growth
Price Change		1.000					
CSR	1.059	0.246	1.000				
ROA	1.503	0.474	0.220	1.000			
Leverage	1.305	-0.217	-0.106	-0.156	1.000		
Book-to-market value of equity	1.062	-0.424	-0.207	-0.727	0.164	1.000	
Asset Growth	1.142	0.078	-0.001	0.325	0.041	-0.353	1.000

The impact of the content of CSR disclosure on stock price change, i.e. stock return with and without dividends as well as the monthly average return, is examined in three stages. In doing so, the first set of regressions estimates the change in stock price as a function of CSR disclosure alone; in the second set of regressions the control variables with the exception of ROA are introduced and then ROA was added. The objective behind following such an approach is to identify the impact of introducing ROA into the model, since collinearity between independent variables could also be detected if the coefficient values of the independent variables are affected with the addition or removal of any examined variable (Brooks, 2008, p.172).

3.4.2.1 Stock price changes and CSR disclosure content

The table below reports the results of the Linear Regression analysis with robust standard error estimating the impact of CSR disclosure content on stock prices change/return. Return reflects price change; Total investment return reflects price change with dividends; Average return reflects the average monthly return.

Table 3.4

Linear Regression Analysis of the Relationship between Stock Return and CSR Disclosure Content along with Control Variables

Dependent variable	**Equation I. Total investment return**	**Equation II. Return**	**Equation III. Average return**	**Equation IV. Total investment return**	**Equation V. Return**	**Equation VI. Average return**	**Equation VII. Total investment return**	**Equation VII. Return**	**Equation IX. Average return**
Independent variables	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**
Constant	**-0.141 -3.09*** **	**-0.14 -3.03*** **	0.0002 0.04	**0.230 2.42** **	0.148 1.58	**0.029 2.71*** **	0.110 1.23	0.023 0.26	0.022 2.05**
CSR	**0.464 3.44*** **	**0.380 2.53** **	**0.051 3.63*** **	**0.334 2.56** **	**0.273 1.87***	**0.042 3.1*** **	0.166 1.37	0.096 0.71	**0.032 2.38** **
Leverage				**-0.030 -4.07*** **	**-0.023 -3.15*** **	**-0.003 -2.64*** **	-0.012 -1.65	-0.004 -0.54	-0.002 -1.55
Book-to-market value of equity				**-0.016 -3.82*** **	**-0.015 -3.61*** **	**-0.001 -1.83***	**-0.013 -3.47*** **	**-0.011 -3.13*** **	-0.0003 -1.16
Asset Growth				0.110 0.58	0.046 0.23	0.033 1.25	-0.294 -1.45	**-0.377 -2.17** **	0.010 0.37
ROA							**0.098 5.64*** **	**0.104 8.11*** **	**0.006 2.66*** **
R- squared	0.037	0.025	0.05	0.185	0.1255	0.165	0.314	0.2716	0.215
Prob > F	**0.000**	**0.012**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
F-test	11.83	6.39	13.2	10.57	7.05	5.3	21.36	24.10	6.5

*P < 0.1, **P < 0.05, ***P < 0.01

The results of the regression estimating the relation between stock price change and the content of CSR disclosures along with the control variables show that the overall model is significant at $p < 0.01$ and explains 12.5% of the variation in price change, i.e. investment return (IR); 18.5% of the variation in price change with dividends, i.e. total investment return (TIR) and 16.5% of the variation in stock average return. The content of CSR disclosures variable is statistically significant at $p < 0.05$ in equation IV and VI and significant at $p < 0.1$ in equation V. The inclusion of ROA increased the goodness of fit but at the same time it caused changes to the significance levels as well as coefficients sign and magnitude of CSR and other control variables. The change in CSR significance when introducing the ROA variable is most likely due to the significant association between ROA and CSR disclosures, which is evidenced in previous studies such as Jing et al. (2008), Simpson and Kohers (2002) and Scholtens (2009) as well as the correlation between ROA and other control variables mentioned earlier.

According to Brooks (2008, p.172) collinearity between independent variables could also be detected if the coefficient values of the independent variables are affected with the addition or removal of any examined variable. Moreover, McWilliams and Siegel (2001) experienced similar issues when examining the impact of CSR on firm performance along with leverage, size and industry without including the R&D variable, and found CSR positively significant. When the R&D variable was introduced the goodness of fit increased but CSR turned to be not significant. McWilliams and Siegel concluded that both CSR and R&D are important determinants to firms' performance but cannot be used in the same model. They added that researchers should be cautious when studying similar relationships and avoid introducing strategic variables into the examined model. Therefore, in order to avoid having ROA and CSR on the same side of the equation, the analysis will be based on equations IV, V and VI.

Leverage is significant and negatively associated with stock return in estimated regressions IV, V and VI at ($t= -4.07$, $p < 0.01$), ($t = -3.15$, $p < 0.01$) and ($t= -2.64$, $p < 0.01$) respectively. Book-to-market value is also significant and negatively associated with stock return in all estimated regression at ($t= -3.82$, $p < 0.01$), ($t = -3.6$, $p < 0.01$) and ($t= -1.83$, $p < 0.1$) respectively, while asset growth is not significant.

The reported results suggest a direct association between the content of CSR disclosures and stock price changes. These results are aligned with the set hypothesis and discussed theoretical framework. Better content of CSR disclosures provides stock participants with additional information to consider when valuing stocks, which seems to lower the degree of information asymmetry and enable more precise stock valuation. The CSR economic impact could be explained by the information CSR disclosures that are likely to provide the investor with the social and environmental issues the bank might be proceeding to. For example, information concerning the probability of employees' claims and legal issues, that might arise as consequences to the financial crisis, might assist investors in estimating the prospected cash flows and their current value when valuing stocks. CSR as voluntary disclosures enhance the volume of information flowing to the capital market, reduce information asymmetry, enhance investors trust and encourage them to trade in related stocks, since they relatively reflect the fair market value, leading to better prices (Kim and Verrecchia, 1994). By disclosing better content of CSR disclosures, management is conveying their ability to contribute to community and signalling their financially controlled position. The signalling theory links company performance to the level of voluntary disclosure, as companies with good standing, clear strategy and future growth will favour signalling their good news in the form of voluntary disclosures (Watson et al., 2002).

The CSR significance indicates that financial market participants discount CSR information economically and management involvement and communication to CSR information are likely to enhance shareholders' value. Therefore, if CSR information did not clearly protect banks from the financial crisis consequences, at least it assists in limiting the impact of financial stress on firms' value by either enhancing stock price or eliminating negative stock price changes. This marginal impact of CSR disclosure on stock prices might be due to the decreasing number of ethical investors. Presumably, in periods of financial stress the number of ethical investors decreases and the impact of their presence in stock markets, which might increase the demand and stock price of firms having high social profile, deteriorates.

On the basis of analysing the reported results, I can conclude that stock participants during the period of the study care for bank social profile. CSR is likely to lower the degree of information asymmetry and enhance stock prices after crisis, since in efficient markets all available information, financial and non-financial, is reflected in equity value (Richardson et al. 1999). Investors' interest by firm social profile was noticed by Aguilera et al. (2006) arguing that CSR profile provides firms with competitive advantage. Therefore, banks that disclosed better content of CSR disclosure were able to reduce the degree of information asymmetry and consequently improve the position of their stock price.

The suggested association between CSR disclosure content and stock price change reconciles with the results obtained by Godfrey et al. (2009). They showed positive association between CSR and stock performance, arguing that the moral capital generated from CSR leads to low impact on stock prices in case of negative events. Moreover, the

results match with Salama et al. (2011) and Belkaoui's (1976) results. Salama et al. (2011) provided evidence showing that firms' community and environmental performance decrease firms' systematic risk, which leads to lower cost of capital. Belkaoui also found that environmental disclosures enhanced stock price temporarily, since stock prices declined after four months from the disclosure date.

On the other hand, the association between CSR disclosures and stock price change evidenced in the present study contradicts the results obtained by Alexander and Buchholz (1978) when examining a sample containing both financial and non-financial sectors. Similarly, Murray et al. (2006) found no relationship between CSR disclosures and stock price return when examining a sample of UK firms. This might be explained either by the use of different measure to compute stock price returns, or the examined population. Murray et al. used the continuous compounded return formula for yearly stock prices, while it is commonly used when there is high frequency of compounding, e.g. daily or weekly. The present study used the simple return formula, which is recommended when there is low frequency of compounding, i.e. yearly data (Brooks, 2008).

Other researches that examined the impact of voluntary disclosures levels on stock prices such as Healy, Hutton and Palepu (1999) and Gelb and Zarowin (2002) found also a positive relationship between the extent of voluntary disclosures and stock prices when examining a sample of US firms using AIMR rating. Poshakwale and Courtis (2005) also evidenced a negative relationship between the level of voluntary disclosures and cost of capital, showing that a higher level of information reduces information asymmetry and drives investors to accept lower returns.

In accordance with the agency theory, banks who were able to enhance shareholders' value and succeed in having a market value of equity higher than book value were able to improve their stock prices or eliminate a negative price downturn. Having better growth ratio convinces shareholders and investors by management strategies and banks' ability, to have future investments and continuously generating future cash flows. Therefore, better growth ratio seems to improve investors' confidence in the stock and the expected appreciation in its future value. Consequently, this sign of success assists in lowering agency conflicts and results in better firms' value. The negative association evidenced in the study between book-to-market value of equity and stock price changes matches with the results achieved by Gelb and Zarowin (2002) showing positive relationship between stock price changes and higher growth ratios. Moreover, Kothari et al. (2009) and Bushee and Noe (2000) evidenced negative association between book-to-market value and stock return variance. On the other hand, the evidenced association contradicts with the results of Akhigbe et al. (2008) that showed no correlation between market-to-book value of equity and stock return variability. Akhigbe et al. examined a sample of mixed US companies before and after the passage of Sarbanes-Oxley, which might explain the difference in results.

The second growth measure, asset growth, is not significant with stock price changes. This implies that the growth in assets has no impact on stock price. A narrower look to the main components of bank assets can provide reasonable explanations to the absence of relationship. Loan portfolio forms a main component of banks' assets (Gatev et al., 2009) and the increase in assets where the main portion of them is invested in loans might be perceived by investors as additional risk if loans are defaulted. Higher loan portfolio and doubt of more delinquent accounts might be the reason that led investors and

shareholders not considering the increase in assets as increase in growth opportunity; since the benefit generated form additional assets might not offset the risk of loans default.

Banks having lower leverage were able to convince shareholders and investors of their ability to overcome the hard financial period and consequently lowered agency conflicts and improved stock prices were achieved. The results suggest that lower leverage ratio was perceived by stock participants as lower risk of default resulting from the delinquent accounts. This enhances the confidence in stock and leads to more stock price appreciation. Brunnermeier (2009) mentioned that banks were obliged to undertake significant write-downs due to the estimated loss in the mortgage market, which significantly increased bank liquidity risk. Acharya et al. (2011) pointed that liquidity risk continued during the crisis, and banks faced liquidity difficulties that stressed on their asset pricing. Moreover, information asymmetry related to the value of bank assets impacted on liquidity (Acharya et al., 2011). The negative association reported between leverage and stock price changes is aligned with Bushee and Noe (2000), Bauman and Nier (2004) and Kothari et al.'s (2009) results that indicate significant positive association between leverage and stock return variance.

On the other hand, this negative association contradicts with Kochhar (1996), mentioning that a link exists between debt levels, agency conflicts and firm value "As debt is an alignment device that reduces the agency conflict, its presence is reflected in improved stock price" (Kochhar, 1996, p. 717). This contradicting result could be due to the difference in the selected sample. The present study observed a unique sample from the US banking industry, while the mentioned study examined a sample of mixed industries. Bank capital structure differs from other firms' types due to their unique mix of debt and

equity, where debt comprises mainly depositors' accounts. Bank deposits that form the main source of funds and the main component of debt are in general short-term debt and their payment priority is sequential following the "first in, first served" concept. Significant portion of deposits are invested in loans where shareholders as well as external parties have no clear understanding of the value and risk levels of these investments (Gatev et al., 2009). Therefore, the agency cost increases when shareholders have no clear understanding of management practices and their alignment with their interest (Kothari, Li and Short, 2009). Consequently, higher agency conflict leads to a lower firm's value and this might explain the negative association between leverage and stock price changes.

In conclusion, the estimated relationships explaining the impact of CSR disclosure content on stock price changes (return) recognises investors' attitude toward discounting CSR information when trading during 2009-2010. Banks involvement and reporting on their CSR commitments was appreciated and showed improvements on stock prices. Moreover, banks' management participation and communication of CSR information was reflected on stock price, suggesting that CSR involvement should not be viewed as excess usage of non-productive expenses, but as a successful approach towards enhancing shareholder value. Therefore, banks that disclosed better content of CSR disclosure were able to reduce the degree of information asymmetry and to improve the position of their stock price.

3.4.3 Sensitivity testing

To check the robustness of the relationships between the content of CSR disclosure and stock price changes, i.e. return, another set of regressions are conducted using alternative presentation to stock price changes. The price changes are divided into three categories by

splitting price change range into three equal groups. Banks with high negative change, i.e. less than (-0.3) are given a value of 1, the low negative/low positive change where the change ranges between (-0.31) and (0.39) the banks are given 2, and banks with high positive price change, i.e. greater than (0.39) are given a value of 3. Two tests are conducted to estimate significance and relationship direction between price change categories and CSR disclosures content. The linear regression with robust standard error and Poisson regression with robust standard error are employed to compare results and reconcile them with previous regressions.

The table below illustrates the results of the linear and Poisson regressions with robust standard error estimating the relationships between stock price changes and the content of CSR disclosures.

Table 3.5

Linear and Poisson Regression Analysis with Robust Standard Error of the Relationship between Price Change (Return) and the Content of CSR Disclosure

Dependent variable Stock price change categories	**Model I.** ***Linear regression*** ***Return***	***Total Investment Return***	**Model II.** ***Poisson regression*** ***Return***	***Total Investment Return***
Independent variables	**Coeff. t- value**	**Coeff. t- value**	**Coeff. t- value**	**Coeff. t- value**
Constant	2.10 **13.41*** **	**2.159** **15.68*** **	**0.770** **8.55*** **	**0.832** **10.34*** **
CSR	**0.377** **1.71***	**0.396** **1.89***	**0.194** **1.72***	**0.214** **1.9***
Leverage	**-0.029** **-2.36****	**-0.042** **-4.99*** **	**-0.017** **-2.22****	**-0.028** **-5.02*** **
Book-to-market value of equity	**-0.019** **-3.68*** **	**-0.019** **-3.94*** **	**-0.0144** **-2.81*** **	**-0.014** **-2.98*** **
Asset Growth	0.189 0.59	0.091 0.27	0.100 0.61	0.063 0.35
R- squared	0.09	0.12		
Prob > F **Prob > Chi**	**0.000**	**0.000**	**0.001**	**0.000**
F-test / Chi	6.00	11.57	18.02	40.66

*P < 0.1, **P < 0.05, ***P < 0.01

The results of the linear regression with robust standard error and the Poisson regression evidence stock price change association with the content of CSR disclosure and negative association with leverage and book-to-market value of equity, while asset-growth shows no impact on stock price reaction. Both models estimating the impact of CSR disclosure content on stock reaction are significant at ($p < 0.01$). The linear regression model explains

9% of the variation in stock price and 12% of the total investment return, i.e. when dividends are added. The relation between the content of CSR disclosures and price change in both alternative measures is significant at ($t = 1.7$, $p < 0.1$) and ($t = 1.9$, $p < 0.1$). Leverage and book-to-market value of equity remain significant in both models at $p < 0.05$ and $p < 0.01$ respectively and asset growth remains insignificant. These results report consistent significance and relationship directions with the regression results reported in the initial model.

The results discussed above and the performed comparative analysis conducted between the estimated models using two measures of the dependent variable provide additional evidence on the reliability of the achieved results.

3.5 Conclusion

The latest financial crisis was one of the key features stamping the decade and causing large shocks to the financial system. The banking industry in the US was in the middle of the crisis storm and trillions of US dollars were lost on stock markets. Most security prices dropped sharply and volatility in stock markets was huge (Ivashina and Scharfstein, 2010). Lack of information available to stock participants to assess assets values led to massive drawback in trading activities and stock prices (Gorton, 2009). It was difficult to find a buyer for a distressed asset during crisis time (Acharya et al., 2011).

Reducing the degree of information asymmetry in the market and enhancing stock participant certainty are important tasks to be carried by banks. Meek et al. (1995) mentioned that companies satisfy investors' need of information to assess a firm's position by revealing voluntarily information. Kothari et al. (2009) went further to mention that

informative disclosure practice that lowers information asymmetry will benefit the firm by having several appreciated outcomes. They argued that information disclosed in annual reports provides investors with details to evaluate assets, decrease information asymmetry and consequently will be reflected in stock price. According to agency theory, the agency cost increases with high asymmetry and uncertainty regarding management practices and their alignment with shareholders' interests. Watson et al. (2002) found that providing more information reduces uncertainty and lowers the cost of capital, while Diamond and Verrecchia (1991) concluded that when investors had higher certainty resulting from information they have, large orders are placed and better stock positions are achieved.

Managers might have various intentions that motivate them to enhance the disclosure practice in order to lower information asymmetry. More informed investors enhances certainty and decreases cost of capital, which leads to better stock valuation reflecting management performance. Moreover, information improves stock liquidity and adjusts undervaluation, which enhances management stock compensation (Healy and Palepu, 2001). Therefore, firms with undervalued assets are more concerned with revealing information to eliminate information asymmetry, since stock participants will not invest to get information for an undervalued firm (Lee et al., 1983). On the other hand, quality firm management sends signals to shareholders and investors to differentiate their firms and benefit from higher share price; the strength of the signal will be reflected in more stock participants and more participants indicates a higher firm's value (Levy and Lazarovich-Porat, 1995).

The volume of literature addressed the impact of information in general on market reaction and CSR disclosure on firms' performance; however the literature lacks studies that examine the impact of CSR disclosures on stock prices. Previous studies evidenced the

influence of CSR disclosure on firm's reputations (Gray et al., 1995; Li et al., 2010) as well as firms' performance using different accounting and market-based performance measures (Pava et al., 1996; Simpson et al., 2002; Scholtens, 2009).

The present study explores the association between the changes in banks' stock prices and the disclosed content of CSR disclosures, which to my knowledge is lacking in the literature. By examining this association, the study addresses interesting empirical questions and reports results on the reaction of stock price to the content of a voluntary type of disclosures: the CSR disclosures. Examining a unique sample from the US banking sector enables us to draw conclusions that might be valuable to banks' management to consider in their disclosure practice. The present study also differs from previous studies by its focus and intention. It focuses on US national commercial banks by examining a sample of 194 annual reports after the financial crisis, covering years 2009 and 2010 and avoids samples of mixed industries. The impact of disclosures on stock price behaviour is focusing on CSR disclosure and not overall disclosure practice or voluntary disclosures in general. The content analysis technique is adopted to measure the existence and comprehensiveness of revealed CSR disclosures in selected banks annual reports. Most of the previous studies relied on rating agencies to get their disclosure rating or used the word count to measure firms' disclosures (Bushee and Noe, 2010; Gelb and Zarowin, 2002). Using a disclosure rating provided by rating agencies simplifies the data collection process, but there is no clear understanding to the approach used to select and score firms' disclosures (Healy et al., 1999).

The results of the current study help us to have better understanding of the influence of the examined disclosure on US banks' stock price behaviour and highlight on areas that might help in reducing information asymmetry and enhancing certainty, consequently achieving lower agency cost and better shareholder value. This area, to my knowledge, is not addressed to the extent where conclusions are drawn and relations are evidenced and empirically supported.

The linear regression with robust standard error is used to estimate relationships. The impact of CSR disclosure content on stock price was tested separately and then control variables were introduced in two steps, first without return on assets and then return on assets was introduced. In doing so, I aim to identify collinear variables if introducing a new variable causes major changes to other variables significance and coefficient value, which might mislead the results (Brooks, 2008). The study also estimates the relationships using alternative measures of stock price changes to compare results and ensure robustness. In the first set of regressions I measure price change by stock return, total investment return and average monthly return. In the second set of regressions I split price change into three categories where banks having high negative changes are given value of (1), high positive changes are given value of (3) and (2) for other banks.

The results of the study are consistent across all examined models providing evidence supporting the hypothesis that assumes a positive relationship between CSR disclosures content and stock price changes. The results show that informative content of CSR disclosures was valued by investors and showed improvements on stock prices. This suggests that banks that disclosed better content of CSR disclosures were able to provide investors with needed information related to their social profile and enhance their stock

prices. In other words, better understanding of bank CSR profile and the impact of bank social commitments and expected legal claims on future cash flow seem to lower uncertainty and result in better stock valuation. Providing comprehensive content of CSR disclosures eliminates information asymmetry and uncertainty gap, which in turn reduce agency conflicts and enhance stock price. Moreover, management participation and communication of CSR information, which was reflected on share prices and improved firms' value, suggest that CSR involvement might be considered as a successful approach to enhance shareholders' value. With respect to the examined control variables, the reported results evidence the improvement of stock price when banks achieved lower leverage and book to equity ratios.

The suggested association between CSR disclosures content and stock price changes reconciles with Godfrey et al's (2009) results that showed positive association between CSR and stock performance. Moreover, Salama et al. (2011) provided evidence aligned with the reported results showing that firms' community and environmental performance decrease firms' systematic risk. Belkaoui (1976) also found that environmental disclosures enhanced stock price temporarily. On the contrary, contradicting results were reported by Alexander and Buchholz (1978) when examining a sample containing both financial and non-financial sectors and Murray et al. (2006) when using the UK market and computed stock returns using the continuous compounded return formula for yearly stock prices.

In accordance with agency theory, growth measured by book-to-market value of equity is significant and shares in explaining changes in stock prices. Banks that were able to enhance shareholders' equity value were able to report improvements in their stock

prices or even eliminate negative change. Better growth ratio signals bank ability to invest and generate consistent cash flows, which in turn enhance stock value. This result supports the results reported by Gelb and Zarowin (2002), Kothari et al. (2009) and Bushee and Noe (2000).

With respect to leverage it is found to be inversely related to stock price changes. This result suggests that banks having lower leverage were able to convince shareholders and investors by their ability to overcome the hard financial period and consequently lower agency conflicts and improved stock prices were achieved.

Further research could be conducted expanding the present study in several dimensions. The study focuses on examining stock price reaction to the content of CSR disclosures presented in the annual reports, while the content of CSR disclosures could cover other information channels such as banks' websites. Further research could also be conducted covering either a larger sample or the period after 2010. Enlarging the selected sample, or covering the period after 2010 will provide additional evidence regarding the consistency of the obtained results and assess any change to the influence of CSR disclosures on stock prices when banks absorb and manage the consequences of the financial crisis. Different results might explain investors' reprioritisation to the factors considered when assessing stock value. Moreover, other financial institutions and countries might be examined to estimate relationships examined in this paper in order to draw more generalised conclusions.

Chapter 4. Are Risk Management Disclosures Informative or Tautology?

Chapter Four

Are Risk Management Disclosures Informative or Tautology?

4.1 Introduction

Banks have come under increasing risk levels during the latest credit crunch (Allen and Moessner, 2011; Brunnermeier, 2011; Ivashina and Scharfstein, 2010). That led to shaking shareholders' and stock participants' confidence in the effectiveness of bank risk management (RM) practices (Acharya, Shin and Yorulmazer, 2011; Gatev, Schuermann and Strahan, 2009). This opens new challenges for bank management to approach their risk (Cornett, McNutt, Strahan and Tehranian, 2011) and communicate their effort toward a safer risk environment (Allen and Moessner, 2001; Gorton, 2009).

Risk management is intended to eliminate financial failure and maintain shareholders' value (Solomon, J., Solomon, A., Norton and Joseph, 2000). Understanding adopted risk management mechanisms provides insights into firms' risk profile and might assist in asset valuation (Scholes, 2000; Beaver et al., 1989). Disclosing risk management information diagnoses bank risk exposure (Helbok and Wagner, 2006), which might reduce uncertainty (Hubbard, 2000) and assist in evaluating management effectiveness (Lajili and Zeghal, 2005).

Providing information that reduces uncertainty and increases the number of informed investors is most likely to reduce asymmetry and improve stock price (Poshakwal and Courtis, 2005; Healy and Palepu, 2001). Stock prices are influenced by the level of

information available in efficient markets (Fama, 1991; Helbok and Wagner, 2006). Investors react directly to new available information (Merton, 1987). Furthermore, information content influences stock price positively and the impact of high information content lasts longer (Jennings and Starks, 1985). Therefore, one might expect that better content of risk management information might be discounted by investors and improve stock prices.

There is ample literature that has examined stock price reaction to revealed information. However, to my knowledge there is lack of studies that investigated the impact of risk management disclosures as an entirely dedicated disclosure segment on reducing market uncertainty and its reflection on stock prices. Therefore, the study seeks to investigate whether better content of RM disclosures is discounted by stock participants and improves stock prices in a sample of US national commercial banks. By examining this relation the study seeks to provide better understanding on how investors recognise disclosed RM information; whether they are considered as a valuable and reliable source when assessing bank risk and building trading decisions. The obtained results might be valuable to banks' management in understanding information users' reaction to disclosed RM information and what effort could be exercised to maximise bank benefit from their disclosures.

The evidence is based on examining a unique sample from the US listed national commercial banks for the years 2009-2010, i.e. the period after the financial crisis. Previous studies refer to years 2007 and 2008 as the period of financial crisis (Grove, Patelli, Victoravich and Xu, 2011; Yeh, Chung and Liu, 2011). This allows us to understand the impact of dedicated types of disclosure, which is different from the

traditionally examined information, to have better understanding of the variation in bank stock prices. This area, to my knowledge, is not addressed to the extent that conclusions are drawn and relations are evidenced and empirically supported.

Most of the previous studies examined stock response to revealed information or corporate disclosures in general (Palmros, Richardson and Scholz, 2004; Kothari, Xu and Short 2009; Bushee and Noe, 2000; Akhigbe, Martin and Newman, 2008), while the present study examines the selected disclosure segment and its impact on stock price changes and return variances. The content analysis technique is employed to measure the content of RM disclosures in banks' annual reports contrary to the studies that relied on rating agencies or used word or sentence count to measure disclosures (Lajili and Zeghal, 2005; Helbok and Wagner, 2006; Bushee and Noe, 2000).

Analysing 196 observations indicates that the content of risk management disclosures is likely to have improved the current year stock price proxied by two alternative return measures as well as reducing stock return variance of the subsequent year proxied by the standard deviation of monthly stock returns. Therefore, better content of RM disclosures seems to provide shareholders and investors with information enabling them to monitor management practices. In addition to the alignment of their strategies with shareholders interest, this is likely to reduce information asymmetry and uncertainty gap, thus improving stock performance. Furthermore, the reported results show the improvement of stock price and reduction to return variance when banks achieved better return on assets and book to equity ratio.

The study is structured as follows: the first section covers the literature review and theoretical framework. The second section illustrates the research design and examined models. while the third section addresses the results of data analysis and hypotheses testing. The conclusion of the study is drawn in the final section.

4.2 Literature review and theoretical framework

Banks as financial intermediaries, linking between depositors and investors, manage clients' assets and finance other industries as well as households (Howells and Bain, 2008; Ivashina et al., 2010). Deposits that form the main source of funds and the main component of debts are in general short-term debts where a significant portion invested in loans with no clear understanding to shareholders and external parties to the value and risk levels of these investments (Gatev et al., 2009). Being more transparent when communicating information concerning risk environment might reduce uncertainty (Lajili and Zeghal, 2005) especially after the increasing risk levels that faced the banking sector during the financial crisis (Cornett et al., 2011). This might be due to the intention of risk management practices in order to reduce the possibility of failure and improve profitability to enhance shareholders' value (Solomon et al., 2000). In this regard, Linsley and Shrives (2005) mentioned that appropriate risk management practices in the banking sector lead to stability and consequently they reduce systematic risk and ease the access to capital markets.

To understand bank's risk and value its equity, investors and shareholders should look beyond the static balance sheet, which is limited in detailing entity risk (Scholes, 2000). Having insights into firm risk management dynamics provide understanding to bank risk exposure in relation to economic changes such as changes in interest rates, commodities market values and currency rates (Scholes, 2000). For example, better understanding of the maturity gap between liabilities and assets might help in evaluating asset value since asset value is most likely to decrease if interest rates increase (Beaver et al., 1989).

In the recent financial crisis and due to the complexity of banking operations, information asymmetry was at its peak, limiting investors' ability to assess security prices and causing financial intermediaries to stop dealing (Gorton, 2009).The ambiguity surrounding bank credit risk caused the damage to financial markets and the initiation of the credit crisis (Allen and Moessner, 2011). Banks as a response to the crisis were obliged to undertake significant write-downs due to the estimated losses in the mortgage and securitised products which increased the risk of loan portfolios (Brunnermeier, 2011; Ivashina and Scharfstein, 2010). Loans delinquencies in turn caused liquidity difficulties (Ivashina and Scharfstein, 2010; Acharya et al., 2011) that stressed on asset pricing and information asymmetry related to the value of bank assets impacted trading (Acharya et al., 2011). Therefore, finding a buyer for a distressed asset was one of the main difficulties during the crisis (Acharya et al., 2011).

Market uncertainty and the complexity of business transactions promote the need for quality risk management disclosures in order to evaluate management effectiveness and adopted practices to deal with the volatility of the market and its influence on the business and growth (Lajili and Zéghal, 2005). Disclosing risk management information signals banks' risk behaviour and might distinguish them from peers. They provide information about bank risk exposures and the approach followed to assess, mitigate and follow up on them (Helbok and Wagner, 2006). For example, information concerning loan portfolio characteristics provides an explanation not available in loan allowance discussion, as well as information concerning bank liabilities and loan portfolio maturities assisting in understanding the impact of interest rate changes on asset values (Beaver et al., 1989).

Risk information is important to any party interested in the firm to help in the assessment of its risk profile (Linsley, Shrives and Crumpton, 2006). Disseminating information concerning portfolio quality and risk levels assists in managing clients' uncertainty and conveys the message that clients' assets are properly safeguarded (Humbbard, 2000). Linsley at al. (2006) showed that stock participants were negatively impacted by financial indicators such as maturity gap and non-performing loans. Moreover, institutional investors might benefit from risk disclosures that reflect a firm's internal control mechanism in their decision making process. Detailed risk information is appreciated by investors, since it improves their understanding of the firm's risk and consequently assists in having an effective, diversified portfolio (Solomon et al., 2000).

Information disclosed is addressed to a wide range of users having different needs and looking for different categories of information (Benston, 1967). Management has information not known by investors which might affect future earnings and influence market performance, even if the firm is trading within an efficient capital market (Healy and Palepu, 2001). Satisfying information needs reduces information asymmetry and agency conflicts due to the role of information in monitoring agents' practices and their alignment with the principal's interest (Healy and Palepu, 2001; Depoers, 2000). Moreover, disclosing voluntarily financial information can assist in mitigating monitoring issues with creditors and managing disagreements between agent and principal (Raffournier, 1995).

Information held by managers might influence firms' value (Dye, 1985), while providing new information to markets acts as a market discipline. It is due to enhanced transparency that helps stock participants in understanding changes in bank risk and its complex transactions (Stiroh, 2006). Poshakwale and Courtis (2005) argued that providing

a high level of information to the market reduces the level of uncertainty, lowers cost of capital and consequently attracts investors. Poshakwale and Courtis showed that risk-management disclosures had the greatest impact in explaining the change in the cost of capital. Furthermore, improved transparency and flow of information leads to a more informed investor, which decreases information asymmetry and enhance investors' relations (Solomon et al., 2000).

Investors respond to the dissemination of information once it is received and they will not be interested in being shareholders if faced with incomplete information (Merton, 1987). Thus, reducing information asymmetry increases investors' confidence and stock liquidity; consequently stock performance might be enhanced (Healy and Palepu, 2001). Fama (1991) showed that stock prices were adjusted according to the information disclosed by firms, and similarly Helbok and Wagner's (2006) research found that investors' expected return is also related to the extent of information disclosed. Therefore, uninformed investors ask for higher returns due to the higher risk driven by the amount of private information available to other investors, which enables them to hold a better weighted portfolio, "private information thus induce a new form of systematic risk , and in equilibrium investors require compensation for this risk" (Easley and O'Hara, 2004, p. 1554). In other words, wise investors consider the cost of collecting information (Cormier and Gordon, 2001) and favour to deal with financial assets having low information cost, i.e. available and easy to collect (Hubbard, 2002).

Previous literature examined the impact of financial information in general or a disclosure segment in particular on stock prices, return levels and volatility as well as cost of capital evidencing the influence of information on market reaction. Indeed, information

in general is most likely to impact on firms' performance and the relation with stakeholders as well as imposing competitors' behaviour (Dye, 1986). Few of these studies tackled the impact of RM information on stock prices or return volatility in the banking sector. Risk disclosures allow stakeholders to monitor directors' decisions and the risk they encounter and they are considered part of the governance structure (Linsley and Shrives, 2005).

Benston (1967) examined the impact of published accounting information on stock price changes, arguing that if investors are using disclosed information to analyse the firm, predict its future performance and consequently take their decision, then disclosures might change investors' expectations and this could be seen through changes in stock prices in the disclosure period. In addition to information, the researcher found that firms' income was positively correlated with stock price changes. Patell (1976) achieved similar results when examining the impact of voluntarily disclosing forecasts of earnings per share on the behaviour of stock price using a sample of US listed companies. Patell found that the content of information disclosed, their volume or even both were discounted by stock participants when taking their trading decisions "There was a statistically significant upward price change during the week of forecast disclosure" (Patell, 1976, p.273). The result was explained from the perspective of the efficient market hypothesis where stock price is a reflection of all public information and moves efficiently with the disclosure of new information. The researcher added that the content of disclosed information reflects firm motivation toward voluntarily disclosing more information and being more transparent.

The impact of information on stock price was also examined by Fama, Fisher, Jensen and Roll (1969) and Fama (1991) and supporting results were achieved. Fama et al. (1969) provided evidence supporting the market efficiency hypothesis showing that prices

changed in relation to the dissemination of new information, "Finally, the data present important evidence on the speed of adjustment of market prices to new information" (Fama et al., 1969, p.21). According to market efficiency hypothesis, security prices mirror the information available; however this hypothesis should not be dragged to the extreme due to the effect of trading cost on security prices. Fama (1991) surveyed market efficiency literature and mentioned that stock prices were adjusted according to the information provided by companies, since more available information assists investors in exploring various types of information when trading. In turn it influences stock price "This evidence tilts me toward the conclusion that prices adjust efficiently to firm-specific information" (Fama, 1991, p. 1607).

When markets are perfectly competitive stockholders' benefit might be improved by revealing information that decreases information asymmetry between investors, which improves stock liquidity and decreases stress on prices (Diamond and Verrecchia, 1991). Diamond and Verrecchia found that when investors had higher certainty about the firm based on information they have, large orders were placed and consequently a larger position for the stock was taken "The increase demand due to attracting a broader market increases the price at date 1, reducing the cost of capital" p.1339. The reduction of information asymmetry encourages large investors to hold their stocks and consequently decrease the transfer of wealth between investors, leading to enhanced shareholders' wealth since liquidity premium is reduced as a result of reduced trading.

Palmrose, Richardson and Scholz (2004) investigated the reaction of stock price proxied by adjusted abnormal returns to restatement announcements. Firm size, leverage and return were used as control variables reflecting firms' characteristics and selected due to their common use in previous studies. It was mentioned that firms' debt levels have

different impacts on markets. Small companies have a larger impact than large companies when changes to income take place since investors follow the information of large companies more. The OLS regression results led the researchers to conclude that investors were affected more by restatement announcement that reflected negative signals regarding management integrity, than announcements that carry accounting issues due to the loss of credibility in financial statements. Jorion (2002) investigated the relationship between a specific risk disclosure; value at risk (VAR), and trading revenue volatility. The examined sample consisted of eight US commercial banks that disclosed VAR on a quarterly basis throughout the period from 1995-1999. Jorion showed that banks having high VAR measure were faced with higher variation in their trading revenue suggesting that value at risk disclosure assists in forecasting the trading revenue volatility due to its importance in comparing the risk of banks' trading portfolios.

Poshakwale and Courtis (2005) examined the relationship between voluntary disclosures and the cost of equity capital using a sample of 135 banks from Europe, the US, Australia and Canada, mentioning that literature lacks similar studies conducted specifically on financial firms. The voluntary disclosures model included financial and non-financial disclosures covering strategy, risk management, financial position and performance, arguing that providing high level of information to the market will reduce the level of uncertainty, lower the cost of capital and consequently attract investors. Having a lower level of uncertainty drives investors to accept lower returns and this in turn enhances stock prices. The linear regressions results showed that banks that provided a higher level of voluntary disclosures were faced with lower cost of equity, and the greater impact on cost of capital was driven by risk management disclosures. Similar to Poshakwale and Courtis' (2005) research, Lambert, Leuz, and Verrecchia (2007) demonstrated the link

between cost of capital and accounting information showing two effects of disclosures to the assessment of the expected cash flow distribution and not the real cash flow. The direct effect is due to the impact of information quality on reducing the risk of expected cash flow that influences the assessment of stock participants to cash flow distribution and increases firm price. Similarly, an indirect effect by influencing firms' decisions due to the reduction in cash flow might be used for management entrenchment "Clearly, decision makers in an economy make decisions on the basis of the information they have available to them. If this information changes, so do their decisions" (Lambert et al., 2007, p.404).

Akhigbe et al. (2008) examined the influence of disclosures on firms' stock return variance before and after the passage of the Sarbanes-Oxley Act 2002 (SOX) which was introduced to enhance the quality of financial reporting through more information transparency that improves trust and reporting integrity. Akhigbe et al. (2008) found that high information certainty led to low stock return variance, and companies that enhanced their disclosures offset the high risk after SOX implementation. The reported results also indicated negative significance to leverage (debt to equity) and positive significance to firm size, while ROE ratio and market to book value were not significant with stock return variance. This relation was also examined by Baumann and Nier (2004) but from a banking context. Baumann and Nier (2004) concluded that better disclosures (discussing credit, liquidity, market and interest rate risk) reduce uncertainty and lead to more homogenous beliefs concerning firms' value, which in turn reduces volatility and cost of capital. They noted that transparency is not necessarily the result of quantitative disclosures. It is about the content of disclosed information. Moreover, stock return volatility was negatively associated with return on assets and size, while leverage was positively correlated and dividend ratio was insignificant.

Opposing results were achieved by Ferreira and Laux (2007) when studying the relation between return volatility and information flow for SEC-listed companies excluding the financial and utilities sectors. Information flow was assessed by considering future information, such as communicating future earning information and accounting transparency. Ferreira and Laux mentioned that accounting information is essential in analysis and building forecasts since optimistic information assists in smoothing stock return and pessimistic information might depreciate it. The study suggested that low transparency leads to low variation, arguing that a high level of information and transparency encourages the collection of private information. This will result in higher idiosyncratic volatility. It was noticed that stock price was influenced by the extent of information and openness to the market and is relatively affected by information accuracy and timing.

Agency theory provides explanations on management incentives to disclose information over and above what is mandatory (Watson et al., 2002). In an attempt to manage agency conflict, management is likely to disclose information conveying their behaviour and practices to convince shareholders and consequently bound their monitoring activities (Watson et al., 2002). Therefore, firms by enhanced disclosure seek to decrease the cost of capital and enhance stock price through reducing the level of uncertainty (Akhigbe et al., 2008; Helbok and Wagner, 2006; Poshakwal and Courtis, 2005; Healy and Palepu, 2001). The disclosure of risk management information is likely to provide investors with information not available elsewhere in the financial statements (Scholes, 2000). Therefore, according to the review of literature and theoretical framework, one can predict that communicating a firm's related information has its influences on stock performance.

If by improving the content of disclosed RM information management can reduce the agency cost and enhance the firm's value, then agency theory can explain management intention to disclose better content of risk management information. Management, according to agency theory, might consider enhancing the content of disclosed risk management information to reduce the degree of uncertainty, enhance stock prices and manage agency conflicts. Therefore, the study expects that management which avoids holding information and discloses better content of risk management information might reduce information asymmetry, which improves stock return and reduces return volatility.

Accordingly I hypothesize the following:

H1: The higher the score of risk management disclosure the better the stock price.

H2: The higher the score of risk management disclosure the lower the stock returns volatility.

4.3 Research Design

4.3.1 Sample Selection and Data Collection

To test the suggested hypotheses, I drew a sample from the active listed US national commercial banks. The purpose of selecting only national commercial banks is to have coherent sample observations subject to similar regulations and providing similar services. A bank size criterion was used in selecting the examined sample to omit banks having total assets less than 1 billion US dollars. The initial sample size was 214 observations in both years, i.e. 2009 and 2010.

As a tool to communicate firms' specific information, annual reports were used by previous researchers to measure disclosures (Perignon and Smith, 2010; Linley and Shrives, 2006; Ahmed, Beatty and Bettinghaus, 2004) since disclosures form a vital part of them (Gul and Leung, 2004). Thus, banks' annual reports and forms 10-K were obtained from banks' websites and the management discussion and analysis section was reviewed to measure the content of disclosed risk-management information. Financial information to compute stock price change and the control variables was obtained from *Thomson One Banker* database. Due to missing data, closures and bank mergers the final examined sample size is 195 annual reports.

4.3.2 Dependent Variables: Stock Return and Return Variance

In efficient capital markets stock prices respond to newly-revealed information reflecting investors' reaction to the new available information and the efficiency of the market (Ross, Westerfield and Jaffe, 2005; Patell, 1976). The change in stock value implies a new

assessment to the predicted future cash flows and consequently mirroring firms' current and future performance; in other words, stock prices are a reflection of the firms' overall market valuation (Klassen and Mclaughlin, 1996). Improvement in stock prices is not only important to enhance shareholders' value but also important to increase stock market liquidity (Breen, Hodrick and Korajczyk, 2002) and correct asset undervaluation, which harm the firms and its management specially when raising equity capital or approaching the expiry of stock options (Hely, Hutton and Palepu, 1999).

Lobo's (2000) research examining the impact of federal disclosure policy on stock prices found generally that stock prices were not affected by the federal policy, while firms' information was sufficient to explain changes in stock prices, a conclusion also evidenced by Lynch and Mendenhall (1997) when analysing stock price changes to Standard and Poor's added or removed companies. Moreover, Chambers and Penman (1984) pointed out that the event of early reporting was perceived as a release to good news leading to an improvement in stock prices due to the perception that firms will not rush the release of bad news.

Stocks provide investors with two types of returns commonly known as the capital gain, which results from stock price appreciation in the market, and the dividends which are defined by firms' management and might not be constantly paid (Brealey, Myers and Marcus, 2001).The price difference between two defined periods is not considered a good presentation to stock returns due to scale domination; therefore, price series should be scaled by the original price for better representation and comparability as well as having unit-free measure (Benston, 1967; Breen et al., 2002). Stock return, according to financial modelling, could be computed either as a simple return, i.e. price difference over base

period price, or the continuously compounded return, i.e. the natural logarithm of two stock prices (Brooks, 2008). The first method is used when dealing with low frequency of compounding while the second is used with high frequency, i.e. daily or weekly stock returns. In both methods dividends might be added to the numerator; however their impact will be negligible if the holding period is short (Brooks, 2008).

Stock return computed as the difference of two consecutive year-end prices close-scaled by the base year closing price (Lambert et al., 2007; Pereira and Zhang, 2010), and stock returns computed as the difference in stock prices, in addition to dividends scaled by the base year closing price (Gelb and Zarowin, 2002; Buchholz, 1978) are used alternatively in the study to achieve more robust results when examining their reaction to risk management disclosures. The history of the stocks was reviewed to ensure that changes in stock prices were not affected by stock splits.

In addition to stock return, the study examines the variation in stock returns as a measure of bank total risk (Anderson and Fraser, 2000). It is computed as the standard deviation of monthly stock returns to investigate whether RM disclosures are also explaining the variation in returns and not only static returns. Total risk, which is measured by equity market volatility, is one of the important risk measures which provides managers, borrowers and shareholders prompt and clear indicators of bank total risk, expected default and level of return volatility (Stiroh, 2006). Scholars such as Baumann and Neir (2004) and Hirtle (2007) examined the impact of disclosures on bank risk and evidenced an inverse relation between disclosures and stock return volatility measured as returns standard deviation.

4.3.3 Independent Variables

4.3.3.1 Risk management disclosures

Providing information that enables investors to evaluate bank activities and anticipate expected future risk levels act as a process that disciplines both the market and bank management (Flannery and Sorescu, 1996). The extent and comprehensiveness of revealed mandatory information is defined by management, the ultimate owner of information, and therefore the voluntary aspect could be found in mandatory disclosure, since more disclosures enhance readers' knowledge of the firm's practices and reflect transparency (Kent and Stewart, 2008). Pillar 3 of Basel emphasised the importance of providing better disclosures in order to act as market discipline, while Sarbanes Oxley standards held firms' management accountable to disclose risk management information and liable for non-compliance (Helbok and Wagner, 2006).

Campbell and Slack (2008) referred to risk management reporting as "reporting relating to risks that companies are exposed such as financial and operating risks and their management of those risks". Risk disclosures are considered part of the governance structure as it allows stakeholders to monitor directors' decisions and the methods used to manage risk, providing better understanding to firms' risk profile (Linsley and Shrives, 2005). Similarly, Lajili and Zéghal (2005) pointed out that communicating risk management strategies are helpful to shareholders, investors, analysts and other stakeholders. That they reflect management competency and to some extent risk management could be considered as a governance factor, indicating management success in meeting business objectives. However, their relative importance is linked to the reliability and relevance of information discussed (Linsley and Shrives, 2005).

In May 2006, Moody's mentioned that the level of information provided to investors is not sufficient, recommending more informative risk management disclosures (Lewis, 2006). The intention behind improved risk management disclosures is to reduce information asymmetry and enhance transparency (Lajili and Zéghal, 2005). Helbok and Wagner (2006) argued that investors expected return associated with the extent of information disclosed and in particular disclosing risk management information signals bank risk behaviour. That might distinguish them from peers. In line with Helbok and Wagner (2006), Lambert et al. (2007) mentioned that the quality of mandatory disclosures shifts a firm's cost of capital toward the risk-free rate. In contrast, banks that disclosed poor risk disclosures might face higher cost of funds and difficulties in accessing the capital market (Linsley and Shrives, 2005).

The content analysis approach is adopted in measuring the content of risk management disclosures in the management discussion and analysis section of banks' annual reports. In disclosing risk management activities, management is most likely to reveal information illustrating a firm's risk exposure and the approach followed to identify, monitor and mitigate risk "Disclosures related to risk management have to include the risks to which banks are exposed and the techniques used to identify, measure, monitor, and control these risks" (Helbok and Wagner, 2006, p.6). I classify risk management disclosures into six categories according to risk types and covering information disclosed regarding the management of credit risk, interest rate risk, liquidity risk, market risk, legal and compliance risk and operational risk (COSO, 2009; Linsley et al., 2006; Baumann and Nier, 2004; Ahmed et al., 2004). The narrative content of each risk category is scored from zero to three according to the thoroughness of discussion. An additional point is given if numerical figures are disclosed supporting the narrative discussion and another point if the

figures are compared with previous years' results or projected target figures. Therefore, a maximum of five points could be achieved by each category and thirty as maximum total score. The final score used in the analysis is computed by dividing the sum of points awarded over the maximum score a bank can achieve, i.e. thirty points.

The table that illustrates the six risk types and their corresponding risk management indicators is presented in appendix B under 'Risk management types descriptions'. The advantage of the adopted method over using rating agency disclosure score and word or sentence count score is that content analysis reflects both quantity and quality (Hasseldine, Salama and Toms, 2005). Moreover, the followed coding approach is clear and overcomes sample selection limitation if selected banks were not rated by the rating agency.

4.3.3.2 Disclosure score reliability

Krippendorff's alpha is used to test for the level of agreement between two or more coders to ensure scoring objectivity and reliability (Krippendorff, 2007). However, full assurance could not be achieved (Linsley and Shrives, 2006). Several disclosure studies (Hasseldine et al, 2005; Holder-Webb, Cohen, Nath and Wood, 2009; and Newson and Deggan, 2002) used Krippendorf's alpha to measure inter-rate agreement and alpha varied between 70% and 85%.

Twenty annual reports covering 10% of the examined annual reports were randomly selected and provided to two independent coders to test for disclosures' score reliability. The approach followed to score RM disclosures along with the scoring sheet was explained to the coders. They were then asked to assess the content of RM disclosures and assign related scores. The two independent coders' scores along with the score

computed by the author were used to test scoring process reliability. Since the first reliability test reports alpha less than 75%, reconciliation between the three scores was performed. The scores with variation greater than 30% were selected and the coding was analysed with the other coders to identify the reason behind such differences. After agreeing on the adjusted scores another reliability test was performed and reported alpha in the second round was 81.5%.

4.3.4 Control variables

The selection of the control variables is based on the theoretical link and their explanatory power evidenced in previous studies as well as data availability.

4.3.4.1 Growth: Book-to-market value of equity

Firms' growth signals their potential for new investment opportunities generating expected future return and consequently enhancing equity value (Pilotte, 1992), having a stream of cash flows lower cost of capital and reduce return volatility (Kothari and Short, 2009). According to agency theory, corporate managers benefit from new investment opportunities in reducing agency cost by utilising their available free cash flow in new investments (Sibilkov, 2009). Utilising free cash flow in future investments reduces free cash available for corporate managers and consequently reduces agency problems (Fama and French, 2002). Therefore, direct relationship might be expected between growth and changes in equity value.

The impact of growth was examined by different scholars demonstrating its influence on equity value. Using a sample of US-listed firms, Pilotte (1992) examined the

impact of growth on stock prices when offering new equity or debt financing, showing that price responses to growth (growth in assets, sales and income) rather than the offered security type. Moreover, Pilotte found that firms that witnessed considerable growth were able to eliminate declines in stock prices. Within the same context, Bushee and Noe (2000) mentioned that better book-to-market value might lower stock return volatility, while Gelb and Zarowin (2002) revealed positive significant association between growth and stock price. From a cost of capital view, Kothari et al. (2009) showed a direct relation between growth and cost of capital, arguing that firms having low book-to-market value of equity are less risky due to the expected consistent future cash flows.

Therefore, book-to-market value of equity and asset growth are used to control for growth. Both measures are commonly used in previous studies to proxy for growth and explained changes in equity values (Fama and French, 2002; Bushee and Noe, 2000; Pilotte, 1992). Book-to-market value of equity is computed as the ratio of equity book value to market capitalisation (Kothari et al., 2009; Berk, DeMarzo and Harford, 2009, p 30). In other words, if the market value of equity is greater than the book value, it implies that the firm succeeds in enhancing shareholders equity, or the firm fails to create value to shareholders and the firm could be incurring losses (Ross, Westerfield and Jordan, 2010).

4.3.4.2 Profitability

Firms' values are affected by their agency cost that might be caused by the misaligned views between shareholders and management (Grinblatt and Titman, 2002, p. 645). The cost of agency conflicts is relatively proportional to losses in accounting profits (Berger and Patti, 2006). Therefore, enhancing a firm's value might be by reducing agency

conflicts and consequently agency cost. Bank profitability assists in mitigating agency issues and eliminating moral hazard (Hubbard, 2002, p. 321-322). This might be due to the influence of profitability in convincing shareholders of management performance and their efficiency in managing the business (Kochhar, 1996) as well as the ability of the profitable firms to distribute dividends (Fama and French, 2002).

Flannery and Sorescu (1996) argued that high return on assets signals a firm's efficiency and provides compensation for additional risk-taking; their research showed that better ROA reduced spread. On the other hand, Beak, Kang and Park (2004) noticed that poor-performing companies are more sensitive to financial difficulties and lack resistance to external shocks, since firms with good performance will be more able to benefit from growth opportunities and have a better firm's value. In support to these , Berger and di Patti (2006) mentioned that profit efficiency enhances expected returns and might protect the firm from expected crisis, mentioning evidence from previous studies showing a positive relation between profit and expected returns in the banking industry. Moreover, Yermak (1996) found that firms with better ROA have a higher market value, and Baumann and Nier (2004) concluded that better performance proxied by ROA signals bank quality and leads to lower return volatility.

However, shareholders' interest is in the return on invested equity (Pava and Krausz, 1996). They are also concerned about bank return on assets, since it reflects the efficiency of asset utilisation (Hubbard, 2002). Therefore, the return on assets is introduced to control for bank profitability, which is also a common measure used to assess management efficiency and performance (Ross, 2005, p. 36-38), assuming that better return on assets leads to better stock prices and less return variance.

4.3.4.3 Leverage

Banks liquidity could be described as their ability to have sufficient funds available to match the risk of random withdrawals (Gatev et al., 2009; Cornett et al., 2011). In the recent financial crisis the lack of liquidity stressed on asset pricing (Acharya et al., 2011) and liquidity risk came to be of greater concern after the 2008 credit crisis (Allen and Moessner, 2011). In general since liquidity is cyclical, banks seek more liquidity in economic downturns and less liquidity in upturns, without ignoring the needed balance between the mixture of risky and safe investments to have acceptable liquidity levels (Acharya et al., 2011).

Leverage could be seen as a tool to manage agency conflicts and consequently enhance stock prices (Kochhar, 1996). The presence of leverage enforces corporate managers to utilise their assets effectively and eliminate inefficient expenditures in order to fulfil commitments and avoid settlement delays or even bankruptcy that might hurt their reputation and career progress (Kochhar, 1996). From signalling theory perspective, corporate management is most likely to benefit from revealing information that reflects future performance (Shenoy and Kouch, 1996). Leverage reflects the financing mode followed and signals information concerning expected earnings and cash flows (Lee, Thakor and Vora, 1983; Shenoy and Koch, 1996). Moreover, according to the signalling theory of debt, leverage mechanism might reflect management confidence and convince investors of the ability of the firm to grow and undertake future investments (Berk at al., 2009, p. 508-509).

The supply of credit and lending activities declined during the financial crisis as a reaction to the high liquidity risk facing the banking sector (Cornette et al., 2011; Ivaashina and Scharfstein, 2010). Therefore, leverage as proxy of firm risk (Bushee and Noe, 2000) might also be perceived as risk disclosure. Helbok and Wagner (2006) found that banks facing high leverage disclose better operational risk management information to express that their risk is sufficiently managed and to reduce creditors-stockholders conflict. On the other hand, liquidity is affected by the risk management practices (Scholes, 2000) and firms with high risk levels might prefer to be less transparent when disclosing risk-related information (Linsley and Shrives, 2006). This cyclical nature of the relationship highlights the complexity of researching the risk disclosure arena.

Literature provides different arguments and evidence concerning the impact of leverage on stock behaviour. Kothari et al. (2009) and Helbok and Wagner (2006), for example, argued that leverage is one of the measures that predict bank failure. Therefore firm's risk increase their leverage, which impacts their market value. Similarly, Flannery and Sorescu (1996) evidenced that higher market leverage reflects higher probability of bank default and consequently leads to wider spread. On the other hand, higher leverage rates might be perceived by investors as added value (Ross, 1977). The increase in leverage enhances shareholders return (Jensen and Smith, 2007) and lowers stock-return volatility (Bushee and Noe, 2000). This variation in views was captured by Palmrose el al. (2004) when investigating stock price reaction to restatement announcements, mentioning that debt levels have different effects on markets.

Therefore, due to the effects of leverage on firm equity value and stock-return volatility (Kothari et al., 2009), the study controls for leverage measured by debt to assets ratio (Bushee and Noe, 2000).

4.3.4.4 Size

When using stock return variance as a dependent variable, log total assets is used to control for bank size. Large banks might experience less return volatility compared to small banks (Baumann and Neir, 2004) due to their ability in diversifying their investments (Demsetz and Strahan, 1997) and obtaining external financing (Beak et al., 2004). Moreover, Anderson and Fraser (2000) argued that in addition to the diversification effect bank size might affect its risk level due to their ability to access capital markets when liquidity is needed. On the other hand, they mentioned that bank size provides more confidence to extend their off-balance sheet activities and invest in risky portfolios, which in turn increases bank risk. However, the results of the study supported the first argument evidencing a negative relationship between bank size and risk level.

4.3.5 Regression Models

The pooled regression estimating the relationship between RM disclosures, stock return and return volatility forms the following equations.

The regression models form the following equation:

$$PCh = \alpha + \beta_1 RMDS + \beta_2 ROA + \beta_3 Lev + \beta_4 BtoM + \beta_5 AG + \acute{\varepsilon}$$

$$RSD = \alpha + \beta_1 RMDS + \beta_2 ROA + \beta_3 Lev + \beta_4 BtoM + \beta_5 AG + \beta_6 Size + \acute{\varepsilon}$$

Where:

PCh = is the change in stock price measured as the ratio of the difference between the closing price of the observed year and preceding year. It is scaled by the preceding year closing price. Alternatively, dividends are added to the numerator to compute the total investment return and to examine its response to RM disclosures content.

RSD = is the standard deviation of the monthly stock returns.

α = the intercept

$\beta_1 \ldots . \beta_n$ = the regression coefficients

ε = the error term

The table below illustrates the independent variables measurement along with the predicted signs.

Table 4.1

Independent Variables Measurement

Variable name	**Variable code**	**Variable descriptions**	**Predicted sign**	
			PCh	**RSD**
Risk management disclosure score	RMDS	Risk management disclosures score measured as the ratio of the points obtained on the content of risk management disclosure types over the maximum points a bank can achieve	+	-
Profitability	ROA	Net income over total assets	+	-
Leverage	Lev	Debt divided by total assets	-	+
Book-to-market value of equity	BtoM	The value of equity divided by the market value of equity (market capitalisation)	-	+
Asset Growth	AG	The difference in asset size between the beginning and end of year divided by the beginning of year asset size	+	-
Size	Size	Natural logarithm of current year total assets		-

4.4 Data analysis and interpretation

4.4.1 Descriptive statistics

The following section illustrates and analyses the descriptive statistics of the variables examined in the model covering both the dependent and the independent variables across the 196 observations collected.

The stock price change in the examined sample varies between (1.07) and (-1.00). Only 24% of the banks covered in the examined sample witnessed enhancements in their stock prices during 2009. That was in general more stressing on asset prices than 2010. Year 2010 was better since 65% of the covered banks witnessed improvements in their stock prices and around 6% showed no changes in their stock prices. The mean is (-0.06) and the standard deviation is (0.41). On the other hand, the standard deviation of the monthly stock returns varied between zero and (0.49) having a mean of (0.123) and standard deviation of (0.082).

All banks covered in the sample revealed information related to their risk management practices with clear variation in the comprehensiveness and informative level of the disclosed information. The variation is in both the level of information disclosed and the types of risks management covered. The highest risk management score is 0.9 across the defined risk types and the lowest score is 0.17 points. 42% of the examined banks obtain risk management disclosure score above the mean (0.47). The standard deviation is (0.11) showing the level of variation between scores. The most recurrent RM score, i.e. the mode, is 0.5, which is the score of 14% of the examined banks. These results highlighted the issue of the voluntary aspect in mandatory disclosure mentioned by Kent and Stewart (2008).

A lens on the control variables shows that return on assets varied widely during 2009-2010. The highest ROA was (3.69) and the lowest was (-9.53) with a standard deviation of (1.88). The proportion of banks that were able to have positive ROA during 2009 and 2010 was 60% and 67% respectively. More than half (104) of the observations have return on assets equal or above the sample mean, which is (0.32). It is worth mentioning that I screened the observations with negative ROA and checked their corresponding RM score, noticing that most of the observations have low RM disclosures scores.

The second examined control variable is bank leverage. The leverage ranges between (1.01) to (0.08) having a mean of (0.9) and standard deviation of (0.06). The mode of the sample is (0.93) and the median is (0.9). Generally, the leverage ratio for banks is expected to be higher than other firms in other industries due to the unique capital structure of banks, where customer deposits are classified under bank liabilities.

Book-to-market value of equity is also introduced into the examined model as a control variable. The book-to-market ratio varies between (28.45) and (-2.68). The mean of the sample is (1.89) and the standard deviation is (2.75). If I exclude the impact of the negative book-to-market value of FNB United Corporation that results from the negative equity value, the book-to-market ratio will vary between (28.45) and (0.313) having a mean of (1.92) and standard deviation of (2.73). The median of the sample is (1.063), more than half of the observations (55%) failed to drive the market value of their banks above its book value. The results of the descriptive statistics show that 60% of the banks in 2009 and 48% in 2010 have market value of equity less than their book value of equity.

The second growth measure used in the examined model is asset growth. Asset growth varies from (0.81) to (-0.22) having a sample mean of (0.02). The standard deviation is (0.11) showing a high level of dispersion from the mean. The skewness is (2.34) reflecting non-normal distribution of the changes in asset size within the selected banks. 62% of the banks in 2009 and 47% in 2010 have positive asset growth.

The skewness of the examined variables and the non-normal distribution, especially financial ratios such as leverage and book-to-market value of equity, reflects the financial turbulences and difficulties the US banks were facing during 2009 and 2010.

The table below summarises the descriptive statistics for both the dependent and the independent variables.

Table 4.2

Descriptive statistics for the Dependent and Independent Variables

Description	**Price Change**	**Price Change with dividends**	**Return S.D 2010-2011**	**RM**	**ROA**	**Lev**	**Book-to-Market**	**Asset Growth**
Mean	-0.06	-0.043	0.123	0.47	0.32	0.90	1.89	0.02
Mode	0	0	0.088	0.50	0.43	0.93	14.88	0
Median	-0.02	-0.010	0.1	0.47	0.4	0.90	1.063	0.01
Maximum	1.07	1.078	0.49	0.90	3.69	1.01	28.45	0.81
Minimum	-1.00	-0.806	0	0.17	-9.53	0.08	-2.68	-0.22
Standard deviation	0.41	0.41	0.082	0.11	1.88	0.06	2.75	0.11
Skewness	0.12	0.140	2.10	0.73	-1.9	-10.6	6.04	2.34

4.4.2 Test of Hypotheses

The STATA package for statistical analysis is used to analyse collected data and estimate relationships. The relationships between stock price changes and the content of risk management (RM) disclosures are examined by employing the linear regression analysis with robust standard error. This section illustrates and analyses the results obtained from the employed regressions.

The correlations matrix is used to test for the existence of multi-collinearity between the examined independent variables. Table (4.3) below shows that the correlation between the independent variables is less than (0.8), which relaxes the assumption of mulicollinearity (Haniffa and Cooke, 2005; Jing, Pike and Haniffa, 2008). However, the correlation between the return on assets and the book-to-market value of equity (-0.70) might be of a concern. Therefore, return on assets and book-to-market value will be gradually introduced into the examined model, since collinearity between variables could also be detected if the coefficient values of the independent variables are affected with the addition or the removal of any examined variable (Brooks, 2008, p.172). The variance inflation factor (VIF) test reports results that vary between 1.16 and 2.9, which are considered acceptable results, suggesting no serious multi-collinearity problem (Gujarati, 2003; Jing et al., 2008). I test for autocorrelation and heteroscedasticity using the Durbin Watson test and Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. With the exception of standard deviation of stock returns 2010-2011, no threat of autocorrelation or heteroscedasticity was reported. Durbin Watson test reports 1.54, 1.65 and 1.9 for price change, price change with dividends and standard deviation of stock returns respectively indicating low risk of autocorrelation (Ghauri and Gronhang, 2010, p. 180-181).

Table 4.3

Spearman Correlations Matrix

Variables	VIF	RM	ROA	Debt to Assets	Book to Market	Asset Growth	Log Assets
RM	1.72	1.000					
ROA	1.32	0.149	1.000				
Debt to Assets	2.85	-0.160	-0.165	1.000			
Book to market value of equity	2.9	-0.183	-0.703	0.143	1.000		
Asset Growth	1.16	-0.114	0.335	0.034	-0.338	1.000	
Log Assets	1.77	0.457	0.139	-0.379	-0.190	-0.108	1.000

The reaction of stock price to RM disclosures content is examined through three alternative measures. Table (4) shows the estimated relationships between RM disclosures content and price change; price change with dividends, indicating the total investment return and the standard deviation of the monthly stock returns for the following year. In all estimated equations, variables with potential risk of multicollinearity are introduced gradually in order to monitor their impact on other variables and identify irregularities.

Table 4.4

Linear Regression Analysis with Robust Standard Error of the Relationship between Stock Price Changes, Return S.D and RM Disclosures Content along with the Selected Control Variables

Dependent variable	**Price change (IR)**		**Price change with dividends (TIR)**		**Return S.D 2010-2011**		
	Equation I.	**Equation II.**	**Equation III.**	**Equation IV.**	**Equation V.**	**Equation VI.**	**Equation VII.**
Independent variables	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**	**Coeff. t-value**
Constant	**-0.601 -1.91***	0.732 1.19	-0.498 -1.32	**1.165 1.90****	0.310 0.47	-0.158 -0.51	-0.159 -0.50
RM	**0.530 2.30****	**0.444 1.95***	**0.535 2.46****	**0.428 2.01****	**-0.119 -2.76*****	**-0.088 -2.29****	**-0.089 -1.74***
ROA	**0.112 9.83*****	**0.098 7.85*****	**0.117 7.48*****	**0.100 6.15*****	**-0.027 -4.63*****	**-0.022 -4.47*****	**-0.022 -4.47*****
Debt to Assets	0.368 1.17	-1.024 -1.62	0.272 0.69	**-1.466 -2.29****	-0.154 -0.21	0.335 1.00	0.335 0.98
Asset Growth	-0.287 -1.62	**-0.333 -1.96***	-0.204 -0.91	-0.261 -1.29	-0.001 -0.01	0.016 0.32	0.016 0.32
B to M		**-0.020 -2.67*****		**-0.024 -3.31*****		**0.007 1.68***	**0.007 1.66***
Log Assets							0.0003 0.04
R- squared	0.278	0.306	0.301	0.343	0.428	0.513	0.513
Prob > F	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
F-test	32.30	34.39	24.14	29.64	16.93	16.61	14.08

*P < 0.1, **P < 0.05, ***P < 0.01

Note: IR denotes Investment Return reflected by price change; TIR denotes total investment return reflects price change with dividends; Return S.D denotes the standard deviation of monthly stock return. In estimating the relationship between return S.D. and RM disclosures the Linear Regression with robust for heteroscedasticity was employed.

The results show that the overall explanatory power of equation II and IV is 31% and 34% respectively and significance at ($p < 0.01$). With respect to the equations estimating the impact of RM disclosures on stock return standard deviation along with the control variables, equation VI and VII are significant at ($p < 0.01$) explaining 51% of the return variance. The content of risk management disclosures is statistically significant and positively impacting stock price across the two measures used, i.e. price change with and without dividends, at ($t= 1.95$, $p < 0.1$) and ($t= 2.01$, $p < 0.05$) respectively. On the other hand, RM disclosures content is negatively associated with the following year stock return variance at ($p < 0.1$). Return on asset is significant at ($p < 0.01$) across all estimated relationships. Book-to-market value of equity is also found to be significant at ($p < 0.01$) across all equations with the exception of the equations estimating the reaction of 2010-2011 return variability where it is significant at ($p < 0.1$). In accordance with the predicting signs, book-to-market value is negatively associated with price change and positively associated with return variance. On the other hand, debt to assets is only associated with price change when dividends are included, i.e. total investment return, while asset growth is only associated with price change without dividends at ($p < 0.1$). It was noticed that the highest coefficient value among the significant variables is to the content of risk management disclosures variable, indicating that changes in the content of RM disclosures will cause higher impact on stock price movements and lower return variability compared to other examined variables.

The reported results provide evidence supporting the set hypotheses proposing a positive relationship between the content of disclosed risk management information and changes in stock prices on the one hand, and a negative association with return variances on the other hand. These results indicate that investors during the period of the study

consider risk management disclosures when valuing assets and that better content of risk management disclosures plays a role in lowering the degree of information asymmetry and consequently enhancing stock performance for the current year and lowering return variation in the subsequent year. In other words, banks that disclosed better content of risk management disclosures were able to reduce the degree of information asymmetry and improve the position of their stock price.

Communicating risk management practices, which are intended to decrease the possibility of failure (Solomon et al., 2000) and convey the efforts toward maintaining safe environment (Allen and Moessner, 2001; Gorton, 2009), provides investors with better understanding of banks' complex operations (Gorton, 2009) and details needed to evaluate assets (Lajili and Zeghal, 2005; Scholes, 2000). This therefore encourages trading (Acharya et al. 2011). Having better understanding of bank risk exposure provided through risk management disclosures (Scholes, 2000) reduces uncertainty and information asymmetry and leads to improvements in stock performance (Poshakwal and Courtis, 2005; Lajili and Zahal, 2005; Healy and Palepu, 2001; Hubbard, 2000). Indeed, the ambiguity that surrounded bank credit risk, has previously, caused damage to the financial markets (Allen and Moessner, 2011). Moreover, better risk management disclosures content enables shareholders to monitor management practices and attitude (Lajili and Zeghal, 2005) toward maintaining acceptable risk levels and their alignment with shareholders interest. This might also reduce the cost of agency conflict and lower the level of uncertainty between shareholders and management that might arise from the ambiguity of the adopted risk management strategies and mechanisms.

Therefore, the transparency and comprehensiveness in disclosing risk management information that signals bank risk behaviour (Helbok and Wagner, 2006) is discounted by investors and reflected on stock performance by improving current year stock prices and decreasing the return volatility of the following year. This is most likely due to the role of risk management information in eliminating uncertainties and reducing agency conflicts. This conclusion is aligned with other scholars, who examined the impact of financial information on stock behaviour evidencing positive influence of information on stock prices (Benston, 1967; Patell, 1976; Jenning and Starks, 1985; Fama, 1991; Helbok and Wagner, 2006; Lambert et al., 2007) and maintaining risk levels (Akhigbe et al., 2008; Linsley and Shrives, 2005, Baumann and Nier, 2004). On the other hand, the results of the study contradict with Ferreira and Laux's (2007) conclusion when examining a sample of non-financial firms and considering future information. They concluded that higher transparency encourages the collection of private information and consequently leads to higher idiosyncratic risk.

In line with agency theory, return on assets is highly significant thereby improving stock price and reducing return variance. Higher return on assets seems to convince shareholders and investors as it indicated the ability of the bank to achieve positive results. It signals bank management capabilities in steering the bank safely and following effective practices to mitigate the financial crisis consequences. This seems to enhance investors' confidence in stocks, reduce the level of monitoring to be exercised by shareholders, and consequently reduces agency cost and enhances a firm's equity value.

The association evidence in the present study between profitability and stock reaction is similar to the results reported by Baumann and Nier (2004). Their study found

negative association between return on asset and stock return volatility, indicating that firms with higher returns were able to lower variation in their stock returns. Other studies such as ones done by Berger and di Patti (2006) and Gelb and Zarowin (2002) pointed to the positive relationship between profitability and stock price changes. On the other hand, the results contradict the results obtained by Akhigbe et al. (2008) that found no association between profitability and stock return volatility. This difference in relationships might be due to the difference in the profitability measure used. Akhigbe et al. used the return on equity as proxy for performance, while the current study uses return on total assets as proxy for firms' profitability. Indeed, with a given amount of net income, a firm can have high return on equity but low return on assets if the size of equity forms a small proportion of the capital structure.

Banks that achieve better book-to-market ratios were able to improve their stock prices or eliminate negative price downturn the on one hand, and decrease return volatility on the other hand. Having better growth ratio convinces shareholders and investors with management strategies and bank ability to motivate future investments, and continuously generate cash flows (Pilotte, 1992; Kothari and Short, 2009). Therefore, better growth ratio improves investors' confidence in stocks and their ability to achieve appreciation in their future value, which might assist in lowering agency conflicts, enhancing the firm's value, and lowering future return volatility.

The evidenced association between growth and stock price changes matches with the results achieved by Pilotte (1992) and Gelb and Zarowin (2002), showing a positive relationship between stock price changes and higher growth ratios. Risk wise, Kothari et al. (2009) and Bushee and Noe (2000) used book-to-market value of equity as proxy of

growth and revealed its negative association with stock return variance. On the other hand, the results contradict with the results of Akhigbe et al. (2008) that found growth ratio, measured as market to book value of equity, not significant with stock return volatility. Akhigbe et al. examined a sample of mixed US companies in a period before and after the passage of Sarbanes-Oxley, which might explain the difference in results.

Asset growth as a measure of growth is only significant with price change having a negative sign indicating that the growth in assets impacts negatively the stock price, which is opposite to the expected sign. This result suggests that the increase in assets was perceived as an additional risk, since more assets, which are invested in loans, are subject to high risk of default. Brunnermeier (2009) mentioned that banks were forced to undertake significant write-downs due to the estimated loss in the mortgage market which significantly increases banks' liquidity risk.

Debt to assets is found to be associated negatively with price change, including dividends, i.e. total investment return. A look at the banks' unique structure might explain the obtained results, since higher debts, which are mainly from depositors' funds, are invested in loans with no clear understanding of the value and risk levels of these investments (Gatev et al., 2009). Consequently, higher debt to asset ratio was perceived as a sign of additional risk that impacted negatively on stock prices and return variance, which are consistent with the results reported by Bushee and Noe (2000) and Kothari et al. (2009).

4.5 Conclusion

The role of banks as financial intermediaries investing depositors assets (Howells and Bain, 2008; Ivashina and Scharfstein, 2010) requires a high level of transparency to provide shareholders' as well as investors' understanding on the value and risk level of the investments undertaken by the bank (Gatev et al., 2009). This turns out to be more crucial during and after the financial crisis where banks were facing increasing risk levels (Allen and Moessner, 2011; Brunnermeier, 2011) affecting their equity value (Acharya et al., 2011; Ivashina and Scharfstein, 2010).

To understand bank risk, a look beyond the static financial statements should be considered (Scholes, 2000) in order to explore bank-risk dynamics and investment-risk exposures (Beaver et al., 1989; Scholes, 2000). In this concern, banks disclose information on their risk management practices which are intended to mitigate risk and reduce failure possibility (Solomon et al., 2000). Revealing such information that illustrates portfolio quality and risk levels manages uncertainty (Humbbard, 2000) and is requested by all interested parties to assess risk profile (Linsley et al., 2006).

Since investors react directly to available information (Merton, 1987), theoretically all available information is most likely to be reflected in stock prices (Fama, 1991; Helbok and Wagner, 2006) and providing more information that enables asset valuation assists in reducing information asymmetry and uncertainties (Healy and Palepu, 2001; Stiroh, 2006; Diamond and Verrecchia, 1991). In doing so, firms might avoid high agency cost and consequently improve shareholders' value by achieving better stock performance, i.e. higher market value and less return volatility (Poshakwal and Courtis, 2005; Akhigbe et

al., 2008). Furthermore, being more transparent might be used by management as a differentiation tool to distinguish their firms from peers (Helbok and Wagner, 2006).

In this study I investigate whether better content of risk management disclosures influence stock price and return volatility, targeting a unique sample of US national commercial banks in the period just after the financial crisis, i.e. years 2009 and 2010 (Grove et al., 2011; Yeh et al., 2011). The targeted sample and disclosure type is not the only contribution of the paper, which also contributes to the literature by employing the content analysis technique to measure disclosures content rather than relying on agency rating or using word and sentence count to proxy for disclosures content (Lajili and Zeghal, 2005; Helbok and Wagner, 2006; Bushee and Noe, 2000) since such techniques tell little about quality (Hasseldine, Salama and Toms, 2005).

In line with the set hypotheses, the findings indicate that banks that disclosed better content of risk management information were capable of reducing uncertainties surrounding their risk environment and to provide investors with information needed to evaluate their financial assets and to monitor management practices. As a result, this was reflected in stock prices, improving total investment return. Second, the results suggest that a comprehensive content of risk management disclosures was discounted by investors and conveyed higher trust that smoothes the volatility in stock return for the coming year. These results add significant input to understanding the impact of a financial disclosures segment on stock behaviour and the importance of transparency in enhancing shareholders' value. The attention of most of the previous studies, however was on the impact of information in general, or financial information in particular, on stock behaviour, regardless of the disclosure dimension. Furthermore, the suggested results might be useful

for both investors and bank management. Indeed, improved stock price and lower return volatility signals relatively bank risk and performance.

The findings of the study support the significant association between stock price changes and the content of information evidenced by Jennings and Starks (1985). Moreover, the results reconcile with the results found by Benston (1967), Helbok and Wagner, (2006) and Lambert et al. (2007) when examining the impact of disclosed accounting information on stock prices and Akhigbe et al. (2008), Linsley and Shrives (2005) and Baumann and Nier (2004) evidencing the influence of disclosures on risk maintenance.

In accordance with agency theory, banks achieving higher return on assets, which reflects management capabilities to manage the bank safely and profitably, were able to convince investors and lower agency conflicts which enhance stock prices and lower return volatility. Book-to-market value of equity is also significant and shares in explaining changes in stock prices as predicted in the present study according to agency theory. Banks that were able to enhance shareholders' equity value were able to report improvements in their stock prices or even to eliminate negative change. Better growth ratio signals banks' ability to invest and generate consistent cash flows which in turn enhances stock value and decreases return volatility. This result supports the results reported by Gelb and Zarowin (2002), Kothari et al. (2009) and Bushee and Noe (2000).

As any other research, the study has its limitations and expanding opportunities could be identified. First, a wider time period after the financial crisis could be targeted to estimate relationships and could have additional evidence on the consistency of the results

reported. Having a wider time period will enable using different econometrical techniques to reconcile results as well as identifying trends. Second, the sample could be enlarged to include other types of US banks and/or non-US banks to draw more generalised conclusions. Third, the current study examined the impact of risk management disclosures on stock return volatility, i.e. idiosyncratic risk, while other risk measures such as beta could be used to understand its effect on other types of risk.

Chapter 5. Conclusion

Chapter Five

Conclusion

The implications of the sub-prime mortgage crisis on banks' performance, corporate image and stakeholders trust are of a high concern for all interested parties. The banks' role as financial intermediaries and money suppliers (Howells and Bain, 2008; Ivashina and Scharfstein, 2010) requires investors and depositors confidence as well as clear understanding to the bank-risk profile (Gatev et al., 2009). As a consequence to the financial crisis banks' market capitalisation dropped significantly (Ivashina and Scharfstein, 2010; Acharya et al., 2011), risk levels increased (Allen and Moessner, 2011; Brunnermier, 2011) and stakeholders confidence was shaken (Gorton, 2009; Acharya et al., 2011). This raises the importance of researching this particular area of primary concern to seek potential approaches intended to help banks recover through increased disclosure, helping to rebuild trust and manage risk levels.

Transparency and addressing stakeholders' concerns are two important dimensions in managing uncertainties and stakeholders' acceptance. In general, lack of information limits investors' ability to evaluate assets, elevates the agency cost and influences negatively on stock performance (Kothari et al., 2009; Watson et al., 2002). In contrast, acknowledging societal needs and communicating effectively with stakeholders is likely to reduce uncertainty gaps and shape firms' image (Meek et al., 1995; Poshakwale and Courtis, 2005; Simpson and Koher, 2002). By shaping bank image and managing trust, banks might build stronger relationships with their stakeholders and achieve their commitment (Simpson and Koher, 2002; Hess, 2007; Gray et al., 1995). This is vital for firms' existence and growth (Branco and Rodrigues, 2006; Rowley, 1997).

Therefore, the theoretical discussion proposed that effective corporate governance mechanisms are most likely to encourage the disclosure of better corporate social responsibility ‘CSR’ and risk management ‘RM’ information content. This conveys their commitment to stakeholders’ needs, alignment with societal values and how they are acting to the best of stakeholders’ interest. In doing so, they maintain the bank’s virtual contract and develop its reputation needed for bank continuity and progress. It was also proposed that, according to agency theory, the content of CSR and RM information disclosed in annual reports is expected to provide shareholders in particular and stakeholders in general with details to evaluate banks financial assets, reduce information asymmetry and consequently improve stock performance. The potential for agency conflict might be reduced by self-reporting firms' specific information that enables shareholders as well as stakeholders to monitor and understand firms' behaviour and practices (Diamond and Verrecvvhia, 1991; Hubbard, 2000). By providing more information and avoiding high agency cost, better shareholders' value is likely to be achieved due to improved market value and less return volatility (Poshakwal and Courtis, 2005; Akhigbe et al., 2008; Healy and Palepu, 2001; Stiroh, 2006).

The examined models primarily focused on two types of disclosures, the CSR and RM disclosures. On the one hand, the intention behind selecting them could be summarised by the public interest to follow up on banks' behaviour and risk management practices (Cornett et al., 2011; Allen and Moessner, 2011; Brath and Landsman, 2010; Linsley et al., 2006), especially after the financial crisis. Corporate decisions and strategies not only impact their individual firms but also fail a wide range of stakeholders (Buchholtz et al., 2008). This raised the issue of firms’ accountability to society and not only to shareholders (Matten, 2006). On the other hand, the desirable consequences, that CSR

potentially has on firms' performance, risk profile as well as stakeholders' acceptance (Aguilera, 2006; Gray, 1995; Branco and Rodrigues, 2006; Toms, 2002; Simpson and Koher, 2002; Money and Schepers, 2007) and RM expected influence on reducing information asymmetry and providing more stability (Oishakwale and Courtis, 2005; Linsley and Shrives, 2005). This is likely to motivate boards associated with effective corporate governance to encourage the disclosure of better CSR and RM information content in their annual reports.

In exploring the interrelationships between corporate governance, disclosures content and stock performance, the study examined potential solutions that assist in the management of the increasing risk levels, shaken confidence and falling market values resulting from the recent financial crisis pressure on banks (Gorton, 2009; Grove et al., 2011; Acharaya et al., 2011). It represents an attempt toward better understanding to the signalling power of CSR and RM disclosures and their substantive consequences on shareholder value. Based on examining a unique sample of the US national commercial banks, in the wake of the financial crisis, the thesis added to the literature evidence on how banks' internal corporate governance mechanisms can influence the content of CSR and RM disclosures. Consequently, it shed light on the link between banks' reporting strategy and enhancing shareholders' value in terms of stock price improvement and risk management.

Therefore, the study contributed to the literature by exploring the drivers and potential benefits of CSR and RM reporting, which is an understudied area. While there have been a limited number of studies that examined the relationship between CSR reporting and corporate governance (Li et al., 2010; Kolk and Pinkse, 2010; Spitzeck,

2009; Gill, 2008), previous research has largely tended to neglect the financial sector, in particular banks. Previous studies, that investigate the determinants of CSR and CSR reporting, focus on firms characteristics such as size, industry or reputation (Haniffa and Cooke, 2005). However, CSR is increasingly seen as important not only for firms' marketing but also their operational success and risk management (Simpson and Kohers, 2002; Scholtens, 2008; Salama et al., 2011; Ghoul et al., 2011). On the other hand, to my knowledge, few studies investigated the impact of CSR or RM disclosures content on bank stock reaction. However, the impact of information on stock reaction was widely examined.

The measurement technique to codify the selected disclosures is also an important differentiation to the research. The content analysis technique was employed to measure the comprehensiveness and quality of disclosed information in banks' annual reports, rather than using word or sentence count (Gelb and Zarowin, 2002; Lajili and Zeghal, 2005; Helbok and Wagner, 2006; Bushee and Noe, 2000) that measures the quantity of disclosed information. The quality of disclosed information is more imperative than quantity (Hasseldine et al., 2005; Toms, 2002) and the annual reports are the best channel to signal a firm's specific information (Toms, 2002). This is not only because of their statutory aspect or because previous disclosure studies relied on them, but rather, annual reports are reflecting both the financial and social dimensions showing how firms are balancing between them (Gray et al., 1995a). To increase the reliability of the obtained scores, a scoring methodology was developed and two independent coders, in addition to the author, were approached to measure the disclosures' content. Then the inter-code agreement test was conducted to ensure score validity.

However, CSR engagement and reporting are considered a sign of or part of good corporate governance, even though there is little research into the relation between CSR reporting and corporate governance (Gill, 2008; Kolk and Pinkse, 2010), particularly in the banking context. This gap is also found in the literature discussing the association of RM disclosures with corporate governance and its influences on stock performance. Therefore, this research provided better understanding of the association between the internal corporate governance mechanisms with the reported content of CSR and RM disclosures, and consequently how they reflect on shareholders' value in terms of stock return and risk in the wake of the financial crisis, i.e. years 2009-2010.

Moreover, the research contributed in clarifying the ambiguity of the contradicting results found in previous studies on the relationships between corporate governance and disclosure levels, and to what extent these results are applicable in the banking sector (Lim, Matolcsy and Chow, 2007; Li et al., 2010; Bear, Rahman and Post, 2010; Barnea and Rubin, 2010). This is by examining in particular CSR and RM disclosures content using a unique sample of US national commercial banks' annual reports. Furthermore, a comprehensive set of internal corporate governance attributes was introduced, covering both boards of directors and audit committee characteristics, rather than examining one or two governance factors in isolation.

The research sought to provide insights in to the role of CSR reporting in enhancing shareholders' value through its reflection on stock return within the banking context. This might signal investors' interest in firms' CSR news and considering them as part of the stock evaluation process. Such a relationship provides significant indicators to the importance of communicating bank response to stakeholders' needs, through CSR

reporting, as a potential driver to achieve better stock performance through stakeholders' commitment and acceptance. Moreover, the study intended to provide understanding on whether bank RM disclosures in the period after the financial crisis are considered as a reliable source of information by investors, which assists in the management of agency conflicts, or as redundant disclosures restating previous years' information.

Estimating the impact of the board of directors and the audit committee separately, and in an integrated model on CSR and RM disclosures content using different econometrical techniques, shows consistent results. In support to the board hypotheses, the results suggest that boards with larger sizes are more efficient in bringing CSR onto the board agenda and encouraging management to disclose better content of CSR information. This might be driven by the higher accumulated experience they have (Beiner at al., 2004). The impact of board independence on CSR disclosure content is also evident. This reflects the importance of independent directors' diversified experience and backgrounds (Gray et al., 1995b; Ibrahim et al., 2003; Guest, 2009) in bringing different perspectives and introducing new ways of thinking to achieve strategic plans. The results also suggest that a CEO with dual roles is inclined toward disclosing better content of CSR information as combining both authorities might facilitate the engagement in and reporting on CSR activities (Barnea and Rubin, 2010; Haniffa and Cooke, 2002). However, further research is recommended to understand the reason behind this positive relationship.

These results reconcile with stakeholder theory. Larger board size and higher independence encourage wider content of CSR disclosures as they are expected to benefit firms' transparency (Li et al., 2010) and stakeholders' long-term mutual relationship (Gray et al., 1995b; Meek et al., 1995; Aguilera et al., 2006 Money and Schepers, 2007; Kolk and

Pinkse, 2010). By treating CSR as a way of doing business and communicating their appreciation and commitment to society, they are maintaining the link with key stakeholders to achieve their acceptance (Branco and Rodrigues, 2006; Donaldson et al., 1995). This in turn leads to better results that are important to satisfy shareholders and reflect management alignment with shareholder interest.

With respect to RM disclosures content, the estimated results also suggest that boards with larger size, higher proportion of independent directors and CEO duality, can have higher influence on management to disclose better content of RM information. Directors with varied experiences and backgrounds (Guest, 2009; Ibrahim et al., 2003) as well as their diligence (Lee at al., 2004) encourage more transparency and enhance the level of disclosed information. The sensitivity of holding the two utmost senior positions (the chairman of the board and the CEO) in the period after the crisis, seems to encourage higher transparency through disclosing better content of RM information. Reflecting the efforts performed in safeguarding shareholders' value and exercising wise management practices might assist in the management of agency conflict (Hubbard, 2000; Meek et al., 1995; Linsley et al., 2006). Moreover, the improved trust and certainty levels achieved as a result of higher transparency (Patelli and Prencipe, 2007; Li et al., 2008) are most likely to maintain and strengthen stakeholders' relationship which, according to stakeholder theory, is important for a firm's development and growth.

The findings imply that there is a difference between the audit committee influence on RM disclosures content and CSR disclosures content. In line with the role of audit committees in overseeing the process of preparing and issuing financial reports (Krishnan and Visvanathan, 2009) and judging the integrity of financial disclosures (Sherman et al.,

2009), the results support the positive association between audit committee financial experts and the content of RM disclosures. There is no impact on audit committee financial experts on the content of CSR disclosure. Audit committee size was found to have no significant role in improving the content of either RM or CSR disclosures.

The discussion above illustrates the association between the internal corporate governance mechanisms and the disclosure of better CSR and RM information content in US national commercial banks' annual reports. In the second phase of this research, the study provided evidence on the suggested desirable consequences that the content of CSR and RM disclosures have on stock price, average return and total risk.

Examining the impact of CSR disclosures content on change in stock price separately and along with the control variables, suggests the improvement of stock price as a response to better CSR disclosure content. The empirical results of this estimated relationship were almost consistent when using alternatively stock return, total investment return, average monthly return and categorical return. The results suggest that providing investors with information related to bank social profile was appreciated and discounted when valuing stocks. Therefore, communicating comprehensive information discussing banks' social commitments and their reflections on cash flows seems to reduce information asymmetry and uncertainty levels, which in turn contribute to the management of agency conflict. Voluntary disclosure of information is demanded and requested by investors to assess a firm's position (Meek, et al., 1995) and reduce uncertainties (Watson et al., 2002), which according to agency theory, reduces agency cost (Kothari et al., 2009). This leads to the argument that acknowledging social needs as well as engaging and reporting on bank CSR activities tends to be a successful approach in improving shareholders value.

In respect to the control variables, book-to-market value and leverage were found to be related to stock return. In line with agency theory, banks having higher growth opportunities have more potential to invest and generate consistent cash flows which are likely to enhance stock value (Fama and French, 2002; Sibilkov, 2009). Leverage and stock return were found to be inversely related. The findings suggest that banks with lower leverage ratio were more capable of convincing shareholders and investors by their ability to overcome the hard time of financial crisis and consequently lowering the agency cost.

From a RM disclosures perspective, the estimated results were aligned with the set hypotheses showing the anticipated influences on investment return and return volatility. The reported results suggest that the disclosed content of RM information was recognised by shareholders as well as stock participants and treated as reliable information conveying new data to be considered. Disclosing better RM information content seems to reduce the uncertainties of bank risk environment and provide investors with valuable information to assess financial assets and monitor management practices. This was shown as an improvement to stock return and reduction to return volatility for the year following the disclosures, highlighting the importance of transparency and quality information in enhancing shareholders value. Having a better understanding of bank risk exposure and complex operations by providing better RM disclosure content (Gorton, 2009; Scholes, 2000) reduces uncertainty and improves stock performance (Poshakwal and Courtic, 2005; Lajili and Zahal, 2005; Healy and Palepu, 2001).

Linking the results with the association found between corporate governance and RM disclosures content, one might conclude that effective corporate governance mechanism is more competent to improve stock performance and to enhance shareholders

value through encouraging higher transparency. Furthermore, the positive impact of RM disclosures content on stock performance might be read as a motivation to bank leadership to improve their disclosed information content to enhance shareholders' value.

Consistent with the agency theory, higher profitability and growth potentials relate to higher return and less volatility as they reflect management capabilities to operate the business successfully and relatively safely. Higher profitability proxied by return on assets seems to enhance investors' confidence and reduce shareholders monitoring pressure, consequently reducing agency cost and enhancing equity value. Better growth ratio indicates banks' aptitude to invest and generate consistent cash flows, which in turn enhances stock performance by decreasing its return volatility.

The importance of this research is not limited to the evidence derived from the empirical models. The implications might exceed the discussed results to conclude that the role of effective corporate governance mechanism should be extended to sponsor firms' CSR portfolio as a potential tool to achieve stakeholders' approval and improve shareholders' value. Banks' boards of directors should liberate their thoughts from sticking to traditional approaches to maximise shareholders' value. They should start thinking out of the box to consider a long-term view of the bank relation with stakeholders and to be more proactive in responding to society's obligations and needs. This, as the estimated results suggest, is not an extra expense in the bank statement of income and a reduction to prospected dividends but investment for better stakeholders' relationship and enhanced stock return. In other words, it is a win-win situation for both society and the shareholders. These results might be an important motivation encouraging boards of directors and corporate managers to step toward blending the social aspects with business activities and looking beyond the sharp angle of shareholders to view the wider angle of stakeholders.

With respect to RM, the study also reflects important implications to providing better content of RM information addressing bank risk measures and mitigation practices after the largest shock to the financial system. These implications lead us to say that boards of directors, audit committees and corporate managers should consider the content of RM disclosures as a preventive tool from higher agency conflicts and loss in a firm's value. Indeed, the results proposed the influence of effective corporate governance mechanisms on RM disclosures content and the importance of RM disclosures content in improving stock return and managing bank total risk. Therefore, the content of information discussing adopted risk management practices in annual reports should be present on boards' agendas and followed-up by the audit committees, and not only done to fulfil regulators' disclosure requirements and seen as an exercise to be managed by the reporting people. These results might be important to corporate managers considering their reporting strategy as more attention should be given to the informative level of drafted RM information. Moreover, banks' governance should be inclined toward the effective corporate governance dynamics, discussed earlier in the research, that support transparency and the disclosure of better content of RM information.

Similar to any other research, the study has its limitations, opening the door for follow-up and further research opportunities to shed more light on the derived conclusions. First, as the only available annual reports at the time of the study were for years 2009 and 2010, estimating the examined relationships using a wider time horizon after the financial crisis could be helpful. Enlarging the examined time period might spot more on the explanatory power of corporate governance mechanisms as drivers to CSR and RM disclosures content and their effect on stock performance. Having a wider time period facilitates the use of different econometrical techniques to reconcile results as well as

identifying trends. The trend of corporate governance and reporting pattern will be more visible when a longer time span is examined providing opportunity to uncover variations in the estimated relationships when banks' management absorb and manage the crisis spillover.

The second further research opportunity might be by enlarging the sample to include other financial institutions or non-US banks to draw more generalised conclusions. In doing so, the evidence will provide more robust messages that will be safely generalised on the international banking or financial institutions. Third, with more resources available, the CSR reporting content could be measured by covering multiple reporting channels, such as banks websites, in order to capture a wider range of disclosed information. Moreover, the current study examined the impact of risk management disclosures on stock return volatility, i.e. idiosyncratic risk, while other risk measures such as beta could be also used to understand their interaction with RM disclosures.

Despite the mentioned limitations, the current research on the interrelationships between corporate governance, disclosures content and stock performance is considered an important step toward better understanding of the determinants and consequences of CSR and RM disclosures content. On a theoretical level, it provides evidence of the importance of having a wider view and considering stakeholders theory in managing US banks to enhance shareholders value. In the US, corporate governance is more oriented toward linking shareholders' value maximisation to financial performance, disregarding other drivers of return sustainability (Aguilera et al., 2006). On a practical level, the research indicates that engaging in CSR activities and reporting on these engagements is not an expense but an investment for better stakeholders' relationships and shareholder value.

Moreover, communicating better content of RM disclosures could be used as an effective tool to protect and improve shareholder value. Therefore, the results of the study assist banks' management considering their reporting strategy in either dimension: the voluntary or mandatory.

Appendices

Appendix A – CSR sub-categories discussion topics

	CSR category	CSR sub-category
1	Community involvement	• Contributions and donations to charities, NGOs and community activities • Educational programmes and sponsoring • Sponsoring health programmes • Sponsoring arts and culture • Supporting sports and/or recreational projects • Participation in government social campaigns
2	Environment	• Bank's environmental policies and concerns • Implemented systems for environmental management • Environmental projects such as recycling and protection of natural resources • Energy saving in performing business operations
3	Human resources	• Number of employees, health and safety policies and measures. • Equal opportunities in employment (e.g. minorities, women) • Training and education provided to employees (training policies and nature of training) • Employee assistance/benefits • Employee compensation • Employee expertise and backgrounds • Employee share purchase schemes • The confidence and self-esteem of employees • Employees' appreciation • Issues related to the recruitment process • Photos to document employees' welfare (e.g. at social activities, award ceremonies) • Discussion of employees' welfare • Policies adopted regarding staff profit sharing

	CSR category	CSR sub-category
4	Social Products and services quality	• Diversity of social products (e.g. climate products, educational loans etc) • Discussion of the types of social products • Geographical distribution and marketing network of the offered social products • Discussions in relation to customers feedback • Provision for disabled, aged, and difficult-to-reach customers • Investments in social responsibility activities • Strategies and plans for future expansion in social products and services • Loyalty programmes, awards and granted to customers

Source: Based on categories identified by Gray et al., 1995b; Haniffa and Cooke, 2005; Branco and Rodrigues, 2006; Scholtens, 2008; Holder-Webb et al., 2009.

Appendix B – Risk management types discussion topics

	Risk type	Risk management indicators
1	Credit risk	• Definition • Policies developed to ensure loans are extended within tolerable risk measures • Mechanisms used to measure various credit risks (credit rating and related discussions and how they are impacting cost of funds and the ability to raise funds) • Monitoring tools to assess the portfolio performance (presentation to credit portfolio classified by industry, credit type, geographical concentration, etc.) • Loan restructuring (non-performing loans and borrowers experiencing financial difficulties) • Provisions for credit losses
2	Liquidity risk	• Definition • The framework implemented to ensure cash availability to lenders and depositors (discussion on employed liquidity testing and stress testing and the underlined assumptions) • The role of the ALCO committee • Cash and liquidity sources such as "available for sale securities" • Contingency funding plans, how the bank can response to liquidity stress events at various levels of severity
3	Interest rate risk	• Definition • Describing the techniques used to measure and monitor changes in interest rate ▪ re-pricing assets ▪ liabilities and derivatives ▪ earning simulation modelling and related assumption ▪ net portfolio value estimation and discussion on assumptions used in the estimation • Tools adopted to manage the interest rate risk
4	Market risk	• Definition • Trading and non-trading portfolios market risk exposures • Describing the tools used to monitor and manage risk exposures • Discussions on foreign exchange risk • Discussion on trading risk management (value at risk disclosure if available) • Discussion on commodity risk • Discussion on equity risk • Discussion on issuer credit risk (if available)

	Risk type	Risk management indicators
5	Operational risk	• Definition • Policies and procedures followed to manage operational risk • Trainings provided to minimise the occurrence of operational risk • The assessment and reporting of operational risk • Identifying and managing key human capital risks • Presenting information about employees turnover rates and performance • Policies and procedures adopted to mitigate IT risks • Tests and procedures employed to ensure the adequacy of IT controls
6	Legal and compliance risk	• Definition • Policies and procedures followed to manage fiduciary risk • Categories of risks covered under the fiduciary risk policies and procedures • The role of fiduciary risk management function (if any)

Source: COSO, 2009; Linsley et al., 2006; Baumann and Nier, 2004; Ahmed et al., 2004.

Appendix C – List of sample banks

Bank Name	
Alliance Bancshares California	First Commonwealth Financial Corporation
Alliance Financial Corporation	First Financial Bancorp
Amcore Financial Incorporation	First Horizon National Corporation
Arrow Financial Corporation	First Merchants Corporation
Bancfirst Corporation	First Mid-Illinois Bancshares Incorporation
Bancorp Rhode Island Incorporation	First Midwest Bancorp Incorporation
Banctrust Financial Group Incorporation	First National Community Bancorp
Bank Of America Corporation	First Security Group Incorporation
Bank Of Florida Corporation	First United Corporation
BB & T Corp.	Firstmerit Corporation
BFC Financial Corporation	FNB Corporation
BNC Bancorp	FNB United Corporation
Bok Financial Corporation	Fulton Financial Corporation
Cadence Financial Corporation	Hampton Roads Bankshares Incorporation
Camden National Corporation	Hanmi Financial Corporation
Canandaigua National Corporation	Hawthorn Bancshares Incorporation
Capitol Bancorp Limited	Horizon Bancorp
Cardinal Financial Corporation	Huntington Bancshares Incorporation
Centerstate Banks Incorporation	Integrity Bancshares Incorporation
Centrue Financial Corporation	Intervest Bancshares Corporation
Citigroup Incorporation	JP Morgan Chase & Company
Citizens Republic Bancorp Incorporation	Keycorp
City Bank	MB Financial Incorporation
City Holding Company	MBT Financial Corporation
City National Corporation	Mercantile Bancorp Incorporation
Cobiz Financial Incorporation	Midwest Banc Holdings Incorporation
Comerica Incorporation	National Penn Bancshares Incorporation
Commonwealth Bankshares Incorporation	NBT Bancorp Incorporation
Community Bancorp	Newalliance Bancshares Incorporation
Community Bank System Incorporation	Old National Bancorp (Indiana)
Corus Bankshares Incorporation	Pacific Continental Corporation
Cullen Frost Bankers Incorporation	Pacific Mercantile Bancorporation
Encore Bancshares Incorporation	Pacwest Bancorp
Farmers Capital Bank Corporation	Park National Corporation
Financial Institutions Incorporation	Peoples Bancorp Incorporation
First Citizens Bancshares Incorporation	Pinnacle Financial Partners Incorporation

PNC Financial Services Group	
Premier West Bancorp	
Princeton National Bancorp Incorporation	
Regions Financial Corporation	
Rockville Financial Incorporation	
Sandy Spring Bancorp Incorporation	
Shore Bancshares Incorporation	
Simmons First National Corporation	
Southwest Bancorp Incorporation	
Sterling Bancorp	
Suffolk Bancorp	
Summit Financial Group Incorporation	
Suntrust Banks Incorporation	
Susquehanna Bancshares Incorporation	
Synovus Financial Corporation	
TCF Financial Corporation	
The Bancorp Incorporation	
The First Bancorp Incorporation	
The First Of Long Island Corporation.	
The Savannah Bancorp Incorporation	
Trustmark Corporation	
UMB Financial Corporation	
United Bankshares Incorporation	
US Bancorp	
Valley National Bancorp	
Vineyard National Bancorp	
Webster Financial Corporation	
Wells Fargo & Company	
Wesbanco Incorporation	
Westamerica Bancorporation	
Whitney Holding Corporation	
Wilson Bank Holding Company	
WSFS Financial Corporation	
Zions Bancorporation	

Appendix D – Sample CSR disclosure per category

Below are illustrative examples showing for each score the corresponding disclosure from the source document.

Example of community disclosure scored five points:

"Caring about building a stronger community has been one of the foundations of FirstMerit and a long-standing commitment to those we serve. As our communities faced increased economic hardship, the demand for financial and supportive services increased dramatically in 2009. FirstMerit responded fully to those needs through a comprehensive program of community support. Our employees performed thousands of hours of volunteer work across our service area in 2009 and donated a quarter of a million dollars, demonstrating our caring and commitment to our neighbors.

The FirstMerit Foundation increased total charitable distributions by over 3 percent, supporting programs and services assisting an estimated 6.6 million people. Our contributions to 16 area United Way programs increased 12 percent. We increased funding by 71 percent for economic development and community housing programs, and provided focused funding for financial literacy education, emergency response services and food bank agencies. Caring for our communities was evidenced by our commitment to our Community Reinvestment Act (CRA) segment. FirstMerit was awarded the highest possible rating by the OCC in recognition of our efforts in 2009. We achieved an "OUTSTANDING" designation by remaining focused on our mission to meet the financial needs of families in our communities, with special emphasis on low-to-moderate-income families and individuals. This top-tier rating is achieved by fewer than 15 percent of nationally examined banking institutions.

CRA provided an impressive $38 million in affordable housing lending and investments. Projects during the year included the $4 million Washington Homes Project in Akron, creating 34 single family homes for low-to-moderate-income families and the $3.1 million Maplewood Village in Portage County, providing 50 units of affordable housing to low-income seniors. We made an investment of $1 million in the Ohio Equity Fund XIX-A, which provides low-income housing tax credits, and our work with the Federal Home Loan Bank (FHLB) of Cincinnati secured $775,000 in funding for affordable housing programs in Cleveland and Akron. Our support was also given to multiple initiatives to help families build for a better tomorrow. We worked with East Akron Neighborhood Development to obtain a $200,000 grant for "Pursuing the American Dream," a program to help prevent foreclosures. FirstMerit continued its financial and hands-on support to Habitat for Humanity in our communities.

In total, continuing support of charitable investments and direct lending initiatives provided $40 million to FirstMerit communities in 2009".

Firstmerit Corporation, 2009 annual report.

In the disclosure above the bank discusses its community involvements and contributions to the society in a well comprehensive way. They acknowledge their obligations to the society and the need for more societal support. The types of social activities preformed and the areas covered are clearly conveyed and supportive figures are presented.

Example of community disclosure scored four points:

"Strong communities are a cornerstone to economic growth and stability. That's why Bank of America continues to advance the economic and social health of the neighborhoods we serve through strategic community development programs, lending and investing initiatives, support of the arts, philanthropy, volunteerism and environmental commitments. Our deep history of community involvement also supports our long-term business goals.

Community In 2009, we embarked on our 10-year, $2 billion charitable investment goal. During the year we invested $200 million to help meet critical community needs, including more than $20 million through our Neighborhood Excellence Initiative, which recognizes community leadership and service. Also, associates donated more than 800,000 volunteer hours, contributing their time and expertise to meet critical community needs.

Philanthropic Giving: As part of our $200 million philanthropic giving total in 2009, we responded to a dramatic increase in critical community needs, investing more than $8 million in emergency safety net grants to address issues of hunger, housing and more.

Support of the Arts Reflecting our belief that strong arts institutions provide communities with stability, job opportunities and an improved quality of life, we invested nearly $50 million to support arts and heritage programs worldwide in 2009".

Bank of America, 2009 annual report.

The disclosure was clear and informative; however there are no comparative figures to indicate any change in their community involvement or signal future plans.

Example of community disclosure scored three points:

> "Throughout the years, the subsidiary bank staff has had a long-standing tradition of leadership and volunteerism in the many communities we serve. In 2009, over 17,000 hours were invested in over 500 community organizations and economic development projects, school boards, church functions, and other social, charitable and civic organizations. In this way, our commitment is not just financial, it's personal. By investing time, talents and financial support, the subsidiary bank is making an invaluable contribution to support and improve our communities. A continuing dedication to bettering our communities remains a high priority as we look to the future".
>
> Since 1865, Citizens First National Bank has distinguished itself as a leader in serving the communities in our markets. "Welcome Home to Community Banking" is not only the right way to serve our community, it's also good business. We understand that our reputation isn't limited to financial solutions alone, it also includes the quality of our products, the spirit of our employees' volunteerism and our standing in the community.
>
> *Princeton National Bancorp Incorporation, 2009 annual report.*

The disclosure above discusses the bank interaction with the society and acknowledges that reputation is not only promoted through financial performance but also how close they are from their societies. The disclosure refers to the types of social involvement without clarifying the size of activities undertaken, types of development projects, the types of approached organisations (e.g. helping needy people, cancer centres, etc.) and geographical distribution. In addition the disclosure poorly supports the narrative discussion by quantitative figures.

Example of community disclosure scored two points:

"Being an integral part of the neighborhood has always been part of the culture at Wilson Bank & Trust. By staying involved and giving back, we've built a strong reputation for going above and beyond when it comes to community. While significant time, work and resources may be required at times to help local schools, provide donations and sponsorships, participate in special activities and support charitable causes as much as we do, these efforts are more than worthwhile. We're glad for every opportunity we have to show we care about the places where we live and work, and that's something our neighbors appreciate.

Bringing people together for fun and fellowship is a bank-wide specialty at our community financial centers. Staff members at all offices have frequent opportunities to spend extra time with customers at all sorts of local gatherings, including local signature events that we host ourselves. From family fun days and open house events to Oktoberfest and county fairs, we enjoy taking the time to connect with our customers outside of normal working hours. And we take pride in the more complete relationships that develop because of these efforts".

Wilson Bank & Trust, 2009 annual report.

The disclosure above marginally discusses the social activities undertaken by the bank without clarification of the types and level of involvement. The disclosure did not refer to any figure to support the narrative. Therefore, the disclosure scored zero for the quantitative and comparative quantitative figures, and two for the comprehensiveness and clarity of information.

Example of community disclosure scored one points:

"From our corporate headquarters in Memphis to our locations throughout Tennessee and beyond, the 5,400 employees of First Horizon are committed to the customers and communities we serve. With financial services that empower businesses and individuals. With investments in the well-being of our communities. With volunteers to meet needs. Because when our customers and communities succeed, so do we. In 2011, we renew our commitment to supporting the progress that builds a prosperous future.

To our customers, our shareholders and our communities, we appreciate your support and confidence. In 2011, we will again dedicate our efforts to continue earning that support and justifying that confidence".

First Horizon National Corporation, 2010 annual report.

The disclosure above just mentions that they are committed to their community without clarifying how they approach their communities. Moreover, there is absence of any figures in relation to social commitment.

None of the examined annual reports got a score of five on the environmental disclosure

Example of environment disclosure scored four points:

> "Green at Key: In 2009, Newsweek ranked Key among the top 500 greenest big companies in America. Key is finding ways to support green efforts in its lending and investment banking activities. Creative approaches to reducing energy consumption reduce costs as well. Here's a brief list of representative projects and activities:
>
> Key's branch renovation program includes biodegradable materials, energy-efficient systems and lighting, video walls that eliminate paper merchandising, native plant landscaping to reduce water consumption, and local purchasing that saves transportation costs.
>
> The Teller21 technology platform lets tellers capture check images at the teller station, reducing the check handling and processing steps from 12 to 1. Electronic check capture reduces the need to transport checks via courier truck or airplane, which saves Key an estimated $7-$8 million annually.
>
> Key's Smart Print program has cut the number of printers and copiers by 75 percent, reduced impressions and color printing by half, and saved more than $2 million. Automated reports now tell each employee how much they print.
>
> In 2010, about 1,000 Cleveland-based employees will move to a restored historic building that fosters remote work alternatives, which save fuel. The uniquely designed workspace reduces square footage costs while providing for team huddle space. Wireless technology allows flexibility to plug in laptops, meet with teams, or work independently.
>
> The Go Green Auto Loan program offers a discounted rate for qualifying hybrid, alternate-fuel or fuel-efficient vehicles.
>
> KeyBanc Capital Markets has been a leading provider of financing for wind turbine generators and wind power projects. Key's investor owned utility clients are acquiring wind farms or building solar plants, many of which Key has helped to finance".
>
> *Key Corp, 2009 annual report.*

The environmental disclosure above states clearly the types of environmental initiatives undertaken by the bank and provides supportive quantitative figures to the narrative discussion. However, there is absence of comparative figures that helps in capturing improvements in approaching environmental issues or consideration of more environmental projects in the future.

Example of environment disclosure scored three points:

> "Our community commitment also includes the environment. As part of the G-20 summit held in Pittsburgh last September, PNC unveiled what was then the largest green wall in North America as an innovative way to make our headquarters building more energy efficient. We are a leader in constructing buildings that are certified by the U.S. Green Building Council, including 66 Green Branch® locations. In 2010 PNC employees will occupy Pittsburgh's Three PNC Plaza, one of the largest mixed-use green buildings in the world. This spring PNC Place, a new green regional headquarters, will open in Washington, D.C. We plan to create a Net Zero Energy Branch this year. We encourage others to build "green" too, so we have a small business green lending program that offers reduced rates for energy efficient project loans. Beyond buildings, we are increasing our usage of green vendors, reducing paper in our offices and programming our computers to save energy by turning themselves off when not in use".
>
> *PNC Financial Services, 2009 annual report.*

The discussion of environmental initiatives is of marginal quality lacking informative discussion concerning their environmental projects. For example, it is mentioned that the bank has a green lending programme, but there is no information on the size, who can benefit from this programme and its desired impact.

Example of environment disclosure scored two points:

> "We continued to make solid progress on our corporate sustainability initiatives in 2010. We completed a range of projects designed to improve our environmental performance and increase efficiency including efforts to reduce our energy use and greenhouse gas emissions, to reduce waste and expand our recycling programs, to build new 'green' banking centers, and to improve the coverage and accuracy of our sustainability tracking and reporting systems. In addition, we continue to be focused on developing deposit and loan relationships with "clean tech" and "green tech" companies".
>
> *Comerica Bank, 2010 annual report.*

The disclosure above provides basic information on the types of environmental initiatives and no supportive figures reflecting the level and size of involvement.

Example of environment disclosure scored one points:

"Banking in balance with the environment Understanding our customers' interest in "Green" initiatives and preserving the earth, our newest branch in Manchester was designed and built utilizing "Green" technology and engineering – indoors and outdoors. The first bank branch in Connecticut constructed in this manner, it has become a model for all banks – and other businesses – in Connecticut. Hartford Business Journal named us a Business Energy Awards "Innovation Winner" for our new "Green" branch".

Rockville Financial, 2009 annual report.

The disclosure is only informing about the opening of a new green branch lacking any informative content.

Example of human resources disclosure scored five points:

"Continued hiring. While most companies either put a hold on hiring or made the difficult decision to let employees go, we continued to hire seasoned professionals to staff our expanding operations. Our workforce grew from 710 at the end of 2008 to 805 at the end of 2009.

It's impossible to be the best financial services firm without having the best people – and it's even more difficult to amass the best people without being a great place to work. But attracting the right people is only half the battle. We have to ensure that every associate embraces what makes Pinnacle different and excellent. Great shareholder performance starts with engaged associates. With a high level of associate engagement, we are able to delight clients and deliver more than they expect. This leads to engaged clients, whose loyalty ultimately translates to engaged shareholders. We take a multi-faceted approach to creating an atmosphere where people can personalize our vision, enjoy what they're doing and ultimately be successful.

We hire and retain the best. We only hire financial advisors that have prior experience of at least 10 years in the local market, industry expertise and strong client relationships. Our average retention rate for these seasoned professionals is over 95 percent.
• **We connect associates to our purpose.** From orientation sessions with CEO Terry Turner to quarterly meetings where we review the firm's performance, we are focused on our mission, vision and values.
• **We empower associates.** We give them accountability for decisions and solving problems. They have the authority to do what it takes to delight clients in unexpected and memorable ways.
• **We are open to ideas and feedback.** Not only do we conduct and openly share the unedited feedback from our annual work environment survey, but managers also routinely host regular "listening sessions" to hear from associates at every level.
• **We help associates learn and grow.** Associates participate in book clubs hosted by leaders throughout the firm. We also offer associate enrichment programs with topics

ranging from health and fitness to computer skills. Every office has a Learning Center to underscore this commitment.
• **We reward successes.** We frequently celebrate milestones. We encourage individual and collective performance with annual cash incentives and restricted stock grants to 100 percent of our associates. Every quarter we recognize exceptional successes in front of our entire team at all-associate meetings.
• **We enjoy spending time together.** A team is more effective when members know one another on a personal level. Associates and their families participate in numerous Pinnacle-sponsored social and volunteer activities outside of the office.

HIGH MARKS FROM ASSOCIATES

Every year on the annual work environment survey Pinnacle associates give the firm considerably higher marks than the benchmarks for the industry. Richard Boyer with ModernThink, LLC, the company that administers Pinnacle's survey, made the following observation: "I've been involved with over 50 Best Place to Work programs the past eight years and have seen employee survey results from literally thousands of organizations. It is indeed rare to see results that are so consistently strong across ALL aspects of the organization. Results like this are clearly no accident...but rather the product of a sincere commitment from senior leadership regarding workplace quality, combined with infrastructure and processes that support the mission, vision and values. These survey results are testimony to the impact that people can have when culture is literally woven into the fabric of the business model".

Pinnacle Financial Partners, 2009 annual report.

The disclosure above discusses clearly various aspects related to their human resources. It shows the increase in the number of employees, the retention rate, the rewards, work environment satisfaction and other human resource issues.

Example of human resources disclosure scored four points:

"**Passionate People**

We're proud to employ people with a strong work ethic, who are friendly, and who take the time to contribute to a positive working atmosphere. Our Stakeholders are passionate about the work they do, adaptable to change, and they like to learn and innovate,"

It's a Good Place to Work

Across the country, hundreds of community banks complete an Annual Corporate Culture Survey, which measures employee satisfaction levels. Among these financial institutions, the average score is 2.92 on a -6 to +6 scale. Camden National Corporation has consistently outperformed its peers, scoring a 3.41 in 2009.

Meeting a Camden National stakeholder who has a decade of service at the Company isn't an uncommon event, with about 40% of all stakeholders having served 10 or more years. The average tenure is 9 years, a result of our progressive internal promotion strategy, which found 50 out of 417 stakeholders receiving a promotion in 2009.

Women in the Workplace. Camden National is proud of its commitment to providing a gender equal workplace. 68% of our stakeholders are women, as are 85 of 148 officers. Women also comprise two-thirds of the senior management team, sending a powerful message to our customers and community that all voices are heard at Camden National. "After joining the company in 1984 as a Loan Clerk, I was encouraged and afforded opportunities to continuously advance my career within the company, "said June Parent. "The same opportunities exist for every stakeholder." In 2009, Camden National Corporation was placed on the Boston Club's "Corporate Salute Honor Roll," recognizing the strong role of women on our Board of Directors. Camden National Corporation is one of just 52 companies headquartered in New England with three or more female directors, demonstrating our belief that gender diversity starts at the top.

Stakeholder Training

In addition to the leadership development opportunities offered through the Horizons 100 program, Camden National determined it was important to provide a company-wide sales training program. We firmly believe that sales success requires more than knowledge. It also involves attitudes, values, and beliefs. Integrity Solutions® helps people focus on selling as a mutual exchange of value, where selling isn't something you do to people; it's something you do *for* and with them. All 400+ stakeholders invested over 18 hours of time to complete Integrity Selling training in 2009, and all members of the Board of Directors also completed a day of training. Further leadership development will be offered for managers in 2010 with the ensuing program, Integrity Coaching®.

Remarkable Moments
Each month in 2009, Camden National Corporation recognized two employees through the Remarkable Moment of the Month program. This program seeks to encourage excellence in the delivery of The Camden National ExperienceSM and fulfill the Company's Core Purpose to enrich the lives of people, help businesses succeed, and vitalize communities through each and every interaction. Remarkable Moment winners are nominated by their peers, and are selected for showing exceptional commitment to providing superior service. Winners receive a bonus, and choose an area non-profit organization to receive a matching contribution from Camden National. Non-profits selected include the Make-A-Wish Foundation® of Maine, United Cerebral Palsy of Northeastern Maine, Camden Rockport Animal Rescue League, Nobleboro Volunteer Fire Department, Maine Breast Cancer Coalition, Down East Family YMCA, Camden Public Library, and Shriners Hospitals for Children.

Camden National Corporation was recognized in August, 2009 as one of the "Best Places to Work in Maine" by The Maine State Council of the Society for Human Resources Management".

Camden National Corporation, 2009 annual report.

The disclosure above is comprehensively discussing the banks attitude toward their human resources; however it lacks supportive comparative numerical figures.

Example of human resources disclosure scored three points:

"Be the best place for people to work We want to be the best place for our teammates to achieve their professional goals, while helping build the world's finest financial services company for our customers and shareholders. To meet this goal, we are aligning our training, reward and recognition programs to our customer strategy. We made changes to our benefits programs to make health care coverage more affordable for most of our employees; and, we continued to strengthen our leading diversity and inclusion programs to ensure that every member of our team can achieve his or her potential. We also conducted a company-wide employee survey (95 percent of our employees participated) that led to valuable feedback about what we can do to build an even more engaging workplace. As we build on the foundation we have laid, I want to thank our employees for their tremendous focus and effort over the past year; our customers and clients for giving us the opportunity to serve their needs; and our shareholders for your continued faith in the bright future of our company.
Effective January 1, 2010, we realigned the Global Corporate and Investment Banking portion of the former *Global Banking* business segment with the former *Global Markets* business segment to form *GBAM* and to reflect *Global Commercial Banking* as a standalone segment. At December 31, 2010, the Corporation had $2.3 trillion in assets and approximately 288,000 full-time equivalent employees.

The Corporation has established retirement plans covering substantially all full-time and certain part-time employees. Pension expense under these plans is charged to current operations and consists of several components of net pension cost based on various actuarial assumptions regarding future experience under the plans. In addition, the Corporation has established unfunded supplemental benefit plans and supplemental executive retirement plans (SERPs) for selected officers of the Corporation and its subsidiaries that provide benefits that cannot be paid from a qualified retirement plan due to Internal Revenue Code restrictions".

Bank of America, 2010 annual report.

The disclosure above discusses the human resource-related issues but lack both clarity and comparative numerical figures supporting the discussion. For example, it is mentioned that the bank is strengthening their leading diversity without elaboration to inform the reader on the desired targets or percentages as well as plans.

Example of human resources disclosure scored two points:

"Investing In You. Getting to the Essence of Courage, Excellence and Service True to our Columbus Day tradition, we held our third annual "Investing In You" employee meeting on October 12, 2009, at High Point Country Club. Over 200 BNC employees attended the daylong event that was equal parts education, inspiration and fellowship.

Taking Leadership to the Next Level. During Paul's keynote talk, BNC employees were challenged to look beyond themselves, and to be a servant leader. This requires pulling yourself back while you put others forward. He noted that any time you try to do something well, you will run into opposition… and you must not give up. Paul shared that courage is not the absence of fear; it's the ability to do the right thing when you're afraid. That's the essence of morale courage, and it's called into action every time you're called upon to defend your principals. Paul also shared his own "hero story," and talked about getting out of your comfort zone to find the courage, strength and ability to perform at a higher level of service. Everyone in attendance gained insights into how they could begin to take their own sense of purpose and customer service to the next level. The day was an excellent investment for all involved. Each employee invested a day to listen, learn and exchange ideas. BNC invested in the skills and abilities of our entire staff. And it all becomes an important investment in improving the way we work to provide our customers with the best possible customer service".

BNC Bancorp, 2009 annual report.

The disclosure above discusses single event without referral to any numerical figures, change in the number of employees or discussion on changes to the work environment, trainings and developments etc.

Example of human resources disclosure scored one points:

"Our general compensation philosophy remained unchanged from 2009 to 2010:
We strive to be competitive in base pay, with salaries targeted at the median of banking peers comparable to our asset size. We structure our incentive system to provide rewards for performance that reflects our strategic plan and balances executives' focus on both annual goals and the long-term success of the bank, without creating undue risk. Our total compensation for expected performance levels is targeted at the median of our peers. For exceptional performance, we provide total compensation that compares to levels at or above the 75th percentile of our peers".

WSFS Financial Corporation, 2010 annual report.

The disclosure provides basic information concerning employees' compensation without mentioning other human-resources aspects.

Example of social product and service quality disclosure scored five points:

"Enriching the Lives of People: Since our founding in 1875, Camden National has been committed to helping individuals and businesses succeed. Even in the uncertain economic climate of 2009, this goal remained of the upmost importance.

Lending: An "Outstanding" bank lends money to low and moderate income families and small businesses in its market area. Camden National takes pride in our extensive loans to small businesses, small farms, and independent fishermen. We're also proud of our focus on lending for affordable housing and jobs creation. For example, we provided construction financing for the Cindy Cookson House in Ellsworth, which provides affordable housing for homeless adults with mental illness. We also offer our systems for use by non-profits. For example, Camden National Corporation is the only Maine based sub-servicer of Maine Housing Authority loans for first-time homebuyers. We also service the loans the local Habitat for Humanity originates, and the loans made by the Four Directions Development Corporation, a Maine Native American development fund.

Financing Dreams of Home Ownership: With a slumping housing market and increasing unemployment, many families found themselves with mortgages they couldn't afford. Camden National Bank and its division, Union Trust, stepped in and worked with borrowers to refinance their loans. Business was booming. Of the $217 million in mortgages originated by us in 2009, $170 million of these loans represented refinanced mortgages at lower interest rate levels. Overall, this equated to funding for 1,307 customers. While this number represented a significant increase in volume from the $89 million and 525 mortgages processed in 2008, it also reflected our goal of assisting customers with what is often their largest monthly expenditure.

Lending for the Long-term: In 2009, there was extensive discussion about how banks "weren't lending money." We're proud to report that Camden National's commitment to provide financing to members of our communities did not waiver during the year.
There are many ways to lend money. At one end of the spectrum are those who view lending as a transactional business. Numerous financial institutions deemed their lending business as a collection of transactions. Some lenders appeared not to care about the long-term viability of their customers, as sub-prime mortgages were bought and sold. Commercial borrowers experienced a similar situation when provided with attractive short-term structures which could not withstand the pressures of an economic recession.
At Camden National, we have consciously decided to view lending at the other end of the spectrum—creating long-term relationships with our customers. We see the opportunity in helping a young family buy their first home, an entrepreneur commercialize an innovation, or an established business expand. And we view what we're doing with them as not just processing a loan, but making an investment in their lives. In good times and bad, we follow prudent risk management and underwriting guidelines, and maintain pricing discipline. Through this added level of commitment and diligence, we are able to be true relationship partners with our customers.

SBA's America's Recovery Capital (ARC) Loan Program: Created under the 2009 Recovery Act, the SBA's ARC program was designed to keep small businesses and people at work during the economic recession. Camden National Bank led the State of Maine as the #1 ARC lender in 2009, with 32% of the total Maine market represented and 48% more loans booked than the #2 lender. In doing so, Camden National Bank kept businesses producing and people employed during tough economic times.

United States Department of Agriculture (USDA): In 2009, Camden National partnered with Boothbay-based Ocean Classroom, to secure a $2.2 million loan that will help preserve jobs and expand programming for the non-profit organization.

"Maine Financial Institution of the Year" FAME bestowed its "Maine Financial Institution of the Year" Award on Camden National Bank in November, 2009 in recognition of its outstanding commitment to Maine people and businesses".

Camden National Corporation, 2009 Annual Report.

The disclosure above comprehensively discusses the social aspects in a stream of provided facilities supported by quantitative figures.

Example of social product and service quality disclosure scored four points:

"As America's largest bank, we have a responsibility to help customers who are struggling. That's why Bank of America has stepped up our home loan and credit card modification efforts and outreach programs. We also expanded our home retention staffing to more than 15,000 to help customers who are experiencing difficulty with their home loans.

Home Loan Modifications Since January 2008, we have helped nearly 700,000 customers with permanent and trial loan modifications through our own programs and the Home Affordable Modification Program (HAMP). We've also taken significant steps to contact customers who may be eligible for home loan modifications, including targeted advertising, door-knocking campaigns, and partnerships with non-profit organizations. Credit Card Modifications In 2009, Bank of America modified 1.4 million unsecured loans, including credit card loans, for customers struggling to meet their financial obligations. Efforts included lowering interest rates, reducing payments and fees or referring customers to debt management programs. Deposits Customer Assistance In 2009, we launched a Customer Assistance Program to help our customers who lost their jobs. Since then, we have helped more than 150,000 customers by lowering fees.

Economic Development In 2009, we initiated our 10-year, $1.5 trillion community development lending and investing goal, providing capital to low- and moderate-income and minority families, businesses and non-profits to promote neighbourhood revitalization. We also partner with community development financial institutions to provide financing and other assistance to businesses unable to qualify for traditional bank financing.

Neighborhood Preservation: By partnering with community groups to mitigate the impact foreclosures have on neighborhoods, we participated in nearly 250 outreach events in 32 states, and, since 2008, provided more than $35 million to fund neighborhood stabilization

programs, including the Alliance for Stabilizing our Communities, a national coalition to help homeowners in areas hardest hit by foreclosures.

Home Loan Modifications In the past two years, we have helped nearly 700,000 customers with loan modifications, including modifications made by Countrywide before the acquisition in July 2008. These include permanent and trial modifications as part of the administration's Home Affordable Modification Program (HAMP). In December 2009, we became the first mortgage servicer to surpass 200,000 customers entering HAMP trial modifications — leading the industry with the highest number of active trials and offers extended".

Bank of America, 2009 annual report.

The disclosure above is well informative, however it lacks comparative figures to achieve a score of five.

Example of social product and service quality disclosure scored three points:

"During 2009, we continued some well-established programs as well as developed new programs to address this concern:

• We developed a strategic partnership with GreenPath Debt Solutions called "MBT Community Advantage." Three powerful components are available to our customers at no charge and without any obligation: Community Advantage Personal Financial Care, BudgetSmart and CheckRight.

• Our "Partnership in Education" bank at school savings account program continued to operate in 37 elementary schools serving over 6,900 student customers.

• The Monroe County Learning Bank Network officially began serving students in the summer of 2009. Housed in the former Orchard East branch office, this partnership between MBT, Monroe County Community College, SEMCA, Michigan Works!, MCOP, and many others was formed to assist residents of the neighborhood and others with GED preparation and testing, career counseling and bridging the gap to continued higher education".

MBT Financial Corp, 2009 annual report.

The disclosure is reflecting the social products provided by the bank without having additional information showing their social characteristics and how they are spread across the states. For example, there is lack of clarity in the aspects of the school saving account programme which is serving 6,900 students. Moreover, the disclosure has no comparative figures to show if the social products are a continuation from previous years or they are all provided in the current year.

Example of social product and service quality disclosure scored two points:

> "The best business strategies and products mean nothing without the lifeblood of our locally-based, independent bank: the people who trust us to be good stewards of their money. And because each individual is so important, the fulfillment of financial duties for our patrons is only part of the equation. Knowing our customers personally and making folks feel at home are fundamental to doing business at every one of our 23 locations.
>
> Our philosophy of putting the customer first and treating them with courtesy and respect doesn't just make good business sense— it's also something we genuinely believe in doing, and extending extra kindness is returned to us many times over in the loyalty of our friends and neighbors.
>
> With products and programs designed for customers young, old and in between, we're spanning the generations when it comes to service. Senior adults who are part of our Solid Gold Club can enjoy travel, events and special rates. Elementary-age students at more than 40 area schools have the opportunity to add to their savings and learn about financial responsibility by participating in the WB&T School Bank program. And as the technologically-savvy customer base increases, our online and computer based offerings continue to grow each year, benefitting the environment as well as making things more convenient in a fast-paced world".
>
> *Wilson Bank and Trust, 2009 annual report.*

In addition to the absence of any supportive figure reflecting the size of social products, the disclosure above provides a general overview on the offered product with social aspect without discussing the various types of products mentioned.

Example of social product and service quality disclosure scored one points:

> "Our Student Loan operation continues to be a state wide leader in providing loans to the students of Arkansas. Unfortunately, the Federal Government has decided to eliminate the private sector from this business after the 2010 and 2011 school year. Until then, we will hope Congress will re-evaluate the government's role in competing with the private sector and, hopefully, reverse the current proposal of moving everyone to the government direct loan program".
>
> *Simmons First National Corporation, 2009 annual report.*

The disclosure is not clarifying anything around the student loans provided by the bank in terms of size, targeted educational levels, state coverage, etc.

Appendix E - Sample risk management disclosure by risk type

As the disclosure score per risk type is divided into three components, the narrative discussion, quantitative figures and comparative quantitative figures, the examples below illustrate sample disclosures that scored 1, 2 and 3 on the narrative part. The identification of supportive figures and comparative tables are straight-forward and could be easily identified.

Sample credit risk management disclosure scores three:

"Credit Ratings

Our borrowing costs and ability to raise funds are directly impacted by our credit ratings. In addition, credit ratings may be important to customers or counterparties when we compete in certain markets and when we seek to engage in certain transactions including over-the-counter derivatives. It is our objective to maintain high quality credit ratings.

…

A reduction in our credit ratings or the ratings of certain asset-backed securitizations could potentially have an adverse effect on our access to credit markets, the related cost of funds and our businesses. If Bank of America Corporation or Bank of America, N.A. commercial paper or short term credit ratings were downgraded by one level, our incremental cost of funds and potential lost funding could be material.

The credit ratings of Bank of America Corporation and Bank of America, N.A. as of February 26, 2010 are reflected in the table below.

Credit Risk Management

The economic recession accelerated in late 2008 and continued to deepen into the first half of 2009 but has shown some signs of stabilization and possible improvement over the second half of the year. Consumers continued to be under financial stress as unemployment and underemployment remained at elevated levels and individuals spent longer periods without work. These factors combined with further reductions in spending by consumers and businesses, continued home price declines and turmoil in sectors of the financial markets continued to negatively impact both the consumer and commercial loan portfolios. During 2009, these conditions drove increases in net charge-offs and nonperforming loans and foreclosed properties as well as higher commercial criticized utilized exposure and reserve increases across most portfolios. The depth, breadth and duration of the economic downturn, as well as the resulting impact on the credit quality of the loan portfolios remain unclear into 2010.

We continue to refine our credit standards to meet the changing economic environment. In our consumer businesses, we have implemented a number of initiatives to mitigate losses. These include increased use of judgmental lending and adjustment of underwriting, and

account and line management standards and strategies, including reducing unfunded lines where appropriate. Additionally, we have increased collections, loan modification and customer assistance infrastructures to enhance customer support. In 2009, we provided home ownership retention opportunities to approximately 460,000 customers. This included completion of 260,000 customer loan modifications with total unpaid balances of approximately $55 billion and approximately 200,000 customers who were in trial-period modifications under the government's Making Home Affordable program. As of January 2010, approximately 220,000 customers were in trial period modifications and more than 12,700 were in permanent modifications. Of the 260,000 modifications done during 2009, in terms of both the volume of modifications and the unpaid principal balance associated with the underlying loans most are in the portfolio serviced for investors and is not on our balance sheet. During 2008, Bank of America and Countrywide completed 230,000 loan modifications. The most common types of modifications include rate reductions, capitalization of past due amounts or a combination of rate reduction and capitalization of past due amounts, which are 17 percent, 21 percent and 40 percent, respectively, of modifications completed in 2009. We also provide rate and payment extensions, principal forbearance or forgiveness, and other actions. These modification types are generally considered TDRs except for certain short-term modifications where we expect to collect the full contractual principal and interest. …

Consumer Portfolio Credit Risk Management

Credit risk management for the consumer portfolio begins with initial underwriting and continues throughout a borrower's credit cycle. Statistical techniques in conjunction with experiential judgment are used in all aspects of portfolio management including underwriting, product pricing, risk appetite, setting credit limits, operating processes and metrics to quantify and balance risks and returns. Statistical models are built using detailed behavioral information from external sources such as credit bureaus and/or internal historical experience. These models are a component of our consumer credit risk management process and are used, in part, to help determine both new and existing credit decisions, portfolio management strategies including authorizations and line management, collection practices and strategies, determination of the allowance for loan and lease losses, and economic capital allocations for credit risk.

For information on our accounting policies regarding delinquencies, nonperforming status and charge-offs for the consumer portfolio, see Note 1 – Summary of Significant Accounting Principles to the Consolidated Financial Statements.

Consumer Credit Portfolio

Weakness in the economy and housing markets, elevated unemployment and underemployment and tighter credit conditions resulted in deterioration across most of our consumer portfolios during 2009. However, during the last half of the year, the unsecured consumer portfolios within Global Card Services experienced lower levels of delinquency and by the fourth quarter consumer credit began to stabilize and in some cases improve. As part of our ongoing risk mitigation and consumer client support initiatives, we have been working with borrowers to modify their loans to terms that better align with their current ability to pay. Under certain circumstances, we identify these as TDRs which are modifications where an economic concession is granted to a borrower experiencing financial difficulty. For more information on TDRs and portfolio impacts, see Non-

performing Consumer Loans and Foreclosed Properties Activity beginning on page 74 and Note 6 – Outstanding Loans and Leases to the Consolidated Financial Statements.

Table 17 presents our consumer loans and leases and our managed credit card portfolio, and related credit quality information. Nonperforming loans do not include consumer credit card, consumer loans secured by …

Residential Mortgage

The residential mortgage portfolio, which excludes the discontinued real estate portfolio acquired with Countrywide, makes up the largest percentage of our consumer loan portfolio at 42 percent of consumer loans and leases (43 percent excluding the Countrywide purchased impaired loan portfolio) at December 31, 2009. Approximately 15 percent of the residential portfolio is in GWIM and represents residential mortgages that are originated for the home purchase and refinancing needs of our affluent customers. The remaining portion of the portfolio is mostly in All Other and is comprised of both purchased loans as well as residential loans originated for our customers which are used in our overall ALM activities. Outstanding loans and leases decreased $5.9 billion …

Home Equity

The home equity portfolio is comprised of home equity lines of credit, home equity loans and reverse mortgages. At December 31, 2009, approximately 87 percent of the home equity portfolio was included in Home Loans & Insurance, while the remainder of the portfolio was primarily in GWIM. Outstanding balances in the home equity portfolio decreased $3.4 billion at December 31, 2009 compared to December 31, 2008 due to charge-offs and management of credit lines in the legacy portfolio partially offset by the acquisition of Merrill Lynch. Of the loans in the home equity portfolio at December 31, 2009 and 2008, approximately $26.0 billion, or 18 percent, and $23.2 billion, or 15 percent, were in first lien positions (19 percent and 17 percent excluding the Countrywide purchased impaired home equity loan portfolio). For more information on the Countrywide purchased impaired home equity loan portfolio, see the Countrywide Purchased Impaired Loan Portfolio discussion beginning on page 71 …

Discontinued Real Estate

The discontinued real estate portfolio, totaling $14.9 billion at December 31, 2009, consisted of pay option and subprime loans obtained in the Countrywide acquisition. Upon acquisition, the majority of the discontinued real estate portfolio was considered impaired and written down to fair value. At December 31, 2009, the Countrywide purchased impaired loan portfolio comprised $13.3 billion, or 89 percent, of the $14.9 billion discontinued real estate portfolio. This portfolio is included in All Other and is managed as part of our overall ALM activities. See the Countrywide Purchased Impaired Loan Portfolio discussion below for more information on the discontinued real estate portfolio. At December 31, 2009, the purchased non-impaired discontinued real estate portfolio was $1.6 billion. Loans with greater than 90 percent refreshed LTVs and CLTVs comprised 25 percent of this portfolio and those with refreshed FICO scores below 620 represented 39 percent of the portfolio. California represented 37 percent of the portfolio and 30 percent of the nonperforming loans while Florida represented nine percent of the portfolio and 16 percent of the nonperforming loans at December 31, 2009. The Los Angeles-Long Beach-Santa Ana MSA within California made up 15 percent of outstanding discontinued real estate loans at December 31, 2009.

Residential Mortgage

The Countrywide purchased impaired residential mortgage portfolio out standings were $11.1 billion at December 31, 2009 and comprised 30 percent of the total Countrywide purchased impaired loan portfolio. Those loans with a refreshed FICO score below 620 represented 33 percent of the Countrywide purchased impaired residential mortgage portfolio at December 31, 2009. Refreshed LTVs greater than 90 percent after consideration of purchase accounting adjustments and refreshed LTVs greater than 90 percent based on the unpaid principal balance represented 65 percent and 80 percent of the purchased impaired residential mortgage portfolio. The table below presents out-standings net of purchase accounting adjustments and net charge-offs had the portfolio not been accounted for as impaired upon acquisition by certain state concentrations.

Discontinued Real Estate

The Countrywide purchased impaired discontinued real estate out-standings were $13.3 billion at December 31, 2009 and comprised 35 percent of the total Countrywide purchased impaired loan portfolio. Those loans with a refreshed FICO score below 620 represented 51 percent of the Countrywide purchased impaired discontinued real estate portfolio at December 31, 2009. Refreshed LTVs and CLTVs greater than 90 percent represented 52 percent of the purchased impaired discontinued real estate portfolio after consideration of purchase accounting adjustments. Refreshed LTVs and CLTVs greater than 90 percent based on the unpaid principal balance represented 80 percent of the purchased impaired discontinued real estate portfolio at December 31, 2009. The table below presents outstandings net of purchase accounting adjustments and net charge-offs had the portfolio not been accounted for as impaired upon acquisition, by certain state concentrations. …

Credit Card – Domestic

The consumer domestic credit card portfolio is managed in Global Card Services. Outstandings in the held domestic credit card loan portfolio decreased $14.7 billion at December 31, 2009 compared to December 31, 2008 due to lower originations and transactional volume, the conversion of certain credit card loans into held-to-maturity debt securities and charge-offs partially offset by lower payment rates and new …

Credit Card – Foreign

The consumer foreign credit card portfolio is managed in Global Card Services. Outstandings in the held foreign credit card loan portfolio increased $4.5 billion to $21.7 billion at December 31, 2009 compared to December 31, 2008 primarily due to the strengthening of certain foreign currencies, particularly the British pound against the U.S. dollar. Net charge-offs for the held foreign portfolio increased $688 million to $1.2 billion in 2009, or 6.30 percent of total average held credit card – foreign loans compared to 3.34 percent in 2008. The increase was driven primarily by weak economic conditions and higher unemployment also being experienced in Europe and Canada, including a higher level of bankruptcies/insolvencies ….

Nonperforming Consumer Loans and Foreclosed Properties Activity

Table 26 presents nonperforming consumer loans and foreclosed properties activity during 2009 and 2008. Nonperforming loans held for sale are excluded from nonperforming loans as they are recorded at either fair value or the lower of cost or fair value. Nonperforming loans do not include consumer credit card, consumer loans secured by personal property or

unsecured consumer loans that are past due as these loans are generally charged off no later than the end of the month in which the account becomes 180 days past due. Real estate-secured past due loans repurchased pursuant to our servicing agreements with GNMA are not reported as nonperforming as repayments are insured by the FHA. Additionally, nonperforming loans do not include the Countrywide purchased impaired portfolio. For further information regarding nonperforming loans, see Note 1 – Summary of Significant Accounting Principles to the Consolidated Financial Statements. Total net additions to nonperforming loans in 2009 were $11.0 billion compared to $6.4 billion in 2008. …

Management of Commercial Credit Risk Concentrations

Commercial credit risk is evaluated and managed with a goal that concentrations of credit exposure do not result in undesirable levels of risk. We review, measure and manage concentrations of credit exposure by industry, product, geography and customer relationship. Distribution of loans and leases by loan size is an additional measure of portfolio risk diversification. We also review, measure and manage commercial real estate loans by geographic location and property type. In addition, within our international portfolio, we evaluate borrowings by region and by country. Tables 31, 34, 38, 39 and 40 summarize our concentrations. Additionally, we utilize syndication of exposure to third parties, loan sales, hedging and other risk mitigation techniques to manage the size and risk profile of the loan portfolio …

Commercial – Domestic (excluding Small Business)

At December 31, 2009, approximately 81 percent of the commercial –domestic loan portfolio, excluding small business, was included in Global Banking (business banking, middle-market and large multinational corporate loans and leases) and Global Markets (acquisition, bridge financing and institutional investor services). The remaining 19 percent was mostly in GWIM (business-purpose loans for wealthy individuals). Outstanding commercial – domestic loans, excluding loans accounted for under the fair value option, decreased driven primarily by reduced customer demand within Global Banking, partially offset by the acquisition of Merrill Lynch. Nonperforming commercial – domestic loans increased $2.9 billion compared to December 31, 2008. Net charge-offs increased $1.7 billion in 2009 compared to 2008. The increases in nonperforming loans and net charge-offs were broad-based in terms of borrowers and industries. The acquisition of Merrill Lynch accounts for a portion of the increase in nonperforming loans and reservable criticized exposure.

Commercial Real Estate

The commercial real estate portfolio is predominantly managed in Global Banking and consists of loans made primarily to public and private developers, homebuilders and commercial real estate firms. Outstanding loans and leases, excluding loans accounted for under the fair value option, increased $4.7 billion at December 31, 2009 compared to December 31, 2008, primarily due to the acquisition of Merrill Lynch partially offset by portfolio attrition and losses. The portfolio remains diversified across property types and geographic regions. California and Florida represent the two largest state concentrations at 21 percent and seven percent for loans and leases at December 31, 2009. For more information on geographic or property concentrations, refer to Table 31

Commercial Loans Carried at Fair Value

The portfolio of commercial loans accounted for under the fair value option is managed in Global Markets. The $477 million decrease in the fair value loan portfolio in 2009 was driven primarily by reduced corporate borrowings under bank credit facilities. We recorded net gains of $515 million resulting from changes in the fair value of the loan portfolio during 2009 compared to net losses of $780 million for 2008. These gains and losses were primarily attributable to changes in instrument-specific credit risk and were predominantly offset by net gains or net losses from hedging activities. In addition, unfunded lending commitments and letters of credit had an aggregate fair value of $950 million and $1.1 billion at December 31, 2009 and 2008 and were recorded in accrued expenses and other liabilities. The associated aggregate notional amount of unfunded lending …

Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity

The following table presents the additions and reductions to non-performing loans, leases and foreclosed properties in the commercial portfolio during 2009 and 2008. The $16.2 billion in new nonaccrual loans and leases for 2009 was primarily attributable to increases within non-homebuilder commercial real estate property types such as shopping centers/retail, office, land and land development, and multi-use and within commercial – domestic excluding small business, where the increases were broad-based across industries and lines of business. Approximately 90 percent of commercial nonperforming loans, leases and foreclosed properties are secured and approximately 35 percent are contractually current. In addition, commercial nonperforming loans are carried at approximately 75 percent of their unpaid principal balance before consideration of the allowance for loan and lease losses as the carrying value of these loans has been reduced to the estimated net realizable value. …

Industry Concentrations

Table 34 presents commercial committed and commercial utilized credit exposure by industry and the total net credit default protection purchased to cover the funded and the unfunded portion of certain credit exposure. Our commercial credit exposure is diversified across a broad range of industries. Industry limits are used internally to manage industry concentrations and are based on committed exposure and capital usage that are allocated on an industry-by-industry basis. A risk management framework is in place to set and approve industry limits, as well as to provide ongoing monitoring. The Credit Risk Committee (CRC) oversees industry limits governance. …

Risk Mitigation

Credit protection is purchased to cover the funded portion as well as the unfunded portion of certain credit exposure. To lessen the cost of obtaining our desired credit protection levels, credit exposure may be added within an industry, borrower or counterparty group by selling protection. At December 31, 2009 and 2008, we had net notional credit default protection purchased in our credit derivatives portfolio to hedge our funded and unfunded exposures for which we elected the fair value option as well as certain other credit exposures of $19.0 billion and $9.7 billion. The increase from December 31, 2008 is primarily driven by the acquisition of Merrill Lynch. The mark-to-market impacts, including the cost of net credit default protection hedging our credit exposure, resulted in net losses of $2.9 billion in 2009 compared to net gains of $993 million in 2008. The average Value-at-Risk (VAR) for these credit derivative hedges was $76 million in 2009

compared to $24 million in 2008. The average VAR for the related credit exposure was $130 million in 2009 compared to $57 million in 2008. The year-over-year increase in VAR was driven by the combination of the Merrill Lynch and Bank of America businesses in 2009. There is a diversification effect between the net credit default protection hedging our credit exposure and the related credit exposure such that the combined average VAR was $89 million in 2009. Refer to the Trading Risk Management discussion beginning on page 92 for a description of our VAR calculation for the market-based trading portfolio.

Tables 35 and 36 present the maturity profiles and the credit exposure debt ratings of the net credit default protection portfolio at December 31, 2009 and 2008. The distribution of debt rating for ….

Counterparty Credit Risk Valuation Adjustments

We record a counterparty credit risk valuation adjustment on certain derivatives assets, including our credit default protection purchased, in order to properly reflect the credit quality of the counterparty. These adjustments are necessary as the market quotes on derivatives do not fully reflect the credit risk of the counterparties to the derivative assets. We consider collateral and legally enforceable master netting agreements that mitigate our credit exposure to each counterparty in determining the counterparty credit risk valuation adjustment. All or a portion of these counterparty credit risk valuation adjustments are reversed or otherwise adjusted in future periods due to changes in the value of the derivative contract, collateral and creditworthiness of the counterparty. During 2009, credit valuation gains (losses) were recognized in trading account profits (losses) related to counterparty credit risk on derivative assets. For additional information on gains or losses related to the counterparty credit risk on derivative assets, refer to Note 4 –Derivatives to the Consolidated Financial Statements. For information on our monoline counterparty credit risk, see the discussion beginning on pages 49 and 82, and for information on our CDO-related counterparty credit risk, see the Global Markets discussion beginning on page 47.

Provision for Credit Losses

The provision for credit losses increased $21.7 billion to $48.6 billion for 2009 compared to 2008. The consumer portion of the provision for credit losses increased $15.1 billion to $36.9 billion for 2009 compared to 2008. The increase was driven by higher net charge-offs in our consumer real estate, consumer credit card and consumer lending portfolios, reflecting deterioration in the economy and housing markets. In addition to higher net charge-offs, the provision increase was also driven by higher reserve additions for deterioration in the purchased impaired and residential mortgage portfolios, new draws on previously securitized accounts as well as an approximate $800 million addition to increase the reserve coverage to approximately 12 months of charge-offs in consumer credit card. These ….

Allowance for Credit Losses

The allowance for loan and lease losses excludes loans accounted for under the fair value option as fair value adjustments related to loans measured at fair value include a credit risk component. The allowance for loan and lease losses is allocated based on two components. We evaluate the adequacy of the allowance for loan and lease losses based on the combined total of these two components. The first component of the allowance for loan and lease losses covers those commercial loans, …"

Bank of America, 2009 annual report

The disclosure above presents detailed information on the bank's credit risk management. Each section starts with clear introduction on the credit risk type being addressed followed be the management approach and clarifications on the assumptions, classifications and changes across years.

Sample credit risk management disclosure scores two:

"Loans

The aggregate loan portfolio before allowance for loan losses totaled $11.3 billion at December 31, 2009, a $1.6 billion or 12% decrease since December 31, 2008.

Commercial

Commercial loans represent loans for working capital, facilities acquisition or expansion, purchases of equipment and other needs of commercial customers primarily located within our geographical footprint. Commercial loans are underwritten individually and represent on-going relationships based on a thorough knowledge of the customer, the customer's industry and market. While commercial loans are generally secured by the customer's assets including real property, inventory, accounts receivable, operating equipment, interests in mineral rights and other property and may also include personal guarantees of the owners and related parties, the primary source of repayment of the loans is the on-going cash flow from operations of the customer's business. Inherent lending risks are centrally monitored on a continuous basis from underwriting throughout the life of the loan for compliance with commercial lending policies.

The commercial loan portfolio decreased $1.2 billion during 2009 to $6.2 billion at December 31, 2009. The change in outstanding commercial loans was primarily related to a $400 million decrease in energy sector loans, a $243 million decrease in wholesale/retail sector loans, $231 million decrease in service sectors loans and a $214 million decrease in other commercial and industrial loans. Commercial loan origination activity has slowed to less than amounts necessary to offset normal repayment trends in the portfolio. In general, loan demand has softened due to lower working capital needs …

Residential Mortgage and Consumer

Residential mortgage loans provide funds for our customers to purchase or refinance their primary residence or to borrow against the equity in their home. Residential mortgage loans are secured by a first or second-mortgage on the customer's primary residence. Consumer loans include direct loans secured by and for the purchase of automobiles, recreational and marine equipment as well as other unsecured loans. Consumer loans also include indirect automobile loans made through primary dealers. Residential mortgage and consumer loans are made in accordance with underwriting policies we believe to be conservative and are fully documented. Credit scoring is assessed based on significant credit characteristics including credit history, residential and employment stability.

Residential mortgage loans totaled $1.8 billion, up $41 million or 2% since December 31, 2008. Permanent 1-4 family mortgage loans increased $30 million and home equity loans

increased $11 million. In general, we sell the majority of our conforming fixed-rate loan originations in the secondary market and retain the majority of our non-conforming and adjustable-rate mortgage loans. We have no concentration in sub-prime residential mortgage loans. Our mortgage loan portfolio does not include payment option adjustable rate mortgage loans or adjustable rate mortgage loans with initial rates that are below market.

Summary of Loan Loss Experience

We maintain separate reserves for loan losses and reserves for off-balance sheet credit risk. The combined allowance for loan and off-balance sheet credit losses totaled $306 million or 2.72% of outstanding loans and 90% of nonaccruing loans at December 31, 2009. At December 31, 2008, the combined allowance for loan and off-balance sheet credit losses totaled $248 million or 1.93% of outstanding loans and 83% of nonaccruing loans at December 31, 2008. The reserve for loan losses totaled $292 million or 2.59% of outstanding loans at December 31, 2009 and $233 million or 1.81% of outstanding loans at December 31, 2008. The reserve for off-balance sheet credit commitments was $14 million at December 31, 2009 and $15 million at December 31, 2008. The decrease in the reserve for off-balance sheet credit commitments is due largely to changes in risk factors and the funding of existing commitments. …

Allowance for Loan Losses

The adequacy of the allowance for loan losses is assessed by management based on an ongoing quarterly evaluation of the probable estimated losses inherent in the portfolio. The allowance consists of specific reserves attributed to impaired loans, general reserves based on migration factors and non-specific reserves based on general economic, risk concentration and related factors. An independent Credit Administration department is responsible for performing this evaluation for the entire company to ensure that the methodology is applied consistently. For 2009, there have been no material changes in the approach or techniques utilized in developing the allowance for loan losses.

Specific reserves for impaired loans are determined by evaluation of estimated future cash flows, collateral value or historical statistics. Loans are considered to be impaired when it is probable that we will not be able to collect all amounts due according to the contractual terms of the loan agreement. This is substantially the same criteria used to determine when a loan should be placed on nonaccrual status. Generally, all nonaccruing commercial and commercial real estate loans are considered impaired. Substantially all impaired loans are collateralized. Collateral includes real property, inventory, accounts receivable, operating equipment, interests in mineral rights, and other property. Collateral may also include personal guaranties by borrowers and related parties.

Delinquency status is not a significant consideration in the evaluation of impairment or risk-grading of commercial or commercial real estate loans. These evaluations are based on an assessment of the borrowers' paying capacity and attempt to identify changes in credit risk before payments become delinquent. Changes in the delinquency trends of residential mortgage loans and consumer loans may indicate increases or decreases in expected losses. …

Net Loans Charged Off

Loans are charged off against the allowance for loan losses when the loan balance or a portion of the loan balance is no longer covered by the paying capacity of the borrower based on an evaluation of available cash resources and collateral value. Collateral values are generally evaluated annually, or more frequently for certain collateral types or collateral located in certain distressed markets. Loans are evaluated quarterly and charge-offs are taken in the quarter in which the loss is identified.

Net loans charged off during 2009 totaled $138 million compared to $102 million in the previous year. The ratio of net loans charged off to average outstanding loans was 1.14% for 2009 compared with 0.81% for 2008. Net loans charged off in 2008 included a $26 million charge-off from the SemGroup credit and recoveries of $7.1 million from a loan charged off in 2005 and $4.0 million from a loan charged off in 2001. Net charge-offs for 2009 were up $51 million over 2008 excluding these significant items.

Net loans charged off by category and principal market area during 2009 follow in Table 30.

Commercial

Nonaccruing commercial loans totaled $101 million or 1.63% of total commercial loans at December 31, 2009 and $135 million or 1.82% of total commercial loans at December 31, 2008. Newly identified nonaccruing commercial loans in 2009 totaled approximately $88 million primarily in the energy and service sector of the portfolio. This was primarily offset by a $34 million decrease in energy loans related to SemGroup item previously discussed and approximately $39 million of charge-offs and $32 million of payments in addition to approximately $8 million transferred to real estate owned and other repossessed assets. The distribution of nonaccruing commercial loans among our various markets was as follows in Table 34.

Commercial Real Estate

Nonaccruing commercial real estate loans totaled $205 million or 8.23% of outstanding commercial real estate loans at December 31, 2009 compared to $137 million or 5.08% of outstanding commercial real estate loans at December 31, 2008. Nonaccruing commercial real estate loans increased approximately $226 million during 2009 related to newly identified commercial real estate loans, primarily in the construction and land development sector. This was partially offset by transfers to other real estate owned and charge-offs.

Residential Mortgage and Consumer

Nonaccruing residential mortgage loans primarily consist of permanent residential mortgage loans which totaled $30 million or 1.67% of outstanding residential mortgage loans at December 31, 2009, a $2.6 million increase over December 31, 2008. Home equity loans continued to perform well with only $1.7 million or 0.34% of total home equity loans in nonaccrual status. The distribution of nonaccruing residential mortgage loans among our various markets is included in Table 36."

BOK Financial Corporation, 2009 annual report

The disclosure above presents introductions to each credit risk dimension approached and discusses their performance in each dimension in comparison to previous years. The disclosure is merely descriptive, lacking clear identification to the assumptions and evaluation techniques used, for example when assessing delinquent accounts and loan losses provisions.

Sample credit risk management disclosure scores one:

"Credit Risk Management

Credit risk refers to the potential for economic loss arising from the failure of clients to meet their contractual agreements on all credit instruments, including on-balance sheet exposures from loans and leases, investment securities, contingent exposures from unfunded commitments, letters of credit, credit derivatives, and counterparty risk under derivative products. As credit risk is an essential component of many of the products and services we provide to our clients, the ability to accurately measure and manage credit risk is integral to maintain both the long-run profitability of our lines of business and our capital adequacy.

The Credit Risk Management group manages and monitors extensions of credit risk through initial underwriting processes and periodic reviews which then maintain underwriting standards in accordance with credit policies and procedures. The Corporate Risk Review unit conducts independent risk reviews to ensure active compliance with all policies and procedures. Credit Risk Management periodically reviews our lines of business to monitor asset quality trends and the appropriateness of credit policies. In addition, total borrower exposure limits are established and concentration risk is monitored. Credit risk is partially mitigated through purchase of credit loss protection via third party insurance and use of credit derivatives such as credit default swaps.

Borrower/counterparty (obligor) risk and facility risk are evaluated using our risk rating methodology, which has been implemented in all lines of business. We use various risk models in the estimation of expected and unexpected losses. These models incorporate both internal and external default and loss experience. To the extent possible, we collect internal data to ensure the validity, reliability, and accuracy of our risk models used in default and loss estimation. We have made a commitment to maintain and enhance comprehensive credit systems in order to meet business requirements and comply with evolving regulatory standards. As part of a continuous improvement process, Credit Risk Management evaluates potential enhancements to our risk measurement and management tools, implementing them as appropriate along with amended credit policies and procedures.

Nonperforming Assets

Nonperforming assets totaled $6.1 billion as of December 31, 2009, an increase of $1.6 billion, or 36.9%, from December 31, 2008. Nonperforming loans as of December 31, 2009 were $5.4 billion, an increase of $1.5 billion, or 37.1%, from December 31, 2008. Of this total increase, nonperforming residential mortgage loans represented $868.9 million,

commercial real estate loans represented $215.2 million, real estate construction loans represented $207.8 million, commercial loans represented $162.0 million, and home equity lines represented $16.4 million. We experienced slight declines in total nonperforming assets and total nonperforming loans over the last six months of 2009 as well as a decline in early stage delinquencies. The slight decline in total nonperforming loans was primarily related to commercial and construction loans, partially offset by increases in residential mortgages and commercial real estate loans. …

Provision for Credit Losses

The provision for credit losses includes both the provision for loan losses, relating to funded loans, as well as the provision for unfunded commitments. The provision for loan losses is the result of a detailed analysis estimating an appropriate and adequate ALLL. The provision for loan losses during 2009 totaled $4.0 billion, an increase of $1.5 billion, or 61.9%, from 2008. The increase in the provision for loan losses is primarily driven by elevated losses and increases in ALLL due to 37deteriorating asset quality conditions in the residential related and wholesale portfolios. We expect net charge-offs and the provision for loan losses to remain at elevated levels until we experience a sustained improvement in the credit quality of the loan portfolio. The amount of future growth in the ALLL is highly correlated to unemployment levels, changes in home prices within our markets, especially Florida, as well as sustained improvement in our portfolio-specific credit quality indicators."

SunTrust Banks, 2009 annual report

The disclosure above provides definition of credit risk and basic discussion on credit risk management. The discussion on loan losses and non-performing assets is only providing light presentation to the figures comparing 2008 to 2009 without explaining the modelling and estimating techniques used.

Sample liquidity risk management disclosure scores three:

"Funding and Liquidity

Citigroup's cash flows and liquidity needs are primarily generated within its operating subsidiaries. Exceptions exist for major corporate items, such as the TARP repayment, and for equity and certain long-term debt issuances, which take place at the Citigroup corporate level. Generally, Citi's management of funding and liquidity is designed to optimize availability of funds as needed within Citi's legal and regulatory structure. Various constraints limit certain subsidiaries' ability to pay dividends or otherwise make funds available. Consistent with these constraints, Citigroup's primary objectives for funding and liquidity management are established by entity and in aggregate across three main operating entities, as follows: (i) Citigroup, as the parent holding company; (ii) banking subsidiaries; and (iii) non-banking subsidiaries.

Citigroup sources of funding include deposits, collateralized financing transactions and a variety of unsecured short- and long-term instruments, including federal funds purchased, commercial paper, long-term debt, trust preferred securities, preferred stock and common stock. As a result of continued deleveraging, growth in deposits, term securitization under government and non-government programs, the issuance of long-term debt under the FDIC's Temporary Liquidity Guarantee Program (TLGP) and the issuance of non-guaranteed debt (particularly during the latter part of 2009), Citigroup substantially increased its balances of cash and highly liquid securities and reduced its short-term borrowings during 2009. Citi has focused on growing a geographically diverse retail and corporate deposit base that stood at approximately $836 billion as of December 31, 2009, up $62 billion compared to December 31, 2008. On a volume basis, deposit increases occurred in Regional Consumer Banking, particularly in North America, and in Transaction Services due to growth in all regions and strength in Treasury and Trade Solutions. Excluding the impact of foreign exchange, Citi's deposit base has increased sequentially over each of the last six quarters. The deposits are diversified across products and regions, with approximately 64% outside of the U.S. This diversification provides Citi with an important and low-cost source of funding. A significant portion of these deposits has been, and is currently expected to be, long-term and stable and is considered to be core. During 2010, although our deposit balances may be subject to seasonal fluctuations, we anticipate pursuing modest deposit growth while concentrating on widening spreads.

At December 31, 2009, long-term debt and commercial paper outstanding for Citigroup, Citigroup Global Market Holdings Inc. (CGMHI), Citigroup Funding Inc. (CFI) and other Citigroup subsidiaries, collectively, were as follows:

Aggregate Liquidity Resources

As noted in the table above, Citigroup's aggregate liquidity resources totaled $315.5 billion as of December 31, 2009, compared with $200.3 billion as of December 31, 2008. As of December 31, 2009, Citigroup's and its affiliates' liquidity portfolio and broker-dealer "cash box" totaled $86.8 billion as compared with $72.0 billion at December 31, 2008. This includes the liquidity portfolio and cash box held in the U.S. as well as government bonds held by Citigroup's broker-dealer entities in the United Kingdom and Japan. Further, at December 31, 2009, Citigroup's bank subsidiaries had an aggregate of approximately $105.1 billion of cash on deposit with major Central Banks (including the U.S. Federal Reserve Bank of New York, the European Central Bank, Bank of England, Swiss National Bank, Bank of Japan, the Monetary Authority of Singapore, and the Hong Kong Monetary Authority), compared with approximately $74.5 billion at December 31, 2008. Citigroup's bank subsidiaries also have significant additional liquidity resources through unencumbered highly liquid securities available for secured funding through private markets or that are, or could be, pledged to the major Central Banks and the U.S. Federal Home Loan Banks. The value of these liquid securities was $123.6 billion at December 31, 2009 compared with $53.8 billion at December 31, 2008. Significant amounts of cash and liquid securities are also available in other Citigroup entities.

Consistent with the strategic reconfiguration of Citi's balance sheet, the build-up of liquidity resources and the shift in focus on increasing structural liabilities, Citigroup entered 2010 with much of its required long-term debt funding already in place. As a consequence, it is currently expected that the direct long-term funding requirements for Citigroup and CFI in 2010 will be $15 billion, which is well below the $39 billion of expected maturities.

Banking Subsidiaries—Constraints on Supplying Funds

There are various legal and regulatory limitations on the ability of Citigroup's subsidiary depository institutions to pay dividends, extend credit or otherwise supply funds to Citigroup and its non-bank subsidiaries. In determining the declaration of dividends, each depository institution must also consider its effect on applicable risk-based capital and leverage ratio requirements, as well as policy statements of the federal regulatory agencies that indicate that banking organizations should generally pay dividends out of current operating earnings. Citigroup did not receive any dividends fromits banking subsidiaries during 2009.

Some of Citigroup's non-bank subsidiaries have credit facilities with Citigroup's subsidiary depository institutions, including Citibank, N.A. Borrowings under these facilities must be secured in accordance with Section 23A of the Federal Reserve Act. There are various legal restrictions on the extent to which Citi's subsidiary depository institutions can lend or extend credit to or engage in certain other transactions with Citigroup and certain of its non-bank subsidiaries. In general, transactions must be on arm's-length terms and be secured by designated amounts of specified collateral. See Note 20 to the Consolidated Financial Statements.

Management of Liquidity

Management of liquidity at Citigroup is the responsibility of the Treasurer. Citigroup runs a centralized treasury model where the overall balance sheet is managed by Citigroup Treasury through Global Franchise Treasurers and Regional Treasurers. Day-to-day liquidity and funding are managed by treasurers at the country and business level and are monitored by Corporate Treasury and independent risk management. A uniform liquidity risk management policy exists for Citigroup, its consolidated subsidiaries and managed affiliates. Under this policy, there is a single set of standards for the measurement of liquidity risk in order to ensure consistency across businesses, stability in methodologies, transparency of risk, and establishment of appropriate risk appetite. …

Monitoring Liquidity

Funding and Liquidity Plans

Each principal operating subsidiary and/or country must prepare a Funding and Liquidity Plan for approval by the Treasurer and independent risk management. For significant entities, as defined by balance sheet size and the liquidity risk position, the Funding and Liquidity Plan is prepared and approved on an annual basis. The Funding and Liquidity Plan addresses strategic liquidity issues and establishes the parameters for identifying, measuring, monitoring and limiting liquidity risk and sets forth key assumptions for liquidity risk management. The Funding and Liquidity Plan includes analysis of the balance sheet, as well as the economic and business conditions impacting, or potentially impacting, the liquidity of the major operating subsidiary and/or country. As part of the Funding and Liquidity Plan, liquidity limits, liquidity ratios, market triggers, and assumptions for periodic stress tests are established and approved.

Risk Tolerance

Citigroup establishes its key risk tolerances based on stress tests and a cash capital ratio (as described in "Liquidity Ratios" below). This framework requires that entities be self-sufficient or net providers of liquidity in their designated stress tests and have excess cash

capital. Aggregate self sufficiency targets have been established for the banking subsidiaries, Citigroup, the parent holding company, and CGMHI as well as for individual entities as part of their Funding and Liquidity Plans. In addition, an important benchmark for the combined Citigroup, the parent holding company, and CGMHI is to maintain sufficient liquidity to meet all maturing obligations for a one-year period without access to the unsecured wholesale markets. Within this context, there are a series of tools used to monitor Citigroup's liquidity position. These include liquidity gaps and associated limits, liquidity ratios, stress testing and market triggers, as described below

Liquidity gaps and Limits

Citigroup uses a monitoring tool that measures potential funding gaps over various time horizons in a standard operating environment. The gap for any given funding need represents the potential market access required, or placements to the market (internal or external) over designated tenors. Limits establish risk appetite for potential market access in standard operating conditions and are monitored against the liquidity position on a daily basis. Limits are established based on evaluation of available contingent actions and liquidity vulnerabilities under designated stress scenarios. While the contingent capacity places a cap on the limits, the limits are also evaluated based on the structural liquidity of the balance sheet, stability of liabilities, liquidity of assets, depth of markets, the experience of management, size of the balance sheet, historical utilization, and an evaluation of expected business and funding strategy. Limits are established such that in stress scenarios, entities are self-funded or net providers of liquidity. Thus, the risk tolerance for liquidity funding gaps is limited based on the capacity to cover the position in a stressed environment. These limits are the key daily risk-management tool for Citigroup, the parent holding company, and its banking subsidiaries.

Liquidity ratios

A series of standard corporate-wide liquidity ratios has been established to monitor the structural elements of Citigroup's liquidity. One of the key structural liquidity measures is the cash capital ratio. Cash capital is a broader measure of the ability to fund the structurally illiquid portion of Citigroup's balance sheet than traditional measures such as deposits to loans or core deposits to loans. Cash capital measures the amount of long-term funding (>1 year) available to fund illiquid assets. Long-term funding includes core customer deposits, long-term debt and equity. Illiquid assets include loans (net of liquidity adjustments), illiquid securities, securities haircuts and other assets (i.e., goodwill, intangibles, fixed assets, receivables, etc.). Cash capital targets are established for Citigroup, the parent holding company, CGMHI and Citigroup's aggregate banking subsidiaries. In addition, each entity is required to calculate a cash capital ratio on a monthly basis. Benchmarks must be established and approved for the cash capital ratio as part of the entities' Funding and Liquidity plan. At December 31, 2009, the combined Citigroup, the parent holding company, and CGMHI, as well as the aggregate banking subsidiaries had an excess of cash capital. In addition, as of December 31, 2009 the combined Citigroup, the parent holding company, and CGMHI maintained liquidity to meet all maturing obligations significantly in excess of a one-year period without access to the unsecured wholesale markets.

Stress Testing

Simulated liquidity stress testing is periodically performed for each major operating subsidiary and/or country. Stress testing / scenario analyses are intended to quantify the

likely impact of an event on the balance sheet and liquidity position and to identify viable funding alternatives that can be utilized in a liquidity event. A variety of firm-specific and market-related scenarios are used at the consolidated level and in individual countries.

These scenarios include assumptions about significant changes in key funding sources, credit ratings, contingent uses of funding, and political and economic conditions in certain countries. The results of stress tests of individual countries and operating subsidiaries are reviewed to ensure that each individual major operating subsidiary or country is either self-funded or a net provider of liquidity. In addition, a Contingency Funding Plan is prepared on a periodic basis for Citigroup. The plan includes detailed policies, procedures, roles and responsibilities, and the results of corporate stress tests. The product of these stress tests is a series of alternatives that can be used by the Treasurer in a liquidity event. As a result of the recent financial crisis, Citigroup increased the frequency, duration, and severity of certain stress testing, particularly related to the interconnection of idiosyncratic and systemic risk. Citigroup, the parent holding company, CGMHI and Citigroup's largest bank entities perform their key stress tests at a minimum on a monthly basis. In addition, in conformity with recommendations made by the Credit Risk Management Policy Group, Citigroup calculates a stressed 30-day maximum cash outflow compared with its liquidity resources for some of its key operating entities. This 30-day maximum cash outflow is performed on a daily basis. For other entities, stress testing is performed at a minimum on a quarterly basis.

Market Triggers

Market triggers are internal or external market or economic factors that may imply a change to market liquidity or Citigroup's access to the markets. Citigroup market triggers are monitored by the Treasurer and the head of risk architecture and are presented to the FinALCO. Appropriate market triggers are also established and monitored for each major operating subsidiary and/or country. Local triggers are reviewed with the local country or business Asset and Liability Committee and independent risk management.

Contractual Obligations

The following table includes aggregated information about Citigroup's contractual obligations that impact its short- and long-term liquidity and capital needs. The table includes information about payments due under specified contractual obligations, aggregated by type of contractual obligation. It includes the maturity profile of Citigroup's consolidated long-term debt, leases and other long-term liabilities.

Citigroup's contractual obligations include purchase obligations that are enforceable and legally binding for Citi. For the purposes of the table below, purchase obligations are included through the termination date of the respective agreements, even if the contract is renewable. Many of the purchase agreements for goods or services include clauses that would allow Citigroup to cancel the agreement with specified notice; however, that impact is not included in the table (unless Citigroup has already notified the counterparty of its intention to terminate the agreement). Other liabilities reflected on Citigroup's Consolidated Balance Sheet include obligations for goods and services that have already been received, uncertain tax positions, as well as other long-term liabilities that have been incurred and will ultimately be paid in cash …"

Citigroup, 2009 annual report

The disclosure above presents a clear introduction along with definitions to the types of liquidity risk management. Their approach to manage liquidity risk is clearly stated and the techniques used along with the underlying assumptions are illustrated.

Sample liquidity risk management disclosure scores two:

"LIQUIDITY RISK MANAGEMENT

Liquidity risk is the risk of potential loss if we were unable to meet our funding requirements at a reasonable cost. We manage liquidity risk at the bank and parent company to help ensure that we can obtain cost-effective funding to meet current and future obligations under both normal "business as usual" and stressful circumstances. Our largest source of liquidity on a consolidated basis is the deposit base that comes from our retail and corporate banking businesses. Other borrowed funds come from a diverse mix of short and long-term funding sources. Liquid assets and unused borrowing capacity from a number of sources are also available to maintain our liquidity position.

Liquid assets consist of short-term investments (Federal funds sold, resale agreements, trading securities, and interest-earning deposits with banks) and securities available for sale. At December 31, 2009, our liquid assets totaled $59.8 billion, with $23.4 billion pledged as collateral for borrowings, trust, and other commitments.

Bank Level Liquidity

Spot and forward funding gap analyses are the primary metrics used to measure and monitor bank liquidity risk. Funding gaps represent the difference in projected sources of liquidity available to offset projected uses. We calculate funding gaps for the overnight, thirty day, ninety day, one-hundred eighty day and one year time intervals. Risk limits are established within the Liquidity Risk policy. Compliance is regularly reviewed by management's Asset and Liability Committee.

PNC Bank, N.A. can borrow from the Federal Reserve Bank of Cleveland's (Federal Reserve Bank) discount window to meet short-term liquidity requirements. These borrowings are secured by securities and commercial loans. PNC Bank, N.A. is also a member of the Federal Home Loan Bank (FHLB)-Pittsburgh and as such has access to advances from FHLB-Pittsburgh secured generally by residential mortgage and other mortgage-related loans. At December 31, 2009, our unused secured borrowing capacity was $26.0 billion with the Federal Reserve Bank and $9.3 billion with FHLB-Pittsburgh.

Total FHLB borrowings were $10.8 billion at December 31, 2009 compared with $18.1 billion at December 31, 2008.

We can also obtain funding through traditional forms of borrowing, including Federal funds purchased, repurchase agreements, and short and long-term debt issuances. PNC Bank, N.A. has the ability to offer up to $20 billion in senior and subordinated unsecured debt obligations with maturities of more than nine months. Through December 31, 2009, PNC Bank, N.A. had issued $6.9 billion of debt under this program.

PNC Bank, N.A. also has the ability to offer up to $3.0 billion of its commercial paper. As of December 31, 2009, there were no issuances outstanding under this program.

As of December 31, 2009, there were $6.2 billion of bank short- and long-term debt issuances with maturities of less than one year.

In December 2009, as required by the FDIC, we prepaid deposit insurance assessments covering the period October 1, 2009 through December 31, 2012. The amount of the prepayment was $1.1 billion. While the resulting prepaid asset does not require risk-based capital, it impacts our available bank liquidity.

Parent Company Liquidity

Our parent company's routine funding needs consist primarily of dividends to PNC shareholders, share repurchases, debt service, the funding of non-bank affiliates, and acquisitions. Parent company liquidity guidelines are designed to help ensure that sufficient liquidity is available to meet our funding requirements over the succeeding 24-month period. Risk limits for parent company liquidity are established within the Enterprise Capital Management Policy. Compliance is regularly reviewed by the Board of Director's Joint Risk Committee.

The principal source of parent company cash flow is the dividends it receives from its subsidiary bank, which may be impacted by the following:

• Bank-level capital needs,

• Laws and regulations,

• Corporate policies,

• Contractual restrictions, and

• Other factors.

Also, there are statutory and regulatory limitations on the ability of national banks to pay dividends or make other capital distributions or to extend credit to the parent company or its non-bank subsidiaries. See Note 23 Regulatory Matters in the Notes To Consolidated Financial Statements in Item 8 of this Report for a further discussion of these limitations.

Dividends may also be impacted by the bank's capital needs and by contractual restrictions. We provide additional information on certain contractual restrictions under the "Perpetual Trust Securities," "PNC Capital Trust E Trust Preferred Securities," and "Acquired Entity Trust Preferred Securities" sections of the Off-Balance Sheet Arrangements And Variable Interest Entities section of this Item 7. The amount available for dividend payments to the parent company by PNC Bank, N.A. without prior regulatory approval was approximately $378 million at December 31, 2009. …

PNC Funding Corp issued the following securities during 2009:

• September – $500 million of senior notes due September 2015; interest paid semiannually at a fixed rate of 4.25%.

• June – $600 million of senior notes due June 2019; interest paid semiannually at a fixed rate of 6.7%.

• June – $400 million of senior notes due June 2014; interest paid semiannually at a fixed rate of 5.4%.

• March – $1.0 billion of floating rate senior notes due April 2012 under the TLGP-Debt Guarantee Program. Interest will be reset quarterly to 3-month LIBOR plus 20 basis points and paid quarterly. These senior notes are guaranteed by the parent company and by the FDIC and are backed by the full faith and credit of the United States of America through maturity.

As further described in the Executive Summary and Consolidated Balance Sheet sections of this Item 7, in May 2009 we raised $624 million in common equity through the issuance of 15 million shares of common stock. …

Commitments

The following tables set forth contractual obligations and various other commitments representing required and potential cash outflows as of December 31, 2009.

Contractual Obligations Payment …

Other Commitments (a) …"

PNC Financial Services, 2009 annual report

The disclosure provides considerable level of information but lacks clarity concerning the techniques used to assess liquidity levels. The disclosure, for example, mentioned that spot and forward funding gap analysis are the main measures used to monitor bank liquidity, but there is no information on the underlying assumptions or results.

Sample liquidity risk management disclosure scores one:

"Liquidity Risk

The maintenance of adequate liquidity — the ability to meet the cash requirements of our customers and other financial commitments — is a fundamental aspect of our asset/liability management strategy. Our policy of diversifying our funding sources — purchased funds, repurchase agreements, and deposit accounts — allows us to avoid undue concentration in any single financial market and also to avoid heavy funding requirements within short periods of time. At December 31, 2009, our bank subsidiary had approximately $898.9 million available under a collateralized line of credit with the Federal Home Loan Bank of Pittsburgh; and $559.6 million more would have been available provided that additional collateral had been pledged. In addition, at December 31, 2009, we had unused federal funds lines of $857.0 million and no brokered certificates of deposit.

Over the past few years, as an additional source of liquidity, we periodically entered into securitization transactions in which we sold the beneficial interests in loans and leases to qualified special purpose entities (QSPEs). Since our last securitization, which occurred in February 2007, adverse market conditions have made such transactions extremely difficult, as evidenced by our inability to complete the securitization forecasted for 2008. As an alternative source of funding, we have pledged the leases previously held for sale, certain

auto loan certain commercial finance leases, and certain investment securities to obtain collateralized borrowing availability at the Federal Reserve's Discount Window and Term Auction Facility. At December 31, 2009, we had unused collateralized availability of $331.8 million.

Liquidity, however, is not entirely dependent on increasing our liability balances. Liquidity is also evaluated by taking into consideration maturing or readily marketable assets. Unrestricted short-term investments totalled $88.0 million for the year ended December 31, 2009, and represented additional sources of liquidity.

Management believes these sources of liquidity are sufficient to support our banking operations."

Susquehanna Bancshares, 2009 annual report

The disclosure provides basic liquidity risk management information without referring to

liquidity assessment and monitoring techniques and related results.

Sample interest rate risk management disclosure scores three:

"To manage our exposure to changes in interest rates, we perform asset and liability management activities which are governed by guidelines pre-established by our Executive ALM Committee, and approved by our Asset/Liability Management Committee of the Board of Directors, which we refer to as our Board ALCO. Our Executive ALM Committee monitors our compliance with our asset/liability policies. These policies focus on providing sufficient levels of net interest income while considering capital constraints and acceptable levels of interest rate exposure and liquidity.

Market risk sensitive instruments are generally defined as derivatives and other financial instruments, which include investment securities, loans, deposits, and borrowings. At December 31, 2009 and 2008, we had not used any derivatives to alter our interest rate risk profile or for any other reason. However, both the repricing characteristics of our fixed rate loans and floating rate loans, the significant percentage of noninterest-bearing deposits compared to interest-earning assets, and the callable features in certain borrowings, may influence our interest rate risk profile. Our financial instruments include loans receivable, Federal funds sold, interest-bearing deposits in financial institutions, Federal Home Loan Bank stock, investment securities, deposits, borrowings and subordinated debentures.

We measure our interest rate risk position on at least a quarterly basis using three methods: (i) net interest income simulation analysis; (ii) market value of equity modeling; and (iii) traditional gap analysis. The results of these analyses are reviewed by the Executive ALM Committee and the Board ALCO quarterly. If hypothetical changes to interest rates cause changes to our simulated net present value of equity and/or net interest income outside our pre-established limits, we may adjust our asset and liability mix in an effort to bring our interest rate risk exposure within our established limits.

We evaluated the results of our net interest income simulation and market value of equity models prepared as of December 31, 2009, the results of which are presented below. Our net interest income simulation indicates that our balance sheet is liability sensitive as

rising interest rates would result in a decline in our net interest margin. This profile is primarily a result of the increased origination of fixed rate loans and variable rate loans with initial fixed rate terms, which is driven by customer demand for fixed rate products in this low interest rate environment. Our market value of equity model indicates an asset sensitive profile suggesting a sudden sustained increase in rates would result in an increase in our estimated market value of equity. This profile is a result of the assumed floors in the Company's offering rates, which are not expected to increase to the extent of the movement of market interest rates, and the significant value placed on the Company's noninterest-bearing deposits for purposes of this analysis. The divergent profile between the net interest income simulation and market value of equity model is a result of the Company's significant level of noninterest-bearing deposits. Static balances of noninterest bearing deposits do not impact the net interest income simulation. However, the value of these deposits increase substantially in the market value of equity model when market rates are assumed to rise. In general, we view the net interest income model results as more relevant to the Company's current operating profile and manage our balance sheet based on this information.

Net interest income simulation. We used a simulation model to measure the estimated changes in net interest income that would result over the next 12 months from immediate and sustained changes in interest rates as of December 31, 2009. This model is an interest rate risk management tool and the results are not necessarily an indication of our future net interest income. This model has inherent limitations and these results are based on a given set of rate changes and assumptions at one point in time. We have assumed no growth in either our interest-sensitive assets or liabilities over the next 12 months; therefore, the results reflect an interest rate shock to a static balance sheet.

This analysis calculates the difference between net interest income forecasted using both increasing and declining interest rate scenarios and net interest income forecasted using a base market interest rate derived from the U.S. Treasury yield curve at December 31, 2009. In order to arrive at the base case, we extend our balance sheet at December 31, 2009 one year and reprice any assets and liabilities that would contractually reprice or mature during that period using the products' pricing as of December 31, 2009. Based on such repricings, we calculate an estimated net interest income and net interest margin.

The repricing relationship for each of our assets and liabilities includes many assumptions. For example, many of our assets are floating rate loans, which are assumed to reprice to the same extent as the change in market rates according to their contracted index except for floating rate loans tied to our base lending rate which are assumed to reprice upward only after the first 75 basis point increase in market rates. This assumption is due to the fact that we reduced our base lending rate 100 basis points when the Federal Reserve lowered the Federal Funds benchmark rate by 175 basis points in the fourth quarter of 2008. Some loans and investment vehicles include the opportunity of prepayment (imbedded options) and the simulation model uses national indexes to estimate these prepayments and reinvest these proceeds at current simulated yields. Our deposit products reprice at our discretion and are assumed to reprice more slowly in a rising or declining interest rate environment, usually repricing less than the change in market rates. Also, a callable option feature on certain borrowings will reprice differently in a rising interest rate environment than in a declining interest rate environment. The effects of certain balance sheet attributes, such as fixed-rate loans, floating rate loans that have reached their floors and the volume of noninterest-bearing deposits as a percentage of earning assets, impact our assumptions and consequently the results of our interest rate risk management model.

Changes that could vary significantly from our assumptions include loan and deposit growth or contraction, changes in the mix of our earning assets or funding sources, and future asset/liability management decisions, all of which may have significant effects on our net interest income.

The simulation analysis does not account for all factors that impact this analysis, including changes by management to mitigate the impact of interest rate changes or the impact a change in interest rates may have on our credit risk profile, loan prepayment estimates and spread relationships which can change regularly. In addition, the simulation analysis does not make any assumptions regarding loan fee income, which is a component of our net interest income and tends to increase our net interest margin.

In 2009 loan fee income increased our net interest margin by 13 basis points. Management reviews the model assumptions for reasonableness on a quarterly basis.

The following table presents as of December 31, 2009, forecasted net interest income and net interest margin for the next 12 months using a base market interest rate and the estimated change to the base scenario given immediate and sustained upward and downward movements in interest rates of 100, 200 and 300 basis points.

In 2009 loan fee income increased our net interest margin by 13 basis points. Management reviews the model assumptions for reasonableness on a quarterly basis.

The following table presents as of December 31, 2009, forecasted net interest income and net interest margin for the next 12 months using a base market interest rate and the estimated change to the base scenario given immediate and sustained upward and downward movements in interest rates of 100, 200 and 300 basis points.

The decrease in liability sensitivity at the end of 2009, compared to December 31, 2008, is due primarily to a change in assumptions for the IRR model at December 31, 2009 compared to 2008. We now assume that our time deposit rates will not increase simultaneously and to the extent of upward movements in market rates. This change is based on the Company's current time deposit offer rates relative to current market interest rates at December 31, 2009, and internal historical trend analysis. When the 2009 model is prepared using the same assumptions used in 2008, it indicates a more liability sensitive position compared to the 2008 model; this increase in liability sensitivity is attributed to the growth in money market deposit balances, which are assumed to reprice following movements in market rates.

Market value of equity. We measure the impact of market interest rate changes on the net present value of estimated cash flows from our assets, liabilities and off-balance sheet items, defined as the market value of equity, using a simulation model. This simulation model assesses the changes in the market value of our interest-sensitive financial instruments that would occur in response to an instantaneous and sustained increase or decrease in market interest rates of 100, 200 and 300 basis points. This analysis assigns significant value to our noninterest-bearing deposit balances. The projections are by their nature forward-looking and therefore inherently uncertain, and include various assumptions regarding cash flows and interest rates. This model is an interest rate risk management tool and the results are not necessarily an indication of our actual future results. Actual results may vary significantly from the results suggested by the market value of equity table. Loan prepayments and deposit attrition, changes in the mix of our

earning assets or funding sources, and future asset/liability management decisions, among others, may vary significantly from our assumptions.

The base case is determined by applying various current market discount rates to the estimated cash flows from the different types of assets, liabilities and off-balance sheet items existing at December 31, 2009. The following table shows the projected change in the market value of equity for the set of rate shocks presented as of December 31, 2009.

The results of our market value of equity model indicate an asset sensitive interest rate risk profile in 2009 demonstrated by the increase in the market value of equity in the "up" interest rate scenarios compared to the "base case". Given the historically low market interest rates as of December 31, 2009, the "down" scenarios at December 31, 2009 are not considered meaningful and excluded from the following discussion.

Our asset sensitive position as of December 31, 2009 is due primarily to the composition of our loan portfolio which is not projected to decline in value in a rising rate environment. In this type of analysis, a higher discount rate applied to a loan portfolio will result in a lower loan value. The discount rate used to value our loan portfolio is derived from the expected offering rate for each loan type with a similar term and credit risk profile. In a rising rate environment management does not expect to increase our offering rates to the same extent as market rates and in turn our loans are not projected to lose significant value. Conversely, the discount rates for our liabilities are expected to increase to the same extent as increases in market rates. Therefore our liabilities are expected increase in value as rates rise thereby increasing the estimated market value of equity in the rising rate scenario.

The following table shows the projected change in the market value of equity for the set of rate shocks presented as of December 31, 2008. These results are not necessarily based on the same set of assumptions used in our 2009 simulation.

The decrease in asset sensitivity at the end of 2009, compared to December 31, 2008, is due primarily to declines in

floating rate loans and increases in fixed rate investment securities during the year, both of which would become less valuable for purposes of this analysis in the "up" scenarios.

Gap analysis. As part of the interest rate risk management process we use a gap analysis. A gap analysis provides information about the volume and repricing characteristics and relationship between the amounts of interest-sensitive assets and interest-bearing liabilities at a particular point in time. An effective interest rate strategy attempts to match the volume of interest sensitive assets and interest bearing liabilities repricing over different time intervals. The main focus of this interest rate management tool is the gap sensitivity identified as the cumulative one year gap.

(a) All amounts are reported at their contractual maturity or repricing periods, except for $50.4 million in FHLB stock which is in the "Over 5 Years" category. The FHLB of San Francisco announced in January of 2009 that it was suspending dividends. This analysis makes certain assumptions as to interest rate sensitivity of savings and NOW accounts which have no stated maturity and have had very little price fluctuation in the past three years. Money market accounts are repriced at management's discretion and generally are more rate sensitive.

The preceding table indicates that we had a negative one year cumulative gap of $722.8 million at December 31, 2009. This gap position suggests that we are liability-sensitive and if rates were to increase, our net interest margin would most likely decrease. Conversely, if rates were to decrease, our net interest margin would most likely increase. The ratio of interest-earning assets to interest-bearing liabilities maturing or repricing within one year at December 31, 2009 is 75.5%. This one year gap position indicates that interest expense is likely to be affected to a greater extent than interest income for any changes in interest rates within one year from December 31, 2009.

The Bank entered into five fixed rate term advances with the FHLB during the fourth quarter of 2007 and first quarter of 2008; two of these advances matured and were repaid by January 2010. The remaining three advances totaling $275 million with maturity dates in 2013 or later contain quarterly call options and are currently callable by the FHLB. While the FHLB may call the advances to be repaid for any reason, they are likely to be called if market interest rates are higher than the advances' stated rates on the call dates. We may repay the advances with a prepayment penalty at any time.

The gap table has inherent limitations and actual results may vary significantly from the results suggested by the gap table. The gap table is unable to incorporate certain balance sheet characteristics or factors. The gap table assumes a static balance sheet and, accordingly, looks at the repricing of existing assets and liabilities without consideration of new loans and deposits that reflect a more current interest rate environment. Unlike the net interest income simulation, however, the interest rate risk profile of certain deposit products and floating rate loans that have reached their floors cannot be captured effectively in a gap table. Although the table shows the amount of certain assets and liabilities scheduled to reprice in a given time frame it does not reflect when or to what extent such repricings may actually occur. For example, interest-bearing checking, money market and savings deposits are shown to reprice in the first 3 months, but we may choose to reprice these deposits more slowly and incorporate only a portion of the movement in market rates based on market conditions at that time. Alternatively a loan which has reached its floor may not reprice even though market interest rates change causing such loan to act like a fixed rate loan regardless of its scheduled repricing date. The gap table as presented cannot factor in the flexibility we believe we have in repricing deposits or the floors on our loans.

We believe the estimated effect of a change in interest rates is better reflected in our net interest income and market value of equity simulations which incorporate many of the factors mentioned.

PacWest Bancorp, 2009 annual report

The disclosure provides clear definitions and justifications to the estimating techniques used to measure and monitor interest rate risk. It illustrates the assumptions used when applying each test and discusses its results in a clear way. For example, when employing the net interest income simulation the disclosure mentions that they assumed no growth in either their interest-sensitive assets or liabilities over the next 12 months.

Sample interest rate risk management disclosure scores two:

"INTEREST RATE RISK

Regions' primary market risk is interest rate risk, including uncertainty with respect to absolute interest rate levels as well as uncertainty with respect to relative interest rate levels, which is impacted by both the shape and the slope of the various yield curves that affect the financial products and services that the Company offers. To quantify this risk, Regions measures the change in its net interest income in various interest rate scenarios compared to a base case scenario. Net interest income sensitivity is a useful short-term indicator of Regions' interest rate risk.

Sensitivity Measurement—Financial simulation models are Regions' primary tools used to measure interest rate exposure. Using a wide range of sophisticated simulation techniques provides management with extensive information on the potential impact to net interest income caused by changes in interest rates. Models are structured to simulate cash flows and accrual characteristics of Regions' balance sheet. Assumptions are made about the direction and volatility of interest rates, the slope of the yield curve, and the changing composition of the balance sheet that result from both strategic plans and from customer behavior. Among the assumptions are expectations of balance sheet growth and composition, the pricing and maturity characteristics of existing business and the characteristics of future business. Interest rate-related risks are expressly considered, such as pricing spreads, the lag time in pricing administered rate accounts, prepayments and other option risks. Regions considers these factors, as well as the degree of certainty or uncertainty surrounding their future behavior.

Historically, Regions' balance sheet has consisted of a relatively rate-sensitive deposit base that funds a predominantly floating rate commercial and consumer loan portfolio. This mix of Regions' core business activities creates a naturally asset sensitive balance sheet, meaning that increases (decreases) in interest rates would likely have a positive (negative) cumulative impact on Regions' net interest income. To manage the balance sheet's interest rate risk, Regions maintains a portfolio of largely fixed-rate discretionary investments, loans and derivatives. The market risk of these discretionary instruments attributable to variation in interest rates is fully incorporated into the simulation results in the same manner as all other balance sheet instruments.

The primary objective of asset/liability management at Regions is to coordinate balance sheet composition with interest rate risk management to sustain a reasonable and stable net interest income throughout various interest rate cycles. In computing interest rate sensitivity for measurement, Regions compares a set of alternative interest rate scenarios to the results of a base case scenario based on "market forward rates." The standard set of interest rate scenarios includes the traditional instantaneous parallel rate shifts of plus 100, 200 and 300 basis points. Regions also prepares a minus 100 basis points scenario; a minus 200 basis point scenario is not considered realistic in the current rate environment. Up-rate scenarios of greater magnitude are also analyzed, and are of increased importance provided that current and historic low levels of interest rates increase the relative

likelihood of a rapid and substantial increase in interest rates. Regions also includes simulations of gradual interest rate movements that may more realistically mimic potential interest rate movements. These gradual scenarios include curve steepening, flattening, and parallel movements of various magnitudes phased in over a six-month period, and include rate shifts of plus and minus 100 basis points and plus 200 basis points. A 300 basis point shift for the gradual scenarios would produce a resulting relationship similar to the instantaneous 300 basis point scenario.

Exposure to Interest Rate Movements—In September 2009, Regions' management projected that, although macro-economic conditions were expected to improve in 2010, the pace of recovery was at risk to underperform the broader markets' view. Consequently, Regions anticipated the likelihood that key interest rates would remain at or near historic lows through most of 2010. Accordingly, with the balance sheet in an asset sensitive position, net interest income was at risk to underperform. To offset this risk, Regions entered into a series of short-term, receive-fixed derivative instruments with final maturity in September 2010. These derivative instruments will offset the negative impact to net interest income from the expected low-rate environment during their term; however, should rates unexpectedly rise during their term, these derivatives could serve to partially offset the benefits that would have otherwise been realized from a rising rate environment.

Inclusive of all interest-rate risk hedging activities, as of December 31, 2009, Regions was moderately asset sensitive to both gradual and instantaneous rate shifts as compared to the base case for the measurement horizon ending in December 2010. Upon final maturity of the short-term derivatives in September 2010, Regions will be more asset sensitive. To illustrate the impact to sensitivity attributable to maturity of the short-term derivatives in September 2010, the net interest income sensitivity specifically attributable to these derivatives and the sensitivity excluding these derivatives ("remaining assets / liabilities") are both provided in the table below.

Table 20—Interest Rate Sensitivity

Derivatives—Regions uses financial derivative instruments for management of interest rate sensitivity. The Asset and Liability Committee ("ALCO"), which consists of members of Regions' senior management team, in its oversight role for the management of interest rate sensitivity, approves the use of derivatives in balance sheet hedging strategies. The most common derivatives Regions employs are forward rate contracts, Eurodollar futures contracts, interest rate swaps, options on interest rate swaps, interest rate caps and floors, and forward sale commitments. Derivatives are also used to offset the risks associated with customer derivatives, which include interest rate, credit and foreign exchange risks. Refer to Note 21, "Derivative Instruments and Hedging

Activities" for further discussion. Forward rate contracts are commitments to buy or sell financial instruments at a future date at a specified price or yield. A Eurodollar futures contract is a future on a Eurodollar deposit. Eurodollar futures contracts subject Regions to market risk associated with changes in interest rates. Because futures contracts are cash

settled daily, there is minimal credit risk associated with Eurodollar futures. Interest rate swaps are contractual agreements typically entered into to exchange fixed for variable (or vice versa) streams of interest payments. The notional principal is not exchanged but is used as a reference for the size of interest settlements. Interest rate options are contracts that allow the buyer to purchase or sell a financial instrument at a predetermined price and time. Forward sale commitments are contractual obligations to sell market instruments at a future date for an already agreed-upon price. Foreign currency contracts involve the exchange of one currency for another on a specified date and at a specified rate. These contracts are executed on behalf of the Company's customers and are used to manage fluctuations in foreign exchange rates. The Company is subject to the credit risk that another party will fail to perform.

Regions has made use of interest rate swaps to effectively convert a portion of its fixed-rate funding position to a variable-rate position and, in some cases, to effectively convert a portion of its variable-rate loan portfolio to fixed-rate. Regions also uses derivatives to manage interest rate and pricing risk associated with its mortgage origination business. In the period of time that elapses between the origination and sale of mortgage loans, changes in interest rates have the potential to cause a decline in the value of the loans in this held-for-sale portfolio. Futures contracts and forward sale commitments are used to protect the value of the loan pipeline and loans held for sale from changes in interest rates and pricing.

Regions manages the credit risk of these instruments in much the same way as it manages credit risk of the loan portfolios by establishing credit limits for each counterparty and through collateral agreements for dealer transactions. For non-dealer transactions, the need for collateral is evaluated on an individual transaction basis and is primarily dependent on the financial strength of the counterparty. Credit risk is also reduced significantly by entering into legally enforceable master netting agreements. When there is more than one transaction with a counterparty and there is a legally enforceable master netting agreement in place, the exposure represents the net of the gain and loss positions with and collateral received from and/or posted to that counterparty. The "Credit Risk" section in this report contains more information on the management of credit risk.

Regions also uses derivatives to meet the needs of its customers. Interest rate swaps, interest rate options and foreign exchange forwards are the most common derivatives sold to customers. Other derivatives instruments with similar characteristics are used to hedge the market risk and minimize volatility associated with this portfolio. Instruments used to service customers are held in the trading account, with changes in value recorded in the consolidated statements of operations.

On January 1, 2009, Regions began accounting for mortgage servicing rights at fair market value with any changes to fair value being recorded within mortgage income. Also, in early 2009, Regions entered into derivative and balance sheet transactions to mitigate the impact of market value fluctuations related to mortgage servicing rights. Both the mortgage servicing rights and related economic risk mitigation transactions expose the Company to interest rate risk.

The primary objective of Regions' hedging strategies is to mitigate the impact of interest rate changes, from an economic perspective, on net interest income and the net present value of its balance sheet. The overall effectiveness of these hedging strategies is subject to market conditions, the quality of Regions' execution, the accuracy of its valuation assumptions, counterparty credit risk and changes in interest rates. As a result, Regions' hedging strategies may be ineffective in mitigating the impact of interest rate changes on its earnings. See Note 21 "Derivative Financial Instruments and Hedging Activities" to the consolidated financial statements for a tabular summary of Regions' year-end derivatives positions. Derivative instruments entered into in the future could be materially different from the current risk profile of Regions' current portfolio."

Regions Financial, 2009 annual report

The disclosure provides clear definitions and illustrations to the simulation techniques used and related results. However, it mentions that a set of assumptions were considered when conducting these modelling but they are not clearly discussed.

Sample interest rate risk management disclosure scores one:

"Interest rate risk is defined as the exposure of the Company's net interest income to adverse movements in interest rates. Although the Company manages other risks, such as credit and liquidity risk, management considers interest rate risk to be its most significant risk, which could potentially have the largest and a material effect on the Company's financial condition and results of operations. A sudden and substantial change in interest rates may adversely impact the Company's earnings to the extent that the interest rates earned on assets and paid on liabilities do not change at the same speed, to the same extent, or on the same basis. Other events that could have an adverse impact on the Company's performance include changes in general economic and financial conditions, general movements in market interest rates, and changes in consumer preferences. The Company's primary purpose in managing interest rate risk is to effectively invest the Company's capital and to manage and preserve the value created by its core banking business.

Management believes the most significant impact on financial and operating results is the Company's ability to react to changes in interest rates. Management seeks to maintain an essentially balanced position between interest sensitive assets and liabilities in order to protect against the effects of wide interest rate fluctuations.

The Company has a Corporate Asset and Liability Management Committee ("ALCO"). ALCO monitors the composition of the balance sheet to ensure comprehensive management of interest rate risk and liquidity. ALCO also provides guidance and support to each ALCO of the Company's subsidiary banks and is responsible for monitoring risks on a company-wide basis. ALCO has established minimum standards in its asset and liability management policy that each subsidiary bank must adopt. However, the subsidiary banks are permitted to deviate from these standards so long as the deviation is no less stringent than that of the Corporate policy.

The Company uses a simulation model as a tool to monitor and evaluate interest rate risk exposure. The model is designed to measure the sensitivity of net interest income and net income to changing interest rates during the next twelve months. Forecasting net interest income and its sensitivity to changes in interest rates requires the Company to make assumptions about the volume and characteristics of many attributes, including assumptions relating to the replacement of maturing earning assets and liabilities. Other assumptions include, but are not limited to, projected prepayments, projected new volume, and the predicted relationship between changes in market interest rates and changes in customer account balances. These effects are combined with the Company's estimate of the most likely rate environment to produce a forecast for the next twelve months. The forecasted results are then compared to the effect of a gradual 200 basis point increase and decrease in market interest rates on the Company's net interest income and net income. Because assumptions are inherently uncertain, the model cannot precisely estimate net interest income or net income or the effect of interest rate changes on net interest income and net income. Actual results could differ significantly from simulated results.

At December 31, 2009, the model indicated that if rates were to gradually increase by 200 basis points over the next twelve months, then net interest income (TE) and net income would increase 1.5% and 6.7%, respectively, compared to forecasted results. The model indicated that if rates were to gradually decrease by 200 basis points over the next twelve months, then net interest income (TE) and net income would decrease 2.7% and 12.5%, respectively, compared to forecasted results.

In the current relatively low interest rate environment, it is not practical or possible to reduce certain deposit rates by the same magnitude as rates on earning assets. The average rate paid on many of the Company's deposits is below 2%. This situation magnifies the model's predicted results when modeling a decrease in interest rates, as earning assets with higher yields have more of an opportunity to reprice at lower rates than lower-rate deposits."

Farmers Capital Bank, 2009 annual report

The disclosure defines and scopes the risk as well as providing basic information on the parties responsible to monitor and manage interest rate risk. The disclosure lacks clarity when discussing the simulation model used to evaluate interest rate risk and related results.

Sample market risk management disclosure scores three:

"Market Risk Management

Market risk is the risk that values of assets and liabilities or revenues will be adversely affected by changes in market conditions such as market movements. This risk is inherent in the financial instruments associated with our operations and/or activities including loans, deposits, securities, short-term borrowings, long-term debt, trading account assets and liabilities, and derivatives. Market-sensitive assets and liabilities are generated through loans and deposits associated with our traditional banking business, customer and other trading operations, the ALMprocess, credit riskmitigation activities and mortgage banking

activities. In the event of market volatility, factors such as underlying market movements and liquidity have an impact on the results of the Corporation.

Our traditional banking loan and deposit products are nontrading positions and are generally reported at amortized cost for assets or the amount owed for liabilities (historical cost). However, these positions are still subject to changes in economic value based on varying market conditions, primarily changes in the levels of interest rates. The risk of adverse changes in the economic value of our nontrading positions is managed through our ALM activities. We have elected to account for certain assets and liabilities under the fair value option. For further information on the fair value of certain financial assets and liabilities, see Note 22 – Fair Value Measurements to the Consolidated Financial Statements.

Our trading positions are reported at fair value with changes currently reflected in income. Trading positions are subject to various risk factors, which include exposures to interest rates and foreign exchange rates, as well as mortgage, equity, commodity, issuer and market liquidity risk factors. We seek to mitigate these risk exposures by using techniques that encompass a variety of financial instruments in both the cash and derivatives markets.

The following discusses the key risk components along with respective risk mitigation techniques.

Foreign Exchange Risk

Foreign exchange risk represents exposures to changes in the values of current holdings and future cash flows denominated in other currencies. The types of instruments exposed to this risk include investments in non-U.S. subsidiaries, foreign currency-denominated loans and securities, future cash flows in foreign currencies arising fromforeign exchange transactions, foreign currency-denominated debt and various foreign exchange derivative instruments whose values fluctuate with changes in the level or volatility of currency exchange rates or non-U.S. interest rates. Hedging instruments used to mitigate this risk include foreign exchange options, currency swaps, futures, forwards, foreign currency-denominated debt and deposits.

Mortgage Risk

Mortgage risk represents exposures to changes in the value of mortgage related instruments. The values of these instruments are sensitive to pre-payment rates, mortgage rates, agency debt ratings, default, market liquidity, other interest rates, government participation and interest rate volatility. Our exposure to these instruments takes several forms. First, we trade and engage in market-making activities in a variety of mortgage securities including whole loans, pass-through certificates, commercial mortgages, and collateralized mortgage obligations (CMOs) including CDOs using mortgages as underlying collateral. Second, we originate a variety of MBS which involves the accumulation of mortgage-related loans in anticipation of eventual securitization. Third, we may hold positions in mortgage securities and residential mortgage loans as part of the ALM portfolio. Fourth, we create MSRs as part of our mortgage origination activities. See Note 1 – Summary of Significant Accounting Principles and Note 25 – Mortgage Servicing Rights to the Consolidated Financial Statements for additional information on MSRs. Hedging instruments used to mitigate this risk include foreign exchange options, currency swaps, futures, forwards and foreign currency-denominated debt.

Equity Market Risk

Equity market risk represents exposures to securities that represent an ownership interest in a corporation in the form of domestic and foreign common stock or other equity-linked instruments. Instruments that would lead to this exposure include, but are not limited to, the following: common stock, exchange-traded funds, American Depositary Receipts, convertible bonds, listed equity options (puts and calls), over-the-counter equity options, equity total return swaps, equity index futures and other equity derivative products. Hedging instruments used to mitigate this risk include options, futures, swaps, convertible bonds and cash positions.

Commodity Risk

Commodity risk represents exposures to instruments traded in the petroleum, natural gas, power and metals markets. These instruments consist primarily of futures, forwards, swaps and options. Hedging instruments used to mitigate this risk include options, futures and swaps in the same or similar commodity product, as well as cash positions.

Issuer Credit Risk

Issuer credit risk represents exposures to changes in the creditworthiness of individual issuers or groups of issuers. Our portfolio is exposed to issuer credit risk where the value of an asset may be adversely impacted by changes in the levels of credit spreads, by credit migration or by defaults. Hedging instruments used to mitigate this risk include bonds, credit default swaps and other credit fixed-income instruments.

Trading Risk Management

Trading-related revenues represent the amount earned from trading positions, including market-based net interest income, in a diverse range of financial instruments and markets. Trading account assets and liabilities and derivative positions are reported at fair value. For more information on fair value, see Note 22 – Fair Value Measurements to the Consolidated Financial Statements. Trading-related revenues can be volatile and are largely driven by general market conditions and customer demand. Trading-related revenues are dependent on the volume and type of transactions, the level of risk assumed, and the volatility of price and rate movements at any given time within the ever-changing market environment.

The Global Markets Risk Committee (GRC), chaired by the Global Markets Risk Executive, has been designated by ALMRC as the primary governance authority for Global Markets Risk Management including trading risk management. The GRC's focus is to take a forward-looking view of the primary credit and market risks impacting GBAM and prioritize those that need a proactive risk mitigation strategy. Market risks that impact lines of business outside of GBAM are monitored and governed by their respective governance authorities.

The GRC monitors significant daily revenues and losses by business and the primary drivers of the revenues or losses. Thresholds are in place for each of our businesses in order to determine if the revenue or loss is considered to be significant for that business. If any of the thresholds are exceeded, an explanation of the variance is provided to the GRC. The thresholds are developed in coordination with the respective risk managers to highlight those revenues or losses that exceed what is considered to be normal daily income statement volatility.

The histogram below is a graphic depiction of trading volatility and illustrates the daily level of trading-related revenue for the twelve months ended December 31, 2010, as compared with the twelve months ended December 31, 2009. During the twelve months ended December 31, 2010, positive trading-related revenue was recorded for 90 percent of the trading days of which 75 percent were daily trading gains of over $25 million, four percent of the trading days had losses greater than $25 million and the largest loss was $102 million. This can be compared to the twelve months ended December 31, 2009, where positive trading-related revenue was recorded for 88 percent of the trading days of which 72 percent were daily trading gains of over $25 million, six percent of the trading days had losses greater than $25 million and the largest loss was $100 million.

Level 1, 2 and 3 Valuation Techniques

Financial instruments are considered Level 1 when the valuation is based on quoted prices in active markets for identical assets or liabilities. Level 2 financial instruments are valued using quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or models using inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Financial instruments are considered Level 3 when their values are determined using pricing models, discounted cash flow methodologies or similar techniques, and at least one significant model assumption or input is unobservable and when determination of the fair value requires significant management judgment or estimation. The Corporation uses market indices for direct inputs to certain models where the cash settlement is directly linked to appreciation or depreciation of that particular index (primarily in the context of structured credit products). In those cases, no material adjustments are made to the index-based values. In other cases, the use of market indices is inherently limited because the fair value of an individual position being valued may not move in tandem with changes in fair value of a specific market index. Accordingly, market indices are used as inputs to the valuation, but are adjusted for trade specific factors such as rating, credit quality, vintage and other factors.

Histogram of Daily Trading-related Revenue

To evaluate risk in our trading activities, we focus on the actual and potential volatility of individual positions as well as portfolios. VaR is a key statistic used to measure market risk. In order to manage day-to-day risks, VaR is subject to trading limits both for our overall trading portfolio and within individual businesses. All limit excesses are communicated to management for review.

A VaR model simulates the value of a portfolio under a range of hypothetical scenarios in order to generate a distribution of potential gains and losses. VaR represents the worst loss the portfolio is expected to experience based on historical trends with a given level of confidence and depends on the volatility of the positions in the portfolio and on how strongly their risks are correlated. Within any VaR model, there are significant and numerous assumptions that will differ from company to company. In addition, the accuracy of a VaR model depends on the availability and quality of historical data for each of the positions in the portfolio. A VaR model may require additional modeling assumptions for new products that do not have extensive historical price data or for illiquid positions for which accurate daily prices are not consistently available.

AVaRmodel is an effective tool in estimating ranges of potential gains and losses on our trading portfolios. There are however many limitations inherent in a VaR model as it

utilizes historical results over a defined time period to estimate future performance. Historical results may not always be indicative …

Trading Portfolio Stress Testing

Because the very nature of a VaR model suggests results can exceed our estimates, we also "stress test" our portfolio. Stress testing estimates the value change in our trading portfolio that may result from abnormal market movements. Various scenarios, categorized as either historical or hypothetical, are regularly run and reported for the overall trading portfolio and individual businesses. Historical scenarios simulate the impact of price changes that occurred during a set of extended historical market events. Generally, a 10-business-day window or longer, representing the most severe point during a crisis, is selected for each historical scenario. Hypothetical scenarios provide simulations of anticipated shocks from predefined market stress events. These stress events include shocks to underlying market risk variables which may be well beyond the shocks found in the historical data used to calculate VaR. As with the historical scenarios, the hypothetical scenarios are designed to represent a short-term market disruption. Scenarios are reviewed and updated as necessary in light of changing positions and new economic or political information. In addition to the value afforded by the results themselves, this information provides senior management with a clear picture of the trend of risk being taken given the relatively static nature of the shocks applied. Stress testing for the trading portfolio is also integrated with enterprise-wide stress testing and incorporated into the limits framework. A process has been established to promote consistency between the scenarios used for the trading portfolio and those used for enterprise-wide stress testing. The scenarios used for enterprise-wide stress testing purposes differ from the typical trading portfolio scenarios in that they have a longer time horizon and the results are forecasted over multiple periods for use in consolidated capital and liquidity planning. For additional information on enterprise-wide stress testing, see page 72.

Enterprise-wide Stress Testing

As a part of our core risk management practices, we conduct enterprise-wide stress tests on a periodic basis to better understand earnings, capital and liquidity sensitivities to certain economic and business scenarios, including economic and market conditions that are more severe than anticipated. These enterprise-wide stress tests provide an understanding of the potential impacts from our risk profile to earnings, capital and liquidity, and serve as a key component of our capital management practices. Scenarios are selected by a group comprised of senior line of business, risk and finance executives. Impacts to each line of business from each scenario are then determined and analyzed, primarily leveraging the models and processes utilized in everyday management routines. Impacts are assessed along with potential mitigating actions that may be taken. Analysis from such stress scenarios is compiled for and reviewed through our Risk Oversight Committee (ROC), Asset Liability Market Risk Committee (ALMRC) and the Board's Enterprise Risk Committee, and serves to inform and be incorporated, along with other core business processes, into decision-making by management and the Board. We have made substantial investments to establish stress testing capabilities as a core business process."

Bank of America, 2010 annual report

The disclosure provides definitions to market risk and the influences of market risk. It presents the testing used and discusses the objectives of its use as well as the basis of valuation techniques. Results of testing are also illustrated in graphs and described narratively.

Sample market risk management disclosure scores two:

"Market Risk

Market risk is a broad term for the risk of economic loss due to adverse changes in the fair value of a financial instrument. These changes may be the result of various factors, including foreign exchange prices, commodity prices or equity prices. Financial instruments that are subject to market risk can be classified either as held for trading or held for purposes other than trading. Market risk excludes changes in fair value due to credit of the individual issuers of financial instruments.

BOK Financial is subject to market risk primarily through the effect of changes in interest rates on both its assets held for purposes other than trading and trading assets. The effects of other changes, such as foreign exchange rates, commodity prices or equity prices do not pose significant market risk to BOK Financial. BOK Financial has no material investments in assets that are affected by changes in foreign exchange rates or equity prices. Energy and agricultural product derivative contracts, which are affected by changes in commodity prices, are matched against offsetting contracts as previously discussed.

Responsibility for managing market risk rests with the Asset / Liability Committee that operates under policy guidelines established by the Board of Directors. The acceptable negative variation in net interest revenue, net income or economic value of equity due to a specified basis point increase or decrease in interest rates is generally limited by these guidelines to +/- 10%. These guidelines also set maximum levels for short-term borrowings, short-term assets, public funds, and brokered deposits, and establish minimum levels for un-pledged assets, among other things. Compliance with these guidelines is reviewed monthly.

Trading Activities

BOK Financial enters into trading activities both as an intermediary for customers and for its own account. As an intermediary, BOK Financial will take positions in securities, generally mortgage-backed securities, government agency securities, and municipal bonds. These securities are purchased for resale to customers, which include individuals, corporations, foundations and financial institutions. BOK Financial will also take trading positions in U.S. Treasury securities, mortgage-backed securities, municipal bonds and financial futures for its own account. These positions are taken with the objective of generating trading profits. Both of these activities involve interest rate risk.

A variety of methods are used to manage the interest rate risk of trading activities. These methods include daily marking of all positions to market value, independent verification of inventory pricing, and position limits for each trading activity. Hedges in either the futures or cash markets may be used to reduce the risk associated with some trading programs.

Management uses a Value at Risk ("VAR") methodology to measure the market risk inherent in its trading activities. VAR is calculated based upon historical simulations over the past five years using a variance / covariance matrix of interest rate changes. It represents an amount of market loss that is likely to be exceeded only one out of every 100 two-week periods. Trading positions are managed within guidelines approved by the Board of Directors. These guidelines limit the VAR to $3.7 million. At December 31, 2009, the VAR was $692 thousand. The greatest value at risk during 2009 was $3.6 million. The value at risk guideline was exceeded with appropriate approvals by management to take advantage of wide yields available on certain securities during the year.

BOK Financial Corporation, 2009 annual report

The disclosure provides definitions to the managed risk and related modelling techniques.

The underlying assumptions and results discussion lack clarity.

Sample market risk management disclosure scores one:

"Market risk is the risk of loss arising from adverse changes in the fair value of financial instruments due to changes in interest rates, exchange rates, and equity prices. Interest rate risk is our primary market risk and is the result of repricing, basis, and option risk. Repricing risk represents timing mismatches in our ability to alter contractual rates earned on interest-earning assets or paid on interest-bearing liabilities in response to changes in market interest rates. Basis risk refers to the potential for changes in the underlying relationship between market rates or indices, which subsequently result in a narrowing of the spread between the rate earned on a loan or investment and the rate paid to fund that investment. Option risk arises from the "embedded options" present in many financial instruments such as loan prepayment options or deposit early withdrawal options. These provide customers opportunities to take advantage of directional changes in interest rates and could have an adverse impact on our margin performance."

First Midwest Bancorp, 2010 annual report

The disclosure above presents basic information on the definition and scoping of their market risk, in addition to the factors that causes it, such as re-pricing and option risk.

Sample operational risk management disclosure scores three:

"Operational Risk Management. Operational risk represents the risk of loss resulting from the Company's operations, including, but not limited to, the risk of fraud by employees or persons outside the Company, the execution of unauthorized transactions by employees, errors relating to transaction processing and technology, breaches of the internal control system and compliance requirements, and business continuation and disaster recovery. This risk of loss also includes the potential legal actions that could arise as a result of an

operational deficiency or as a result of noncompliance with applicable regulatory standards, adverse business decisions or their implementation, and customer attrition due to potential negative publicity.

The Company operates in many different businesses in diverse markets and relies on the ability of its employees and systems to process a high number of transactions. Operational risk is inherent in all business activities, and the management of this risk is important to the achievement of the Company's objectives. In the event of a breakdown in the internal control system, improper operation of systems or improper employees' actions, the Company could suffer financial loss, face regulatory action and suffer damage to its reputation.

The Company manages operational risk through a risk management framework and its internal control processes. Within this framework, the Risk Management Committee of the Company's Board of Directors provides oversight and assesses the most significant operational risks facing the Company within its business lines. Under the guidance of the Risk Management Committee, enterprise risk management personnel establish policies and interact with business lines to monitor significant operating risks on a regular basis. Business lines have direct and primary responsibility and accountability for identifying, controlling, and monitoring operational risks embedded in their business activities. Business managers maintain a system of controls with the objective of providing proper transaction authorization and execution, proper system operations, safeguarding of assets from misuse or theft, and ensuring the reliability of financial and other data. Business managers ensure that the controls are appropriate and are implemented as designed.

Each business line within the Company has designated risk managers. These risk managers are responsible for, among other things, coordinating the completion of ongoing risk assessments and ensuring that operational risk management is integrated into business decision-making activities. The Company's internal audit function validates the system of internal controls through regular and ongoing risk-based audit procedures and reports on the effectiveness of internal controls to executive management and the Audit Committee of the Board of Directors. Management also provides various operational risk related reporting to the Risk Management Committee of the Board of Directors.

Customer-related business conditions may also increase operational risk, or the level of operational losses in certain transaction processing business units, including merchant processing activities. Ongoing risk monitoring of customer activities and their financial condition and operational processes serve to mitigate customer-related operational risk. Refer to Note 22 of the Notes to Consolidated Financial Statements for further discussion on merchant processing. Business continuation and disaster recovery planning is also critical to effectively managing operational risks. Each business unit of the Company is required to develop, maintain and test these plans at least annually to ensure that recovery activities, if needed, can support mission critical functions, including technology, networks and data centers supporting customer applications and business operations.

While the Company believes that it has designed effective methods to minimize operational risks, there is no absolute assurance that business disruption or operational losses would not occur in the event of a disaster. On an ongoing basis, management makes process changes and investments to enhance its systems of internal controls and business continuity and disaster recovery plans."

US Bancorp, 2010 annual report

The disclosure provides definition to the operational risks and identification to the factors that might cause those risks. It refers to the parties responsible to monitor and manage operational risks. The system of control used to detect and prevent operational risk is also illustrated.

Sample operational risk management disclosure scores two:

"Business Unit Risk Management: The Company's business units are responsible for identifying, acknowledging, quantifying, mitigating, and managing all risks arising within their respective units. They determine and execute their business strategies, which puts them closest to the changing nature of risks and they are best able to take the needed actions to manage and mitigate those risks. The business units are supported by the risk management organization that helps identify and consider risks when making business decisions. Management processes, structure, and policies are designed to help ensure compliance with laws and regulations as well as provide organizational clarity for authority, decision-making, and accountability. The risk governance structure supports and promotes the escalation of material items to executive management and the Board.

Independent Assurance Functions: Internal Audit, Credit Risk Assurance, and Model Validation provide an independent and objective assessment of the design and execution of the Company's internal control system, including management systems, risk governance, and policies and procedures. These groups' activities are designed to provide reasonable assurance that risks are appropriately identified and communicated; resources are safeguarded; significant financial, managerial, and operating information is complete, accurate, and reliable; and employee actions are in compliance with the Company's policies and applicable laws and regulations.

Operational risk is the risk of loss from inadequate or failed internal processes, people, and systems or from external events. This risk is inherent in all businesses. Operational risk is divided into the following risk areas, which have been established at the corporate level to address these risks across the entire organization:

• Business Continuity Planning/Records Management

• Compliance/Legal

• Program Governance

• Fiduciary

• Security/Internal and External Fraud

• Financial (including disclosure)

• Information Technology

• Vendor

Management, measurement, and reporting of operational risk are overseen by the Operational Risk, Fiduciary, and Financial Governance Committees. Key representatives from the business segments, operating units, and supporting units are represented on these committees as appropriate. These governance committees manage the individual operational risk types across the company by setting standards, monitoring activity, initiating actions, and reporting exposures and results. Summary reports of these Committees activities and decisions are provided to the Executive Risk Management Committee. Emphasis is dedicated to refinement of processes and tools to aid in measuring and managing material operational risks and providing for a culture of awareness and accountability."

First Horizon National, 2010 annual report

The roles and responsibilities to identify and manage operational risk are clearly defined in the disclosure. The causes of operational risk are also defined but lack clarity on how they are approached.

Sample operational risk management disclosure scores one:

"Operational Risk Management

We face ongoing and emerging risks and regulations related to the activities that surround the delivery of banking and financial products. Coupled with external influences such as market conditions, fraudulent activities, disasters, security risks, country risk, and legal risk, the potential for operational and reputational loss has increased significantly.

We believe that effective management of operational risk – defined as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events – plays a major role in both the level and the stability of the profitability of the institution. Our Operational Risk Management function oversees an enterprise-wide framework intended to identify, assess, control, quantify, monitor, and report on operational risks company wide. These efforts support our goals in seeking to minimize operational losses and strengthen our performance by optimizing operational capital allocation.

Operational Risk Management is overseen by our Chief Operational Risk Officer, who reports directly to the CRO. The corporate governance structure also includes a risk manager and support staff embedded within each line of business and corporate function. These risk managers also report indirectly to the Chief Operational Risk Officer and are responsible for execution of the Operational Risk Management program within their areas."

SunTrust Bank, 2009 annual report

The disclosure provides basic information on operational risk management. It states some of the external influences and refers to parties responsible to manage them without clarifying or detailing the control mechanisms used to detect or prevent identified operational risks.

Sample legal and compliance risk management disclosure scores three:

"The Firm's success depends not only on its prudent management of the liquidity, credit, market and operational risks that are part of its business risk, but equally on the maintenance among its many constituents—customers and clients, investors, regulators, as well as the general public—of a reputation for business practices of the highest quality. Attention to reputation has always been a key aspect of the Firm's practices, and maintenance of the Firm's reputation is the responsibility of each individual employee at the Firm. JPMorgan Chase bolsters this individual responsibility in many ways, including through the Firm's Code of Conduct, which is based on the Firm's fundamental belief that no one should ever sacrifice integrity—or give the impression that he or she has—even if one thinks it would help the Firm's business. The Code requires prompt reporting of any known or suspected violation of the Code, any internal Firm policy, or any law or regulation applicable to the Firm's business. It also requires the reporting of any illegal conduct, or conduct that violates the underlying principles of the Code, by any of our customers, suppliers, contract workers, business partners or agents. Concerns may be reported anonymously and the Firm prohibits retaliation against employees for the good faith reporting of any actual or suspected violations of the Code.

In addition to training of employees with regard to the principles and requirements of the Code, and requiring annual affirmation by each employee of compliance with the Code, the Firm has established policies and procedures, and has in place various oversight functions, intended to promote the Firm's culture of "doing the right thing". These include a Conflicts Office which examines wholesale transactions with the potential to create conflicts of interest for the Firm. In addition, each line of business has a risk committee which includes in its mandate oversight of the reputational risks in its business that may produce significant losses or reputational damage. In IB, there is a separate Reputation Risk Office and several regional reputation risk committees, members of which are senior representatives of businesses and control functions, that focus on transactions that raise reputational issues. Such transactions may include, for example, complex derivatives and structured finance transactions. The Firm also established this year a Consumer Reputational Risk Committee, comprised of senior management from the Firm's Operating Committee, including the heads of its primary consumer facing businesses, RFS and CS, that helps to ensure that the Firm has a consistent, disciplined focus on the review of the impact on consumers of Chase products and practices, including any that could raise reputational issues.

Fiduciary Risk Management

The Fiduciary Risk Management function works with relevant line of business risk committees, with the goal of ensuring that businesses providing investment or risk management products or services that give rise to fiduciary duties to clients perform at the appropriate standard relative to their fiduciary relationship with a client. Of particular focus are the policies and practices that address a business' responsibilities to a client, including performance and service requirements and expectations; client suitability determinations; and disclosure obligations and communications. In this way, the relevant line of business risk committees, together with the Fiduciary Risk Management function, provide oversight of the Firm's efforts to monitor, measure and control the performance and risks that may arise in the delivery of products or services to clients that give rise to such fiduciary duties, as well as those stemming from any of the Firm's fiduciary responsibilities under the Firm's various employee benefit plans.

JPMorgan Chase's accounting policies and use of estimates are integral to understanding its reported results. The Firm's most complex accounting estimates require management's judgment to ascertain the value of assets and liabilities. The Firm has established detailed policies and control procedures intended to ensure that valuation methods, including any judgments made as part of such methods, are well-controlled, independently reviewed and applied consistently from period to period. In addition, the policies and procedures are intended to ensure that the process for changing methodologies occurs in an appropriate manner. The Firm believes its estimates for determining the value of its assets and liabilities are appropriate. The following is a brief description of the Firm's critical accounting estimates involving significant valuation judgments.

Regarding the regulatory changes, we have some 70 projects and work teams fully staffed with lawyers; accountants; credit officers; compliance, systems and operations specialists; and bankers and traders analyzing and preparing for each of the new regulatory requirements. All in all, thousands of our people around the world are partially or fully engaged in these endeavors."

JP Morgan Chase & Co, 2010 annual report

The disclosure provides clear information on how the bank is addressing legal and compliance risk. It discusses the preventive activities such as employees training, policies and procedures and oversight functions and the parties responsible to manage such risk. It also mentions that regulatory changes are being followed-up by a team of specialist to ensure compliance.

Sample legal and compliance risk management disclosure scores two:

"Compliance Risk

Financial institutions are subject to a myriad of laws, rules and regulations emanating at both the Federal and State levels. These mandates cover a broad scope, including but not limited to, expectations on anti-money laundering, lending limits, client privacy, fair lending, community reinvestment and other important areas. Recently, the volume and complexity of regulatory changes adds to the overall compliance risk. At Huntington, we take these mandates seriously and have invested in people, processes and systems to help ensure we meet expectations. At the corporate level we have a team of compliance experts and lawyers dedicated to ensuring our conformance. We provide, and require, training for our colleagues on a number of broad-based laws and regulations. For example, all of our employees are expected to take, and pass, courses on anti-money laundering and customer privacy. Those who are engaged in lending activities must also take training related to flood disaster protection, equal credit opportunity, fair lending and / or a variety of other courses related to the extension of credit. We set a high standard of expectation for adherence to compliance management and seek to continuously enhance our performance in this regard.

In light of recent announcements regarding alleged irregularities in the mortgage loan foreclosure processes of certain high volume loan servicers, state law enforcement authorities, the United States Department of Justice, and other federal agencies have stated they are investigating mortgage servicers foreclosure practices, and private litigation over such practices has begun to appear in the courts. Those investigations, as well as any other governmental or regulatory scrutiny of foreclosure processes and private litigation, could result in fines, penalties, damages, or other equitable remedies and result in significant legal costs in responding to possible governmental investigations and litigation. Compared to the high volume servicers, we service a relatively low volume of residential mortgage foreclosures, with approximately 3,100 foreclosure cases as of December 31, 2010, in states that require foreclosures to proceed through the courts. In response to industry-wide issues involving mortgage loan foreclosure irregularities, we conducted a review in October 2010 of our residential foreclosure process, focusing on the accuracy of completed foreclosure affidavits in pending foreclosure proceedings and the steps taken by us to ensure this documentation was properly reviewed and validated prior to filing the affidavit in the foreclosure proceeding. As a result of our review, we have determined that we do not have any significant issues relating to so-called "robo-signing", and that foreclosure affidavits were completed and signed by employees with personal knowledge of the contents of the affidavits. There is no reason to conclude that foreclosures were filed that should not have been filed. Additionally, we have identified and are strengthening processes and controls to ensure that affidavits are prepared in compliance with applicable state law. We consult with local foreclosure counsel, as necessary, with respect to additional requirements imposed by the courts in which foreclosure proceedings are pending."

Huntington Bancshares, 2010 annual report

The disclosure lists and discusses the causes of legal and compliance risk. It also refers to the approach followed to manage specific compliance issues such as foreclosure documentation, but there is no reference to the parties or committees responsible to monitor and manage legal and compliance risk or the presence of a system of controls to prevent or detect them.

Sample legal and compliance risk management disclosure scores one:

> "COMPLIANCE RISK
>
> Compliance risk represents the risk of regulatory sanctions, reputational impact or financial loss resulting from the Company's failure to comply with rules and regulations issued by the various banking agencies and standards of good banking practice. Activities which may expose First Financial to compliance risk include, but are not limited to, those dealing with the prevention of money laundering, privacy and data protection, community reinvestment initiatives, fair lending challenges resulting from the Company's expansion of its banking center network and employment and tax matters."
>
> *First Financial Bancorp, 2010 annual report*

The disclosure defines compliance risk and lists the activities that might expose the bank to legal and compliance risk without any further clarification.

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