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**Integration of Arab Capital Markets in Light of the
2006 Market Corrections**

By

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Masters in Business Administration**

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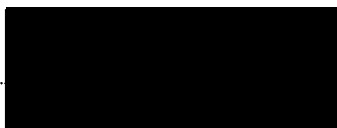
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To My Father

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Integration of Arab Capital Markets in Light of the 2006 Market Corrections

Abstract

By

Mireille Bogharian

Arab capital markets have gained momentum since the turn of the century ignited by high oil prices and excess liquidity. In 2006, however, market corrections took place and financial contagion was observed in different Arab countries. The objective of this study is to explore if the capital markets of MENA in general and the GCC countries in particular are integrated inter-regionally and intra-regionally with world developed capital markets. Using daily market price indices over the period 2000-2006 and the Johansen co-integration methodology, the findings reveal that GCC capital markets have a low degree of integration, and that MENA markets as a whole show a moderate level of integration. At the global level, MENA and GCC capital markets are segregated from developed markets, presenting opportunities for risk diversification to international investors. In order to pave the way for the GCC currency integration in 2010, it is recommended that Arab countries liberalize capital markets and set-up a common regulatory framework for harmonizing investing rules, listing requirements, and clearing systems across markets.

CHAPTER ONE

INTRODUCTION

In an era of globalization, world capital markets underwent dramatic changes and are becoming more integrated in response to financial deregulation and the removal of barriers to foreign investments. New forms of capital market integration include cross memberships, e-trading, cross listings, cross remote memberships, cross border deals, domestic mergers (vertical and horizontal integration) and consolidations of markets. Some examples are OMX which harmonized exchanges from Nordic and Baltic countries (Copenhagen, Stockholm, Helsinki, Iceland, Riga, Tallinn and Vilnius) and NYSE-EURONEXT which merged the markets of Amsterdam, Portuguese, Brussels, New York, Paris and London International Financial Futures and Options Exchange. Financial integration is facilitated by advances in telecommunications and information technologies, enabling capital market participants to access a wider range of information. In addition, markets integration is influenced by the removal of barriers and free flow of capital between markets (Narayan et al, 2004) and by the economic and financial policies followed by the countries (Bekaert and Harvey, 1995).

Financial market integration has both positive and negative aspects. The direct and indirect potential benefits lead to higher welfare and growth. According to Agenor (2001), with wider access to capital markets, investors can diversify their portfolio and countries can easily borrow and smooth consumption. Further, this will result in an efficient allocation of savings and investments. The increased competition in the markets decreases the cost of capital and decreases information and transaction costs. In addition, integrated capital markets extend the benefits of international trade and economic integration. However, policymakers and economists recognize

that the increase in financial integration may generate certain risks. Excessive financial linkages between countries decrease the opportunities for portfolio diversification and increase the transmission of fallacious valuations and adverse shocks from one country to another (Agenor, 2001). This transmission of shock is also known as “contagion” effects. In this vein, capital market integration is of considerable importance for investors and policy makers. Financial integration has to be well managed to ensure that the benefits exceed the risks. Prudent supervision, adequate regulation and macroeconomic management are prerequisites to maximize the benefit from financial integration and to cope with adverse market shocks (Agenor, 2001).

With respect to the Arab region, GCC countries are strengthening economic and financial coordination among the six members. Starting 2000, the Arab world witnessed an unprecedented economic boom ignited by high oil prices and excess liquidity. This economic growth was positively reflected on the Arab capital markets which provided new investment channels for the increased petrodollar wealth. The lucrative profits drove millions of small investors including women to invest in the Arab capital markets (www.arabnews.com, 2006). For six consecutive years, Arab capital markets boomed simultaneously across different countries and attained peak levels in 2005 and 2006.

The history of international capital markets includes incidents of bubbles, bursts, and turbulent capital market performance. To illustrate, there were a series of major crises in developed markets during the 20th century; the 1973-74 crisis was preceded by quadrupled oil prices; the 1980-81 crisis was preceded by increase in gold prices and doubling of oil prices; the 1987 crisis was set off by high trade deficits and takeover of related legislations; and the 1990 US dot com market bubble resulted from speculation on the Internet sector. These events seem to imply that stock market crises eventually break out.

In line with international experiences, Arab capital markets reached a turning point following the solid six-year upward run when a series of corrections took place in 2006. Starting in the end of

February 2006, Arab stock markets entered into a harsh readjustment phase that continued all throughout the year (www.gulfeconomist.com, 2007). The decline started with the drop of the largest market in the region, the Saudi market, and triggered declines in most of the other Arab markets. Specifically, March 14th of 2006 turned into a “Black Tuesday” for most Arab markets. In this single day, the Shuaa index posted sharp drops for UAE (9.29%), Saudi Arabia (4.74%), Kuwait (4.52%), Jordan (3.17%) and mild drops for market prices of Bahrain (2.52%), Qatar (2.25%), Morocco (1.43%), Lebanon (1.02) and Egypt (0.10%). Only the market prices of Tunis and Oman recorded a slight increase of 0.75% and 1.9% respectively (www.shuaacapital.com, 2006). The declines were considered as an overdue correction for the overvalued Arab capital markets (<http://weekly.ahram.org>, 2007).

Following this decline, Arab capital markets faced several downward adjustment waves up to the date of the study. In May 2006, most of the Arab capital markets had another severe price adjustment. This second markets’ slide was driven mainly by the regional political situation especially with the Iranian nuclear confrontation (IIF GCC Summary Appraisal, August 2006). Besides, markets were still suffering from ongoing speculation, limited number of institutional investors, and lack of transparency. In July 2006, Arab market indices fell for a short period when the Lebanese war started and concerns were raised about the Middle East political situation (www.gulf-times.com, 2006). In November 2006, another decline was triggered in most of the Arab markets when Kuwait penalized firms for violating disclosure probe and cancelled several contracts, and after the Saudi market switched into a single trading session and scrapped evening trading. In December 2006, Saudi Arabia suffered its sharpest decline with the government’s’ decision to revoke major contracts of logistics. This sent shockwaves to other capital markets in Qatar, Bahrain and Kuwait.

These events show co-movements in the prices of most of the Arab capital markets. There was an observed contagion across the Arab markets which translated any decrease in one market into a decline in another with different degrees of severity. Yet, there is an absence of explicit formal

integration procedures and agreements among Arab markets such as mergers, cross memberships, alliances, joint ventures and harmonized rules and regulations. If Arab capital markets are segmented, the observed contagion cannot result from a high degree of financial integration among them. A question arises about the degree of long term market price co-movements among different Arab capital markets in the absence of formal agreements of financial integration.

Further, the GCC countries are planning for the establishment of a currency union by 2010. Empirical studies show that currency unification is more successful under capital market integration (Bowe and Mylondism, 1999). Therefore, the establishment of a currency union in the GCC region can be facilitated in the presence of capital market integration.

There is a vast literature on capital market integration and stock price co-movements in the developed markets and some recent studies cover market integration in emerging countries¹. With respect to integration in Arab capital markets, the issue was long neglected in the academic literature before the year 2000, despite the importance of the region from economic and political perspectives. Also, the few recent empirical research present contradicting evidence on integration among MENA capital markets. While some studies provide evidence of weak integration among Arab markets (Neaime (2002), Gunduz and Omran (2000)). Other studies report supporting evidence of integration among MENA capital markets (Darrat et al. (2000), Hasan (2003), Maghyreh and Zoubi (2004), Marashdeh (2005), Saadi Sedik and Petri (2006)).

However, these studies generally focused on financial linkages in Arab or MENA markets only during periods of expansion that are characterized by a consistent record of positive performance for stock markets. This study attempts to add to the literature by studying the degree

¹ For the literature on developed markets, see for example King and Wadhani (1990), Joen and Von Furstenberg (1990), Arshanapalli and Doukas (1993), Eun and Shim (1989), and Kasa (1992). For the literature on emerging markets, see for example Cha et al (2000), Chen et al. (2002), Masih and Masih (1998), Roca et al (1998).

of integration among Arab capital markets that experienced both expansion and market corrections. By including a major correction phase in Arab markets, the study attempts to shed more light on the reality of financial market integration in the Arab world.

Further, the research contributes to the existing literature by investigating capital market integration using a larger sample compared to previous studies. Eleven Arab capital markets are selected and daily market indices are retrieved for the period between 2000 and 2006. The countries are grouped into three categories: GCC (Bahrain, Kuwait, Oman, Saudi Arabia, Qatar and United Arab Emirates), North Africa (Egypt, Morocco and Tunisia), and MENA (GCC, North Africa, Jordan, and Lebanon). Data for all eleven Arab market prices were obtained from Shuaa Capital (PJSC), a leading investment banking institution in the Arab region. In contrast, most previous studies used indices obtained from individual capital markets, possibly biasing the results due to non-comparability methodology, coverage, and sample selection of stock market indices.

Besides examining regional financial integration in the Arab world, this research investigates integration of Arab markets with developed markets. This issue has not been thoroughly explored following globalization and deregulation trends. Most of the Arab countries have traditionally had capital controls and restrictions on foreign investments. Recently, however, most Arab countries have adopted several reforms to liberalize capital markets and foreign investment, in line with World Trade Organization accession requirements. The absence of financial linkages and stock market price co-movements means that there is no long run impact from world markets on Arab markets. In line with the existing literature ((Chen et al (2002), Fraser et al (2005))), this would suggest opportunities for portfolio diversification for international investors in the Arab markets.

The results provide evidence of weak integration among GCC capital markets and do not support market segmentation among them. The contagion effect observed throughout the year 2006 is accounted for empirically and can be explained by the speculative behavior of Arab investors in capital markets that are mostly dominated by financial firms. At the international level, the findings do not provide evidence of long term relationships between Arab capital markets and world developed markets.

The study is structured as follows. Chapter two examines the implications of financial integration. Chapter three reviews the literature related to financial integration. Chapter four presents recent developments in Arab capital markets. Chapter Five describes the data and explains the methodology adopted in the study. Chapter Six analyzes the empirical results. Chapter Seven sums up the main findings of the study and concludes with policy implications.

CHAPTER TWO

BACKGROUND ON FINANCIAL INTEGRATION

This chapter presents a pertinent background on financial integration. Section 2.1 overviews the general notion of financial integration in capital markets. Section 2.2 discusses the potential benefits of financial integration and section 2.3 points the caveats of financial integration.

2.1 Notion of Financial Integration

Compared to a decade ago, world financial markets are nowadays significantly more integrated. Financial integration is facilitated by market liberalizations and advances in telecommunications and information technologies. As the pace of globalization increases, integration in its different forms being monetary, economic or financial has become a concern for many governments as well as researchers in order to reap its potential benefits. But what is integration?

The concept of integration is broad and still has no formal definition. Monetary integration is the arrangement between countries to maintain a fixed exchange rate and remove restrictions on regional payments to reduce currency risk. Economic integration, in turn, is accomplished through one or aggregate of six phases. In the first phase, countries define a specific trading area between each other before setting up a complete free trading area. In the second phase, countries form a customs union and then, in the third phase, they form a common market. All of these pave the way for both economic and monetary union in the fourth and the fifth phases respectively. Finally, in the last phase a perfect economic integration is created.

According to Baele et al. (2004), financial integration is achieved when all market participants in a region are subject to identical rules, have equal rights to use financial products and services, and are treated uniformly in the market. Kose et al. (2003) view financial integration as an individual country's linkages to international markets through capital account liberalization and cross-border capital flows.

As for the direction of the relationship between financial and economic integration, it remains an open question. Noyer (2000) states that important recent policy initiatives such as the European Monetary Union (EMU) have driven financial integration and contributed further to economic integration, first at the regional level and then at the global level. An empirical study by Phylaktis and Ravazzolo (2002) covering nine markets of the Pacific Basin shows that financial integration and economic integration go along with each other. The creation of trading blocks such as Association of Southeast Nations (ASEAN), the European Union (EU) and the development of economic systems like the European Monetary Union (EMU) promote close linkages of capital markets among the member countries.

Capital markets integration occurs when individual equity prices in different countries exhibit long run relationships with each other. This implies that price movements in one capital market impact the prices in another capital market. Another common perception is that if two or more markets are co-integrated, it is possible to predict price movements in one market that may be caused by price changes in another market. Stulz (1981) considers capital markets being integrated "if assets with perfectly correlated returns have the same price, regardless of the location in which they trade."

2.2 Potential Benefits of Financial Integration

Long run and short run benefits from financial integration can be realized for individual market participants, for the community of participants and for the economy as a whole. Section 2.2.1 discusses the long run benefit of financial integration or financial development and economic growth and section 2.2.2 reviews the short run benefits including improved capital allocation and economies of scale, risk reduction, and foreign direct investment.

2.2.1 Financial Development and Economic Growth

Financial development and economic development are so entangled that the direction of causality is difficult to determine and remains a dispute up to this date. According to Levine (2001), financial integration can promote domestic financial market development leading to higher economic growth. Financial integration fosters financial efficiency and stability, enhancing financial development. In turn, financial development promotes economic growth in the long run.

In the last decade, the role of capital markets was enhanced with market liberalization. The literature has established that capital market development contributes to more efficient integration within a region and with the world economy. It provides liquidity, risk management through hedging techniques, pooling and diversifying risk, efficiently allocating scarce resources, strengthening corporate governance, mobilizing savings, facilitating trade in goods and services, reducing transaction and information costs and boosting technological innovation.

2.2.2 Capital Allocation and Economies of Scale

Financial integration allows for better allocation of resources. More specifically, integrated markets improve the efficient allocation of savings and investments (Kose et al., 2003). With expanded markets, there are few or no frictions or exchange barriers for trading and clearing and settlement systems. This allows capital to flow to where the returns are expected to be the highest and investors to choose among efficient investments. Accordingly, capital is allocated to the most productive investments and firms choose the most efficient sources of funds. Wurgler (2000) finds that deeper financial sectors allocate capital efficiently in the sense that capital tends to flow to growing industries. Obstfeld (1994) and Acemoglu and Zilibotti (1997) show that financial integration enhances production specialization, capital allocation and economic growth.

According to Trichet (2006), another benefit of financial integration is the realization of economies of scale. Larger supply of funds available from integrated markets increases liquidity. This places competitive pressures on exchanges and intermediaries to reduce transaction costs and stimulate innovations, resulting in economies of scale.

2.2.3 Risk Reduction

Risk Reduction and diversification is at the core of the modern portfolio management theory and a major concern for investors. An analysis of long run co-movements of stock prices and their short run relationships to determine the degree of the integration of a market with regional markets and with the global markets is important for international risk management and portfolio constructions. By adding new financial instruments and allowing for cross ownership of assets, financial integration reduces idiosyncratic risk and country specific risk (Townsend,

1994). From the standpoint of the country, consumption volatility and national shocks are smoothed by international risk sharing mainly because of the increase in the ties between national financial systems and the greater sophistication of international financial markets and its instruments (Agenor, 2001). Hence, consumption is smoothed when a country is able to borrow during a recession or downturn in trades and to lend in periods of expansion. Bekaert et al. (2002) examine the effect of market liberalizations on output and consumption volatility. Their results show that equity market liberalizations reduce volatility in output and consumption, and that the benefits are higher for developing and emerging countries than for developed economies.

A recent study by Giannone and Reichlin (2006) analyzes the risk sharing implications of the European integration using different regression models. They report an increase in the extent of risk sharing among European countries during the early 1990s, when financial integration in Europe started gaining momentum. The results are stronger for longer horizons implying that countries have used financial markets more effectively to insure against more persistent shocks. Contradicting the above results, Kasa (1992) and Manning (2002) argue that co-integration between equity indices allows for possible gains from diversification in the short term but not in the long term.

2.2.4 Foreign Direct Investment

Patterson (2004) reports that inward Foreign Direct Investment (FDI) grew strongly in the 1990s with the integration of international capital markets at rates above those of the world economic growth. The IMF (2003) recorded an average annual increase of 13 percent in FDI during 1990-1997, and after cross border mergers and acquisitions, FDI increased to an average of 50 percent a year during 1998-2000. The net foreign capital inflows in the form of FDI

supplements domestic savings, leads to higher rates of capital accumulation and increases the prospects of economic growth. Again, this has higher implications for developing economies as their capacity of savings is constrained by low levels of income (Agenor, 2001).

2.3 Caveats of Financial Integration

Policymakers and economic analysts argue that the above mentioned benefits may carry with them notable costs depending on the financial structure of the country. Some of these costs include hampering economic growth, generation and transmission of shocks, misallocation of capital, and macroeconomic imbalances.

The nexus between financial integration and economic growth still continues to be one of the most pondering issues among researchers. Arguments against the economic wisdom of openness to global capital flows consider that financial integration may not be welfare enhancing in the presence of other distortions. These deformations can be trade barriers, weak institutions, or information asymmetries that influence the appropriate performance of financial markets (Stiglitz, 2000).

Others contend that excessive financial deepening may inhibit financial crises with the lack of legal and regulatory infrastructure, making markets more prone to asymmetric shocks (Krugman, 1993). Financial integration increases the exposure to real and financial shocks and increases the risk that abrupt capital reversals may translate into large scale economic disruption (Agenor, 2001). Several studies of financial integration prove huge risks even for developed markets since they are more vulnerable to shocks in integrated global markets (Stiglitz, 2002). Volatility of capital flows may also result in contagion when a country suffers capital outflows as investors lose confidence in the country's economic prospects (Masson, 1999).

In addition, in the presence of a weak banking system and of poor regulations of the financial system, capital inflows can be misallocated. This is the case if capital inflows are used to finance speculative domestic investments (Agenor, 2001). The problem is compounded with asymmetric information available to the foreign investor.

Furthermore, the increased market volatility resulting from the free flow of capital creates difficulty for countries to have a balanced and planned economic development. Macroeconomic instability is created with the expansion of money supply, inflation, exchange rate disparity and broadened external imbalances like the current account deficit (Agenor, 2001).

To assure that benefits outweigh short run risks, financial integration must be carefully supervised. According to Agenor (2001), in order to reap the benefits of financial integration, certain supporting conditions should be met, like establishing an efficient market system and enforcing institutional quality, macro policy control, and trade openness. Kose et al (2006) argue that "financial integration should be approached cautiously, with good institutions and macroeconomic frameworks viewed as important". According to Mendoza et al (2007), financial integration could have welfare costs for countries with poorly developed financial systems and even larger costs for the poorer citizens. In addition, for effective integration, countries should overcome direct and indirect barriers as legal differences in tax systems, company law, securities exchange laws, cross border listings and settlement systems, information asymmetry, and foreign exchange risk.

In this chapter, financial integration is introduced as the increase in synchronization of financial institutions and capital markets. Financial integration provides the member countries with many benefits such as financial development, economic growth, decrease in cost of capital

and risk reduction. However, along with the benefits, a country may suffer from some costs if financial integration is not well implemented and supervised. The next chapter reviews the literature on financial integration in different regions.

CHAPTER THREE

LITERATURE REVIEW

This chapter reviews the literature on financial integration. The first three sections discuss the record of financial integration in each of developed markets (section 3.1), emerging markets (section 3.2) and in the MENA markets (section 3.3). Section 3.4 overviews studies covering financial integration and contagion effects.

3.1 Financial Integration in Developed Capital Markets

Although the degree of financial integration in capital markets increased significantly with the recent wave of globalization, the literature on financial integration is not new and dates back to the late 1960s. It is worth noting that most of the researchers traditionally were concerned with dynamic linkages among mature and developed world capital markets of the US, UK, France, Germany, Japan and other OECD² countries.

The earliest study by Grubel (1968) points out the benefits of international diversification, and was followed by similar studies like Sarnat (1970) and Hilliard (1979). Using weekly or monthly data of stock market indices from the 1960's and 1970's, these studies relied on simple correlations and regression techniques to test for the short term benefits of international portfolio diversification. Most of the empirical evidence showed little or no correlation among stock markets and offered possibilities for international diversification. The

² Organization for Economic Co-operation and Development (OECD) consists of 30 member countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

reasons attributed to these low dynamics were the barriers to capital flows, different tax policies, higher transaction costs and information asymmetries.

Later, many studies used econometric techniques like the Vector Autoregressive (VAR) model to measure both short run and long run co-movements in equity prices (Eun and Shim (1989), Meric and Meric (1989) and Jeon Von and Furstenberg (1990), and Koch and Koch (1991)).

Using for the first time the Johansen multivariate co-integration technique and monthly and quarterly data from 1974 until mid 1990, Kasa (1992) investigates among five major international stock markets (US, UK, Canada, German, and Japan). This study demonstrates a common trend in the studied markets and therefore implying limited gains for diversification. Similarly, Choudhary (1994) test the stochastic structure of individual stock markets of US, UK, Japan, Italy, France, Canada and Germany. Using the Johansen technique for integration, their study supports the efficient market hypothesis and shows that all stock indices over the period of 1953-1989 contain a long-term permanent stochastic trend that makes long run predictions impossible.

A recent study by Floros (2005) presents an empirical analysis of the relationship among the markets of US, Japan and the UK using S&P 500, Nikkei 225 and FTSE-100 as market proxies. The results indicate that these markets are mature and possess limited opportunities for investors to diversify their risk.

Compared to the studies from the 1960's and 1970's, recent studies on developed markets report a considerable amount of interdependence among stock markets. Such observable facts can be explained as the result of the removal of barriers for foreign investment, improvements in information technology, and increased trade among countries.

3.2 Financial Integration in Emerging Capital Markets

The recent literature started to include studies on financial integration in developing and emerging markets (Summers, 2000). Mainly, interest in emerging markets stemmed after recognizing the potential benefits that these markets provide for international investors and fund managers in terms of portfolio optimization. This can be attributed mostly to the segmentation of emerging markets from world markets, the increased correlations among developed market returns and the underperformance of US markets for continuous years. Bekaert and Harvey (1997) find that adding emerging markets to a diversified portfolio reduces total portfolio volatility by six percent while expecting the same returns. Only when these markets become mature do their exposure to other world capital markets instability increases and the potentials for diversifying global portfolios diminishes.

Chan et al. (1992) explore the relationship among the emerging Asian equity markets using bivariate co-integration tests. None of the studied markets are found to be co-integrated. A later study by Chan et al. (1997) examines eighteen countries from Asia, North America, and Europe besides Australia and shows that co-integration prevails in only few stock markets. The study concludes that diversification among these stock markets is possible as they do not reveal long-run price co-movements.

Extending the existing research to include both emerging and developed markers, Yang et al. (2004) find weak linkages among Pacific Basin emerging markets and with the US and Japan's developed markets. A study by Harvey (2000) shows that the diversification benefits in emerging markets decreases as their properties gets closer to developed markets standards. Mainly, macroeconomic imbalances and the currency crises experienced in the emerging markets

of Asia and Latin America made these markets more economically and financially integrated with global markets.

3.3 Financial Integration in Middle East and North Africa (MENA) Capital Markets

Researchers have long overlooked the MENA region. Among the various reasons for this lack of interest was the insufficiency of accurate and detailed data for the observed markets. Only after 2000, few empirical works in this field emerged as Arab markets showed some signs of development and increased liberalization. Some studies supported the existence of co-integration between the Arab capital markets and showed that these markets present opportunities for international diversification by providing evidence for international segmentation. Darrat and Hakim (2000) explore the pattern and extent to which three emerging stock markets in the MENA region (Egypt, Jordan and Morocco) are linked together and with international stock markets. Using the Johansen-Juselius co-integration approach over the period from October 1996 to August 1999, the results show that the MENA markets are segmented globally and integrated regionally. By adding the stock market of Turkey, Maghyereh and Al-Zoubi (2004) investigate volatility transmission mechanism among four emerging MENA stock markets of Egypt, Jordan, Morocco and Turkey. Using Multi VAR-Exponential Generalized AutoRegressive Conditional Heteroskedicity model (MVAR-EGARCH), they find strong linkages among the studied MENA capital markets.

Also, the results of Marashdeh (2005) have support for integration in the MENA region, employing monthly stock market indices for four emerging stock markets, namely Egypt, Turkey, Jordan, and Morocco. Using the Autoregressive Distributed Lag (ARDL) approach to

co-integration, the results provide evidence for the existence of integration among the capital markets in the MENA region, but no integration is found between the MENA markets and the developed markets except for Egypt. This study concludes that the MENA markets provide opportunities for international investors to achieve long-run gains through portfolio diversification, but these opportunities are limited in the long run for regional investors.

With respect to integration among GCC countries, Hammoudeh and Aleisa (2004) find evidence of co-integration among GCC stock markets excluding the Qatar market. However, the markets of Kuwait and Oman show almost no relationship with the other GCC markets. They also find that the largest market in the region, the Saudi market, is the leader and the markets in Bahrain and United Arab Emirates rank second. Concerning linkages among only four capital markets in the GCC countries (Bahrain, Kuwait, Oman and Saudi Arabia), Maghyreh et al (2005) measures their interconnectedness and verify the spillover effects among the Gulf stock markets.

Recently, Saadi-Sedik and Petri (2006) used weekly stock indices over the period 1998-2005 to study integration of the Amman Stock Exchange with the Arab capital markets (Saudi Arabia, Kuwait, Oman, Egypt, Lebanon, Tunisia, and Morocco), with emerging markets (Turkey, Israel, Brazil, India, Mexico, Pakistan) and with the developed markets (UK, S&P 500 and AMEX). The Johansen bilateral and multilateral tests are conducted and the results show that the Jordanian market is integrated with other markets in the Arab region but not with the emerging markets and developed stock markets. They also report, however, that Arab markets integration is not complete.

Other empirical studies on the Arab region are not consistent with the above findings. For example, Gunduz and Omran (2001) conduct the Johansen co-integration test using weekly stock

indices from Egypt, Israel, Jordan, Morocco and Turkey between 1997 and 2000. They detect no indication of co-integration and reveal that the MENA markets are segmented. Maghyreh (2006) focus on the stock markets of Jordan, Egypt, Morocco and Turkey which are considered among the largest stock markets in the region and more accessible for foreign investors over the period 1997-2002. The findings indicate that none of the MENA markets is completely isolated and independent, but integration among these markets is still weak. The results also suggest that the degree of sensitivity of the MENA markets to external shocks is related to their degree of liberalization.

Other studies focus on the integration of Arab regional markets with the rest of the world. Neaime (2002) uses weekly closing price series for seven MENA markets (Bahrain, Egypt, Jordan, Kuwait, Saudi Arabia, Morocco and Turkey) and the developed markets of US, UK, and France. The results show that only the capital markets of Egypt, Jordan, Morocco and Turkey are mature and they are co-integrated with developed markets. On the other hand, there is no perfect integration in the whole region except in the GCC markets. GCC market is still segregated from the rest of the world and offers diversification potentials to international and regional investors through mutual funds.

Extending the period of the study, Lucey et al. (2005) uses daily indices of Morocco, Tunisia, Egypt, Lebanon, Jordan, Turkey and Israel over the period from 1998 to 2004 to investigate equity market integration among these countries and with the countries, with European Monetary Union (EMU) and with the rest of the world. They find no evidence of a constant bivariate relationship between each of the MENA markets and the various international benchmarks.

3.4 Financial Integration and Contagion Effects

In the aftermath of the US stock market crash of 1987, the Southeast Asian financial crises of 1997 and the Russian currency crises in 1998, the issue of financial linkages after crises was brought forward and analysts rejuvenated their studies on pre and post periods. Most of the studies generated the “contagion” approach to explain the spillover and volatility transmission from one market to another and the long run relationship among financial markets. Contagion can be defined as the transmission of unanticipated local shocks to another country or market, resulting in an increase in correlation during periods of financial crises (Masson, 1999; Forbes and Rigobon, 2002). Considering the transmission of shocks between countries, studies attempted to trace out if contagion is the result of financial linkages, economic linkages, trade linkages, or other unknown channels.

For instance, using co-integration tests, Malliaris and Urrutia (1992) and Arshanapalli and Doukas (1993) show that the degree of interdependence among stock markets increased significantly after the 1987 stock market crash. King and Wadhwani (1990) tested the increased correlations among the capital market of US, UK, and Japan. They find that the US stock market crash of 1987 created higher correlations among these capital markets.

Another important study by Masih and Masih (1997) uses data covering the pre and post period of October 1987 crash for six major international stock markets' indices (Canada, France, Germany, Japan, US and UK). Employing the VECM and the Vector Decomposition (VDC) co-integration methods, the results demonstrate that the US market's dominant role is not affected with the crash and that the German and British markets become more dependent on other markets after the crash relative to the period before the crash.

Kanas (1998) examine the issue of volatility spillovers in European countries namely London, Frankfurt and Paris. The analysis for pre-crash period (1984-1987) and post-crash period (1987-1993) suggests that higher intensity spillovers existed after the crash of 1987.

The study by Sheng and Tu (1998) covers the stock markets of twelve Asia-Pacific countries using the Asian financial crisis of 1997 as the structural break in the data. They find evidence maintaining the existence of co-integration relationships between the markets during the crisis and not for the period before the crisis.

In order to examine the impact of crises on two different types of markets, Cha and Oh (2000) examine the interactions between developed capital markets of US and Japan and emerging markets in Asia. They find that the interrelationships between these markets increased after the crash of 1987, and that they were intensified with the outburst of the financial crisis of 1997.

Most of the findings of the above mentioned studies provide confirming evidence that, in general, markets become more interdependent during the post-crises period and that crashes bring about a greater interaction among markets.

This chapter reviewed the literature on financial integration in developed markets, emerging markets, MENA markets and financial integration under the contagion effect. The next chapter presents recent developments in the Arab region.

CHAPTER FOUR

RECENT DEVELOPMENTS IN ARAB CAPITAL MARKETS

In this chapter, the recent developments in Arab capital markets and key market indicators are reviewed. Section 4.1 overviews the overall Arab region's economy. Section 4.2 analyses key indicators of Arab capital markets over the period between 2000 and 2006, including market trend (section 4.2.1), market capitalization (section 4.2.2), value and number of shares traded (section 4.2.3) and number of listed companies (section 4.2.4). The causes of the recent bull and bear markets in the Arab region are discussed in sections 4.3 and 4.4, respectively.

4.1 Overview of the Arab Region's Economy

Table 4.1 presents the annual growth in real GDP for the Arab region. In 2003, real GDP growth in the MENA region reached 6.6% above the yearly average of 4.2 % during 1998-2002. The growth of the real GDP eased modestly in 2004 and 2005 to 5.5% and 5.3%, respectively. In 2006, in line with the previous years, the MENA region recorded a growth of 5.7%. MENA is expected to have a real GDP growth of 5.5% in 2007(IMF, Regional Economic Outlook: Middle East and Central Asia, May 2007).

Table 4.1. Real GDP Growth (Percentage annual change)

	Average 1998-2002	2003	2004	2005	2006	Projected 2007
MENA¹	3.8	6.5	5.5	5.3	5.7	5.5
GCC²	4.9	8.1	9.6	7.5	7.0	6.2
Bahrain	4.8	7.2	5.6	7.8	7.7	6.9
Oman	3.6	2.0	5.4	5.8	5.9	6.0
Qatar	7.1	3.5	20.8	6.1	8.8	8.0
Kuwait	8.2	16.5	10.5	10.0	5.0	3.5
United Arab Emirates	4.0	11.9	9.7	8.5	9.7	8.2
Saudi Arabia	1.5	7.7	5.3	6.6	4.6	4.8
Mashreq³						
Egypt	5.1	3.2	4.1	4.5	6.8	6.7
Jordan	4.3	4.2	8.4	7.2	6.0	6.0
Lebanon	2.3	4.1	7.0	1.0	0.0	1.0
Maghreb⁴						
Morocco	3.6	5.5	4.2	1.7	7.3	3.5
Tunis	4.4	5.6	6.0	4.0	5.3	6.0

Source: IMF, *Regional Economic Outlook: Middle East and Central Asia*, May 2007

¹ MENA (Middle East and North Africa) includes the following countries: Algeria, Bahrain, Djibouti, Egypt, Iran, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates and Yemen.

² GCC (Gulf Cooperation Council) includes the following countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates.

³ Mashreq includes the following countries: Egypt, Jordan, Lebanon, Syria and Sudan.

⁴ Maghreb includes the following countries: Algeria, Libya, Mauritania, Morocco and Tunisia.

Several aggregate factors contributed to the buoyant growth in the MENA region, including high records of oil prices, growth in non hydrocarbon sector, increase of capital inflows, and ample liquidity. The entire region was affected by high oil prices as energy is the main economic resource and export product in the oil producing countries. Moreover, capital started flowing through remittances, intraregional tourism and investments to non oil producing countries (IMF, *MENA Economic Developments and Prospects*, 2006). As reported in *Global Development Finance* (2005),

“Underpinning the region’s growth advance has been a sharp rise in oil prices and an increase in crude oil production, which has provided substantial revenue gains for the region’s oil exporting economies and supported dramatic increases in government consumption and investment spending. In all, heightened government consumption and increased investment outlays, primarily emanating from the public sector, have accounted for two-thirds of the observed increase in growth in the region since the 1990s. Heightened spending has likewise filtered down to strong advances in private consumption.”

Furthermore, the UNCTAD (United Nations Conference On Trade And Development) World Investment Report (2006) ascribed to Western Asia the largest increase (85%) in Foreign Direct Investment (FDI) inflows worldwide in 2005 and a total of USD 34 billion, of which USD 12 billion was received by UAE alone.

According to the International Labor Organization (ILO), the MENA region has the highest unemployment rate in the world (12.2% in 2006) and the lowest employment to population ratio of 47.3% in 2006. One of the main challenges in the region is providing employment opportunities for a growing youth population. Even more critical is the political instability such as the outbreak of violence in Lebanon in July 2006. Most of the Arab markets were hit by the conflict in Lebanon, which created uncertainty and aroused negative sentiments for the investors especially for foreign investors. In addition, tensions between Iran and the US are placing continuous risks regionally and globally.

4.2 Arab Capital Markets: Recent Developments and Key Indicators

Not only are Arab capital markets relatively new and in general, small when compared to other developing and developed countries, but there are still some Arab countries with no capital markets.

Between 2000 and 2005, Arab capital markets saw unprecedented bullish figures. The Shua'a Arab composite index climbed by more than 90% in contrast to 30% growth in the Morgan Stanley's Capital International (MSCI) index, which calculates the growth in emerging markets (IMF, Middle East Economic Outlook Regional, 2007).

However, after a solid six year upward run, starting the end of February 2006, Arab stock markets entered into a harsh readjustment phase that continued all throughout the year (www.gulfeconomist.com, 2007). The decline started with the drop of the largest market in the region, the Saudi market, and triggered declines in most of the other Arab markets. In theory, capital markets contribute to growth and boost market economies. However, during this period in the Arab region, capital markets tracked the shape of a saddle. The several revaluations and the created volatility redirected investors and institutions to reassess their capital to opportunities that can share in sustainable development. On the other side, foreign investors had the opportunity to enter the region at low prices. Yet, it is untimely to determine the outcomes of these market corrections on the region's economy.

This section analyses the performance of Arab capital markets, by summarizing the main compounded indicators from 2000 till 2006; including the Shuaa Arab Composite Index, market capitalization, value and number of traded shares, and number of listed companies.

4.2.1 Shuaa Arab Composite Index

Table 4.2 shows the Shuaa Arab Composite Index and the Shuaa price indices for each of the Arab capital markets. Shuaa Arab Composite Index registered a growth of 75% from 2000 to 2003. The bullish trend started significantly in 2003 when the index increased by 57 % from the previous year and recorded 1,617 points. In 2003, Kuwait was the best performer in the Arab

indices, which rose by 20% and 18% respectively. The market indices of Morocco and Tunis continued their growth till the fourth quarter of 2006, whereas Beirut market index dropped from its increase in the first quarter. Beirut Stock Exchange Committee and the Ministry of Finance closed the exchange during the sudden war in July. On the first day of the 33 day long war, on July 13, the market index represented by BLOM index plunged 10%, the steepest drop since the index was formed in 1996 (www.bloomberg.com). On August 1, the market reopened under controls to keep the change in the pricing margin below 5%. After the ceasefire (in August), BLOM index increased by 4%. Shuaa price index for Morocco recorded the highest growth (64%) among the Arab markets at the end of 2006 followed by the Tunis index which soared 49% from the previous year to record 1,386 points. Shuaa price index for Oman recorded the highest increase (5%) among the GCC markets. Despite its plunge in the three quarters of 2006, the Egyptian market index ended the year with a marginal increase of 6% compared to the previous year.

4.2.2 Market Capitalization

Table 4.3 shows the market capitalization of the Arab capital markets. Signaling the overall size of the fifteen Arab capital markets, the total market capitalization stood at USD 148,158 million in 2000. The capital markets of Saudi Arabia and Kuwait had the highest market capitalization among the GCC markets with USD 67,166 and USD 19,848 million respectively in 2000. Together they constituted around 59% of the total Arab market capitalization with only 10% of the total number of listed companies. In 2005, the total market capitalization more than doubled from its level in 2004 to peak at USD 1,289,638 million. Between 2000 and 2005, the Jordanian market and the Saudi market experienced the highest growth levels in terms of market

capitalization. In 2005, Saudi Arabia has the largest market capitalization in the Arab region which stood at USD 646,121 million, constituting 50% of the entire Arab markets capitalization. The market capitalization of Kuwait mounted remarkably to USD 123,893 million in 2005 compared to USD 19,848 million in 2000. With this figure, Kuwait is ranked the third in the Arab region after Saudi and Abu Dhabi markets. The market capitalization of the Egyptian market was the largest among the non GCC Arab markets. However, it remains well below the highest market capitalization of the Saudi market which had only 77 listed companies. Therefore, it seems that listed companies in CASE are small sized companies. It is worth noting that the total market capitalization of the Arab world is far lower than the market capitalization of world developed markets such as New York Stock Exchange (USD 13,311 billion) and London Stock Exchange (USD 3,058 billion) (World Federation of Exchanges, 2006).

Leaving the stellar performance, the aggregate market capitalization shrunk slightly in the first quarter of 2006 by 2%, and then by 17% in the second quarter. At the end of the year, the total market capitalization stood at USD 888,121 million, a decrease of 31% from the previous year. The market capitalizations of Saudi Arabia, United Arab Emirates, Qatar, Jordan and Kuwait were mostly affected by the losses. The first quarter of 2006 was still positive for the Tadawul market which ended with a market capitalization of USD 676,100 million. Then, at the end of 2006, the market capitalization plunged around 52% to stand at USD 326, 852 million. Still with this decline, Saudi market had the largest share from the total Arab market capitalization (37%). This makes the Saudi market the largest stock exchange in the Arab region. Similar to other GCC capital markets, Kuwait market capitalization declined from USD 123,893 million in 2005 to USD 106,269 million in the first quarter of 2006. In the third quarter of 2006, when the market started to regain its market capitalization, the wide range of disclosure probes

and concerns over state contract cancellations led the market to another decline. The year ended with a market capitalization of USD 105,950, a 14% decrease from 2005. In 2006, the market capitalization of Dubai and Abu Dhabi declined by 22% and 39% to a level below the market capitalization of the Egyptian market (USD 93,496) which had the third highest in the Arab region after Saudi and Kuwait. It is worth noting that the GCC markets (UAE (DFM and ADSM), Kuwait and Saudi) with the Egyptian market constitute around 78% of the total Arab markets capitalization.

In 2006, facing the corrections spillover in the Arab capital markets, Bahrain Stock Exchange performed better than other GCC capital markets. The market capitalization decreased only by 3% from USD 17,364 million to USD 16,903 million in the first quarter of 2006. The market regained back its value and ended the year by an increase of 22% from the previous year at USD 21,122 million. Market capitalization of Muscat Securities Market is the lowest among the GCC markets and the third lowest in the region after Tunis and Beirut Stock Exchanges. Unlike declines in GCC capital markets, in the first quarter of 2006, the market capitalization increased by 2% but it fell by 2% in the second quarter. In the third quarter of 2006, the market capitalization rose again to USD 13,090 million and the fourth quarter ended with market capitalization of USD 13,037 million, an increase of 8% from 2005. Market capitalization of Egypt declined sharply in the first and the second quarters of 2006 before it recovered in the third quarter and stood at USD 93,496 million in the fourth quarter of 2006. Still, the Egyptian market capitalization remained the largest among the non GCC Arab markets. It is significant that, when most of the other Arab capital markets were suffering from a decrease starting the second month of 2006, the market capitalization of Morocco increased by 37% to USD 37,476 million in the first quarter of 2006. The increase continued in the second and third quarters to

record USD 37,497 million and USD 42,750 million respectively. The fourth quarter of 2006 ended with market capitalization of USD 49,415 million, an 81% increase from 2005. At this level, Morocco ranked the second in terms of market capitalization in non GCC markets but way below individual market capitalization of the GCC markets despite their recorded reductions. Market capitalization of Beirut increased to USD 8,304 million in 2006 from USD 4,917 million in 2005, an increase of 69%. However, it has the second lowest market capitalization among the Arab markets after the Tunisian market. Beirut Stock Exchange is considered as an extremely volatile and immature market as depicted by the few listed companies and the dominance of one construction company (32%) and the banking sector (62%) in total market capitalization. The Tunisian market is characterized with the lowest market capitalization and trading activity in the whole Arab region. Despite the prevailing corrections in most of the Arab capital markets, the Tunisian market witnessed a remarkable performance in 2006. Market capitalization stood at USD 4,222 million which is an increase of around 50% from 2005.

4.2.3 Value and Volume of shares traded

Table 4.4 shows the compounded value of traded shares, which is an indicator of liquidity in the market. In 2000, the total value of shares stood at USD 36,539 million. Both the Saudi and the Egyptian markets had the highest value of traded shares among other Arab markets with USD 17,313 million and USD 11,799 million, respectively. Ever since, the value of shares increased more than twice and reached USD 1,434,939 million in 2005. With total value of traded shares of USD 1,103,567 million, the Saudi market alone accounted for almost 77% of the total Arab markets value of traded shares, followed by the Dubai financial market and the Kuwaiti market which together make 15% of the total value of traded shares. In 2006, the total

value of traded shares increased by 17% from the previous year and stood at USD 1,684,997 million. This surge was mainly driven by the increase in the value of traded shares in the Saudi market. In 2006, KSE recorded the highest decline in the Arab markets in value of traded shares (around 39% from the previous year). However, the aggregate value of shares traded on the Arab stock exchanges constitutes a small fraction of the value of shares traded on developed exchanges such as New York Stock Exchange (USD 21,789 billion) or London Stock Exchange (USD 7,583 billion) (World Federation of Exchanges, 2006).

Table 4.5 shows the volume of traded shares or market turnover. Throughout the period between 2000 and 2003, trading on the Arab markets has intensified year after year, with the Kuwaiti market being the most active market in the region. In 2004, the Kuwaiti market witnessed a drop of 16,025 million traded shares. However, partially offset by the increase of shares in the other markets, the total number of shares dropped only by 10% from 63,389 million shares in 2003 to 57,029 million in 2004. Afterwards, in 2005, the increased interest in Arab markets led to a surge of 94% in the volume of traded shares. Dubai ranked second in volume of traded shares although the number was half that of the Kuwaiti market which ranked first. In 2005, the number of traded shares in ADSM reached an all time high to 8,317 million shares. However, compared to the volume of traded shares on the Dubai market (25,541 million), this market can be characterized with low activity in UAE. The increase in the domestic liquidity, the increase in the macro economic factors and the entrance of new profile of investors like young generations and businesswomen, led the volume of traded shares mount to 12,281 million shares. Saudi ranked third according to trading activity in 2005.

In the first quarter of 2006, with the loss of confidence in the markets and market revaluations, the activity of the market retreated significantly and the total number of traded

shares was only 28,581 million. In the second quarter of 2006, the total number of shares increased to 55,276 million shares mainly driven by the Saudi (15,598 million), Dubai (4,229 million), and the Kuwaiti (1,584 million) markets. The increase did not last for long, and it dropped back again to a level of 47,036 million shares in the third quarter and further to 37,693 million shares in the fourth quarter of 2006. However, compared to the previous year, the total number of shares traded increased by 52% from 110,847 million in 2005 to 168,586 million in 2006. This improvement in the volume of share was the outcome of the stock splits that regulators allowed and the lower valuations which attracted investors. It is worth noting that the highest trading activity existed in the Saudi market in 2006 followed by the Dubai and Kuwait market and Tunis can be considered the most inactive market with 56 million traded shares at the end of 2006.

4.2.4 Number of Listed Companies

Table 4.6 shows the number of listed companies on the Arab capital markets. In 2000, there was a total of 1,678 listed companies on Arab capital markets of which 1,071 companies were listed on the Alexandria and Cairo Stock Exchange. Since its establishment, CASE had the largest number of listed companies in the Arab and the North African markets. However, these companies are characterized with low market capitalization (USD 30,791) as reported in Table 4.3. Jordan was ranked second with 163 companies followed by the Muscat market with 131 companies. In the following years, new companies were added and others went public adding to the total of the listed companies.

In 2003, 183 companies were delisted in the Egyptian market due to an increase in the listing requirements, new disclosure rules and end of exemptions from taxes for the listed

companies. This resulted in a decrease in the total Arab listings to reach 1,723 companies. The total number of listed companies decreased again in 2004 to 1597 companies. In 2005, the total number of listed companies rose back to reach 1,665 companies as ADSM and DFM listed 24 and 12 new companies respectively.

After the burst of the bubble in the beginning of 2006, the number of companies decreased by 44 (mainly in the Egyptian market) to reach 1,623 in 2006. Still, the Egyptian market ranked first with 603 listed companies and the Amman market ranked the second with 227 listed companies followed, by the Kuwaiti market with 180 listed companies.

4.3 Causes of the Recent Bull Markets

This section reviews the main causes that drove the upward trends in Arab Capital markets between 2000 and 2005.

In 1999, Arab capital markets began their climb when the number of companies going public increased significantly from 1,446 listed companies to 1,634. The serious rally in prices started in 2003 after the beginning of the Iraqi war when oil prices started mounting and exceeded USD 50 a barrel (Asham, 2005). These bullish market trend continued till the beginning of 2006 before a trend reversal was initiated. Several factors which fuelled the upward trend in Arab capital markets are identified.

First, the increase in energy prices (the costs of oil, gas, and coal) affected all the sectors of the region's economy, including the financial sector. According to the International Energy Agency, oil prices more than tripled from USD 25 per barrel in 2002 to an all time high of USD 78.4 per barrel in July 2006. The global expansion and the different events such as hostilities in

the Middle East mainly in Iraq, Lebanon, tensions in Iran and Nigeria, and strikes in Venezuela drove up energy prices in the past six years.

As a result of the surge in oil and natural gas prices, a \$400 billion cumulative surplus developed between 2003 and 2005. Further, in oil exporting countries, the current account surpluses increased from \$32 to \$220 billion between 2002 and 2005 and export revenues more than doubled from \$202 to \$433 billion between 2002 and 2005 (IMF, Middle East Economic Outlook Regional, 2007). Unlike the oil bonanza in the 1973-74 and 1979-80 when the financial surpluses of the governments and institutions were recycled in Western countries, the billions of petrodollars that accompanied the 2000-05 oil booms landed in Arab treasuries and were invested mainly at home. Through expansionary fiscal policies, governments used the oil windfall to repay public debt and support long term economic and social development (IMF, Middle East Economic Outlook Regional, 2007). In addition, government's spending on infrastructure projects encouraged the establishment of real estate companies such as the Emaar Properties, Al-Nakheel, Al-Ittihad, and Jumeirah.

To sum, the regional liquidity was increased by oil and the oil related wealth. This increased liquidity found its way to the region's capital markets which offered higher returns than fixed securities, albeit at higher risks. According to the Merrill Lynch and Capgemini published World Wealth Report (2006), the millionaires of the Middle East have increased in 2005 by 9.8% from 2004 totaling 300,000 people having wealth of USD 1.2 trillion.

The second factor that contributed to capital market growth stems from excess demand over oversubscription in Initial Public Offerings (IPOs). Between 1995 and 2003, there was a total of nine IPOs only. In 2004 alone, the number of IPOs reached twelve companies and doubled to twenty four in 2005 (Gulf Capital report, 2006). As for the dollar value of IPOs, the

average amount doubled in 2005 to USD 248 million from USD 128 million in 2004. Even with the recent market corrections in the region, the delay of a great number of IPOs, and despite the sudden conflict in Lebanon in July 2006, investors' appetite for IPOs remained the same. In November, the Dubai Financial Market (DFM) IPO collected over USD 50 billion for its USD 435 million IPO, an oversubscription of 300 times in 11 days.

The third growth factor can be attributed to the surge in net capital inflows. After September 11, 2001, capital outflows from the region decreased and capital inflows increased with capital repatriation from the US and Europe. The hostility towards the West and the fear from new financial controls regarding the freezing of Arab assets in the West further increased the liquidity in the Arab region (Asham, 2005).

Fourth, efficient banking systems in the region enhanced financial development. The exceptional increase in liquidity raised banks' deposits and loans. Between 2002 and 2005, deposits to the banking sector grew by an annual average of 15%. In 2005, Gulf banks have amplified their margin lending to investors in capital markets, and which accounted 5 to 15% of total bank lending. The net profit before taxes of the largest 100 Arab banks rose by 36% in 2004. Most of the increase came from fees and services of capital market activity, such as brokerage and asset management services and the interest income from the rapid growth in loans. For example, in Saudi Arabia, more than 70 percent of the bank's operating income generated from brokerage fees (IMF, MENA Economic Developments and Prospects, 2006).

Fifth, Arab capital markets expanded as a result of implementing economic reforms through liberalization and privatization programs, aimed at complying with the criteria for World Trade Organization (WTO) accession. Some of the programs of liberalization included divestments that reduced the government stakes in businesses, increasing the percentage of

foreign ownership in local companies and decreasing the income tax for foreign corporations. For instance, non oil producing countries such as Morocco received a large amount of inflows through its privatizations programs. Also, Jordan received inflows through privatizations and investments in real estate (IMF, Middle East Economic Outlook Regional, 2007).

Sixth, the increase in the “wealth effect” by capital market gains made investors feel more confident in the economy and more secure with their wealth; consequently, they increased their consumption propensities. Fisher and Statman (2003) show that consumers’ confidence increases as the investors’ sentiment is bullish towards the market.

All of the above factors led to a rocketing economic growth in the region as well as capital market growth. After a booming period, Arab markets experienced a sharp decline. The following section discusses the main reasons behind the “collapse” in these markets with reference to market characteristics and participants.

4.4 Causes of the Recent Bear Markets

Some of the problems which caused the bear markets are inherent to the Arab stock exchanges and can be traced back to their establishments; others are specific to certain stock exchanges. In the last five years, problems have built up and led to critical situations. The causes of the recent Arab markets corrections can be attributed to both the existing financial system characteristics (section 4.4.1) and to the market participants (section 4.4.2).

4.4.1 Markets Characteristics

In Arab stock exchanges, the management bodies, the legislative bodies, and the executive bodies are appointed by the government. As a result, the Board of Directors consists of government officials and/or Royal Family members and there is not much variation in the ownership structure of the listed companies. For example, the Chairman of the Board of SABIC, the largest listed company on the Saudi stock exchange, is a Royal Family member and the remaining members include government officials and only two private sector representatives. Besides, the governments hold many of the shares of the listed companies. Such ownership structure is likely to negatively affect corporate performance (MENA-OECD Investment Programme, 2005).

Second, in MENA countries, the system of corporate governance is weak. Markets are neither efficient nor transparent and there is no publication of timely and accurate information of corporation who are unlikely to abide by international accounting standards. Basically, financial systems in the Arab region are deficient in laws and regulations that should govern capital markets, and a major hindrance to efficient financial markets is information asymmetry (Scott, 1995). In addition, corporations lack credit ratings which improve the financial statement analysis culture, risk management practices and results in better decision making. Elbadawi (1999) studied the likely impact of institutional and political factors on financial sector performance in Arab countries. He found that institutional quality in the Arab world provides the worst institutional support to the financial sector compared to any other region in the world. Only lately, the bourses started to undergo tremendous reforms in their access of information and the quality of their regulations.

Third, there are limited investment channels in the Arab markets to absorb the existing liquidity. The bond market is primitive and mainly used to finance government debt. In 2003, MENA had fixed income assets constituting 4% of GDP in contrast to 12% in emerging Europe and 16% in Latin America (MENA-OECD Investment Programme, 2005). Further, derivative instruments (futures, options, warrants...) are not acceptable according to the Islamic code, so they cannot be used to curtail speculators and stabilize the markets (Asham, 2005). Only recently in 2005, the Dubai International Gold Exchange (DIGX) was established as the only exchange in the region for trading commodities. As for market listings, family-owned businesses are dominant in the Arab region making private sector companies extremely concentrated. State-owned enterprises also limit trading. As a result, the number of listed companies is small (with the exception of the Egyptian market). This causes shortage in the supply of stocks to absorb the high liquidity and leads to overvaluation of existing assets.

Fourth, the decrease in bank interest rates generally prompted investors to be interested in capital market securities as rewarding investments rather than bank deposits. Moreover, this encouraged investors to engage in margin trading in capital markets, as borrowing became relatively cheap. Arab investors thought that the uphill was going to roll over and staked their portfolios by heavily buying on margin (IMF, Economic Development and Prospects, 2006). Through margin trading, investors increase their leverage and buying power on one side, thereby increasing market risk. Thus, any decline in the market amplifies losses, as they are not limited only to the collateral values, but to the sale of assets to meet margin requirements.

4.4.2 Markets Participants

The other factor for the bear markets can be attributed to capital markets participants in the Arab world. First, most of the investors in the Arab markets are inexperienced retailers. Admittedly, market awareness is important for better investment decisions. For example, signs of overvaluation were clear in high P/E ratios relative to other markets, but Arab investors disregarded this information and were not selective in choosing shares with strong profit growth projections. To illustrate, companies in the FTSE 100 index sell at 15 times earnings and the S&P 500 index carry a P/E ratio of 21. In contrast, the P/E ratios of Arab markets in 2005 reached 47 in the Saudi market, 34 in the Abu Dhabi market and 39 in the Amman market (IMF, Economic Developments and Prospects, 2006). The increased oil wealth created irrational enthusiasm and made investors spend carelessly. Bearing in mind that a region cannot absorb infinite investments, the saturation point was attained in the Arab region.

Second, the “herd behavior”, a common practice in the behavioral finance, was predominant in the Arab capital markets. Investors free ride on information and buy and sell just to follow the trends. Trading in Arab markets followed market sentiments and intuitions rather than investment fundamentals. According to Bikhchandani (2001), herd behavior is likely to arise in environments where there is absence of accounting standards, strong reporting requirements and enforcement of regulation. Masson (1998) points that with herd behavior small triggers can speed up loss of confidence during market declines, resulting in a spillover effect across different markets.

Third, common in other emerging markets, Arab markets were crowded by speculators with uncontrolled greed. With negative investment practices, they added to market valuations through short selling. These speculators produced short- term capital inflows and increased the

artificial liquidity in the market. With inflationary pressures, prices were also raised higher than their fundamental values.

Fourth, there is a lack of institutional investors especially foreign ones such as banks, insurance funds, retirement funds, mutual funds, etc. Institutional investors with foreign asset managers are assumed to be more knowledgeable about investments and their presence is a positive signal in the market (MENA-OECD Investment Programme, 2005). Most important of all, they play a big role in corporate governance by reducing agency costs and monitoring managers on behalf of investors.

In this chapter, the growth in the overall economy of the Arab region was presented. This economic boom has created a bull trend in the Arab capital markets which is reflected in most market indicators. However, in the beginning of 2006, a wave of revaluations hit Arab capital markets and led them in a downward spiral. In the last section, the common causes for the bull and the bull capital markets were discussed.

CHAPTER FIVE

DATA AND METHODOLOGY

This chapter presents the methodology employed to test for price co-movements in the capital markets. Section 5.1 presents the data sources and describes each data series of the market indices included in the study. Section 5.2 explains the various econometric methods utilized to carry out the co-integration tests.

5.1 Data Sources and Analysis

5.1.1 Data Sources

The study covers the stock markets of eleven MENA countries including the GCC capital markets³. The data sets consist of the capital market indices, which are available for the following countries: Bahrain, Egypt, Jordan, Lebanon, Kuwait, Morocco, Oman, Qatar, , Tunisia, Saudi Arabia and United Arab Emirates. To represent the world financial markets, the stock markets of the developed markets US (S&P 500) and UK (FTSE 100) are included. There are numerous sources for the Arab stock market indices. The Shuaa Capital database represents a reliable data source for cross market comparisons because it uses a homogenized framework for calculating the market indices (www.shuaacapital.com). Specifically, the Shuaa capital calculates an index for each market using the weighted market capitalization in US dollar terms. In addition, the common currency (US Dollars) used to calculate the price indices controls for exchange rate variations and inflation trends. For the world capital markets, the Yahoo's website

³ Four Arab markets, however, are excluded due to the lack of data availability: Dubai Financial Exchange, Algeria Stock Exchange, Iraq Stock Exchange and Palestine Stock Exchange.

(<http://www.quote.yahoo.com>) provides daily data on S&P 500 and FTSE 100. The capital markets of US and UK are included in this study since they are the largest capital markets in the developed world. Furthermore, most of the MENA markets covered in the study have economic relations with the US or the UK.

For purpose of analysis, the Arab markets are divided into three groups:

- GCC: Bahrain, Kuwait, Oman, Saudi Arabia, Qatar, and United Arab Emirates.
- North Africa: Egypt, Morocco and Tunisia.
- MENA: GCC, North Africa, Lebanon and Jordan.

In order to test for co-integration between Arab markets and the rest of the world, a stock market composite index is also provided by Shuaa Capital for each of MENA and GCC countries. The objective is to isolate possible co-integration among GCC and MENA countries from their relationships with the developed markets.

The daily time series observations span the period from 2000 to 2006 for the eleven MENA capital markets and for the two world capital markets.

5.1.2 Descriptive Statistics

Table 5.1 below presents selected descriptive statistics using daily returns of the Arab capital markets and the world capital markets covered in this study from 2000 to 2006.

Following the literature, the daily price returns are computed as the natural logarithm differences in the daily indices times 100 (Saadi-Sedik and Petri, 2006):

$$R = 100 * \ln (P_t/P_{t-1}) \quad (5.1)$$

The daily returns are expressed as percentages. Between the period 2000 and 2006, each series of price returns includes 2,556 observations, resulting in a total of 33,228 observations.

Table 5.1: Summary Descriptive Statistics- Daily Stock Index Returns (in percentages)
(January 1, 2000 - December 31, 2006)

	Mean	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis	Jarque-Bera	Probability of Jarque-Bera
<i>Arab Markets</i>								
Bahrain	0.014	4.564	-3.039	0.520	0.526	15.515	16,798.530	0.00
Egypt	0.031	10.731	-9.676	1.330	-0.277	9.976	5,214.685	0.00
Jordan	0.048	12.065	-8.799	1.010	0.428	17.044	21,082.720	0.00
Kuwait	0.068	9.723	-7.286	0.832	0.373	18.546	25,799.470	0.00
Lebanon	0.022	9.747	-9.937	1.192	-0.036	14.929	15,154.510	0.00
Morocco	0.023	5.229	-4.722	0.806	0.202	8.040	2,722.537	0.00
Oman	0.023	8.906	-7.378	0.660	1.294	33.320	98,616.600	0.00
Qatar	0.064	11.130	-13.107	1.160	-0.199	22.437	40,251.620	0.00
Saudi Arabia	0.048	10.319	-10.288	1.378	-0.852	16.440	19,548.650	0.00
Tunisia	0.013	4.436	-2.957	0.658	0.187	5.435	646.407	0.00
UAE	0.048	9.125	-9.749	1.048	0.224	19.814	30,128.490	0.00
<i>Developed Markets</i>								
FTSE 500	-0.004	5.904	-5.589	0.945	-0.204	8.760	3,550.839	0.00
S&P 100	-0.001	5.574	-6.004	0.937	0.124	8.169	2,243.024	0.00

Source: Author's Calculations

The figures appearing in Table 5.2 indicate that, over the period of the study, four GCC markets (Kuwait, Qatar, Saudi Arabia and UAE) and Jordan, a non GCC Arab country realized the highest daily average returns. Kuwait market realized the highest daily mean return of 0.068% closely followed by Qatar with a mean of 0.064% and each of Saudi Arabia, UAE and Jordan (with a mean of 0.048%). The lowest mean return was recorded in Tunisia at a level of 0.013% and Bahrain at a level of 0.014%. During this period world developed markets have recorded a slight negative average daily returns (S&P (-0.0042%) and FTSE (-0.0037%)).

The standard deviation can be used as a measure for the degree of volatility in capital markets- the greater an index returns varies from the mean return, the more volatile is the index. A close look at the results shows that Saudi Arabia (with a standard deviation of 1.37) experienced the highest volatility among the Arab markets followed by Egypt (1.33). The lowest volatility is attained by the markets of Bahrain (0.52) and Tunisia (0.65) which also recorded the lowest average daily returns among the Arab markets. This is consistent with the risk-return trade-off whereby higher returns are associated with higher risks and the lower returns with lower risks. In contrast, world developed market indices show similar return volatility compared to Arab markets, although they achieved negative rates of return.

The degree of skewness as a measure of asymmetry in the data describes the shape of the distribution of the returns. Negative skewness occurs when negative returns are more likely than positive returns, possibly indicating higher risk. Normal distributions, however, produce a skewness statistic close to zero. As depicted in table 5.2, the Arab markets daily returns of Lebanon, Saudi Arabia, Qatar and Egypt have negative skewness. In contrast, Arab markets of Bahrain, Jordan, Kuwait, Morocco, Oman, Tunisia and UAE have positive skewness, indicating a higher probability to yield positive returns. As for the developed markets, the results show negative skewness associated with negative average returns.

Kurtosis is a measure of the peakedness of the probability distribution of returns. Higher kurtosis means more of the variance in the data is due to infrequent extreme deviations from the mean. All the above variables have a kurtosis measure greater than three (normal distribution) implying that they are rather peaked distributions. Moreover, the Jarque Berra Statistic tests for the null hypothesis of normality distribution. The probability of Jarque Berra statistic suggests

that the distribution of daily returns cannot be approximated with the normal distribution for most of the market indices covered in the study.

5.2 Econometric Methods

5.2.1 Unit Root Tests

This research conducts unit root tests before analyzing co-integration among the different sampled markets. In order to address the question of market integration, it is important to examine the stochastic nature of the data and the order of integration of the series. The preliminary procedure requires testing the hypothesis of a unit root against the alternative hypothesis of stationarity. If the series are stationary then they revert to the mean and fluctuate around it within a constant range without exhibiting any trend. In this case, a simple regression model can be conducted. If non-stationary, the mean of the series is different at different points in time and its variance increases with sample size. Non-stationary variables cannot be regressed on each other, because this leads to potentially misleading inferences about the estimated parameters and their degree of association (Chen et al., 2002). According to Brooks (2002), the existence of a unit root in one or more variables will result in spurious regressions and invalid tests of hypothesis. This is also known as the random walk hypothesis since the data randomly departs away from the mean with either an increasing or decreasing trend.

If unit roots are found to be present in levels of each series, a further test is required to see whether, at their first differences, the series have a unit root or whether they are integrated at the same order denoted as $I(d)$ (where d is the number of times the series must be differenced to become stationary).

In this context, each price series is tested individually for the presence of unit roots in the level variables as well as in their first differences using both the conventional Augmented Dickey Fuller test (ADF) (Dickey and Fuller, 1979) and the Phillips-Perron (P-P) test (Phillips and Perron, 1988). The null hypothesis for each of the ADF and P-P test is that the series contain a unit root (i.e. non-stationary) ($\rho = 0$ for ADF test and $\rho = 1$ for PP test).

The Augmented Dickey Fuller (ADF) test is based on the following regression:

$$\Delta Y_t = \delta_0 + \delta_1 Y_{t-1} + \sum_{i=1}^N \phi_i \Delta Y_{t-i} + \varepsilon_t \quad (7.2)$$

where Y_t is the index price series; Δ is the first difference operator; $\delta_0 \phi_i$, are constant parameters; ε_t is a covariance stationary random error; and N is set to ensure serially uncorrelated residuals.

An alternative test by Phillips-Perron (P-P) technique is conducted to verify the ADF test results under less restrictive assumptions and allowing errors to be dependent with heteroscedastic variance and with serial correlations. The P-P test is performed using the regression:

$$Y_t = \alpha_0 + \rho Y_{t-1} + v_t \quad (7.3)$$

The selection of optimal lag lengths for the Vector Autoregression (VAR) system is done based on Schwarz information criteria (Schwarz, 1978).

If the results of the tests fail to reject the null hypothesis, then the time series is non-stationary and it contains at least one unit root. However, if the null hypothesis is rejected this

means that the data is stationary. Each series studied in this research is tested for the presence of unit roots, in levels and at differences, in order to be able to conduct the co-integration tests.

5.2.2 Johansen Co-integration Tests

Early studies on market integration (Grubel (1968), Levy and Sarnat (1970), and Hilliard (1979)) used correlation analysis to measure short run linkages among capital markets. It was only after Kasa (1992) that the co-integration methodology was used to examine the long run benefits of diversification. In this study, the Johansen (1991, 1995) co-integration technique is used to explore the long run relationship between market prices of Arab and developed capital markets.

If two variables are co-integrated, then there exists a long term relationship between them and they tend to move together over a certain period of time. Co-integration means that, although many developments can cause permanent changes in each of the individual series, there exists a long run equilibrium relationship binding the individual series together. The existence of co-integration vectors suggests a greater degree of market integration. On the other hand, the absence of co-integration suggests some degree of market segmentation.

The methodology of co-integration tests uses a vector (k) of non-stationary variables Y_t (stock market indices) represented in VAR as:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + \varepsilon_t, \quad t = 1, \dots, T \quad (7.4)$$

Where Y_t is the k -vector ($n \times 1$) of the non-stationary $I(1)$ daily stock market price series, A_i is a ($n \times n$) matrix of coefficients for every ($i=1, \dots, p$) and ε_t is a vector of innovations

(random errors). To use the Johansen test, the above VAR equation can be reparameterized into a Vector Error Correction Model (VECM) of the form:

$$\Delta Y_t = \pi_i Y_{t-k} + \sum_{i=1}^{p-1} \lambda_i \Delta Y_{t-i} + \varepsilon_t, \quad t = 1, \dots, T \quad (7.5)$$

Where:

$$\pi = \sum_{i=1}^p A_i - I_i, \quad (7.6) \quad \text{and} \quad \lambda_i = - \sum_{j=i+1}^p A_j \quad (7.6)$$

where ΔY_t is the vector of first differences of the variables.

If k vectors have r co-integrating relationships then they may have $k-r=n$ common stochastic trends, where n is the number of market indices in the study. The rank of Π determines the number of distinct co-integrating vectors and there are three cases:

- 1) Π could rank zero ($r=0$), indicating the inexistence of stationary long run relationship among the elements of Y_t . The stock markets do not have a common stochastic trend i.e. they are not integrated.
- 2) Π could have a total rank ($r=k$), indicating that the co-integration technique is inappropriate.
- 3) Π could have a rank r ($0 < r < k$), indicating the presence of $(k \times r)$ matrices α and β each with rank r . Each column of β is the co-integrating vector and the elements of α are known as the adjustment parameters in the VEC model. In this case, the stock markets are found integrated and share a common stochastic trend.

If the number of common stochastic trends is more than one ($1 < n < k$), then there is a degree of interdependence among the series. The number of co-integrating vectors reveals the

extent of integration across capital markets. If the number of common trends is exactly one ($n=1$ or $r=k-1$), then the stock markets are perfectly integrated.

Johansen's Maximum Likelihood method estimates the matrix Π with VAR and tests whether the restriction implied by the reduced rank of Π is rejected. The two test statistics that can be utilized by Johansen's approach are the trace and the maximum-eigenvalue tests.

Specifically, the trace statistic tests the null hypothesis that there are at most r or less distinct co-integrating vectors against an alternative hypothesis that there are more than r . It is formulated as follows:

$$-T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i), \quad (7.7)$$

where T is the number of observations, $\hat{\lambda}_i$ are the eigenvalues between the two residual vectors R_{0t} and R_{1t} .

The alternative test statistic is the maximum eigenvalue statistic tests the null hypothesis that there are r co-integrating vectors against the alternative hypothesis of $r+1$ co-integrating vectors. It is defined as:

$$-T \ln(1 - \hat{\lambda}_{r+1}), \quad (7.8)$$

where $\hat{\lambda}_{r+1}$ is the $r+1^{\text{th}}$ largest eigenvalue.

The Trace test statistic has greater power than the maximum eigenvalue statistic when the eigenvalues are evenly distributed, while the maximum eigenvalue statistic is more robust when the eigenvalues are either large or small (Fraser and Oyefeso, 2005).

In this study, the Johansen co-integration tests are applied to investigate the existence of integration within the GCC capital markets, North African markets, MENA markets, and between these markets and the world developed capital markets. In the next chapter, the results of the applied Unit root and Co-integration tests are reported and analyzed.

CHAPTER SIX

EMPIRICAL RESULTS

This chapter empirically investigates co-movements in Arab capital markets, namely Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and UAE. In addition, the study explores the degree of integration between the Arab markets and world developed markets. The study of integration among the Arab capital markets and between these markets and the world developed markets is significant to examine the necessary further procedures that are required to reap the potential benefits of market integration. Section 6.1 reports the results of the unit root tests on the market price series and section 6.2 analyzes the results of the co-integration tests applied.

6.1 Unit Root Test Results

As explained in the previous chapter, in order to carry out co-integration tests, unit root tests are conducted to explore the existence of non-stationarity in the series. Table 6.1 summarizes both the ADF and PP test results for the daily series that extend from 2000 to 2006. The tests are first applied on the series in levels using the Schwarz Information Criterion which determines the proper lags. The results are depicted in the first (ADF levels) and third (PP levels) columns of Table 6.1. Comparison of t-statistics results to the critical values at 1% (-3.96) and 5% (-3.41) significance levels shows that the null hypothesis of the existence of unit root is not rejected at both significance levels. Thus, the series are non-stationary in levels and follow a random walk.

The ADF and PP tests are reapplied to the series after the variables are converted to their first differences. The t-statistics are shown on the second (ADF First Difference) and fourth (PP First Difference) columns of Table 6.1. Comparison of t-statistics to the critical values at the 1% (-3.96) and 5% (-3.41) significance levels shows that the null hypothesis of the existence of unit root is rejected at both significance levels. This means that the series become stationary at their first differences and the daily prices for the series are integrated at the first order denoted by I (1).

Given that all the series in the study are non-stationary in levels and integrated at I (1), Johansen Co-integration test can be conducted to test for the existence of co-integration among the market price series.

Table 6.1: t -Statistic for ADF and PP Unit Root Tests of the Daily Market Indices from 2000 till 2006

	ADF Levels	ADF First Difference	PP Levels	PP First Difference
<i>Arab Markets</i>				
Bahrain	-2.40	-44.68**	-2.47	-45.96**
Egypt	-1.44	-48.43**	-1.47	-48.53**
Jordan	-1.55	-14.08**	-1.43	-45.69**
Kuwait	-1.91	-12.37**	-1.24	-12.40**
Lebanon	-1.91	-15.78**	-1.87	-45.60**
Morocco	-0.77	-43.68**	-0.86	-44.07**
Oman	-2.23	-36.61**	-2.23	-44.22**
Qatar	-1.49	-26.87**	-1.46	-41.64**
Saudi Arabia	-1.06	-17.95**	-1.09	-46.59**
Tunisia	0.56	-47.16**	0.21	-47.53**
UAE	-1.47	-13.70**	-1.36	-49.93**
Arab Composite	-1.32	-16.69**	-1.21	-43.57**
GCC Composite	-1.17	-16.88**	-1.04	-44.28**
<i>Developed Markets</i>				
S&P 500	-1.63	-51.07**	-1.42	-51.64**
FTSE 100	-1.56	-52.29**	-1.38	-53.00**

Source: Author's Calculation

Notes:

ADF stands for the Augmented Dickey Fuller Test and PP for the Phillips Perron test.

At 1% and 5% significance levels, the critical values are -3.96 and -3.41 respectively.

** indicates rejection of the null hypothesis of non-stationarity at the 1% level of significance.

6.2 Co-integration Test Results

This section tests the degree of price co-movements among Arab capital markets and between Arab markets and world developed markets. If there is co-integration between series indicates then the price indices of different markets tend to move together, pointing to a certain degree of financial integration among them. The Johansen co-integration test is applied and Schwarz Information Criterion is used to select the proper lags. Section 6.2.1 tests for co-integration among GCC capital markets; section 6.2.2 tests for co-integration among North African markets; section 6.2.3 tests for co-integration among MENA markets; and section 6.2.4 tests for co-integration between each of MENA and GCC markets and world developed markets.

6.2.1 Multivariate Co-integration Test for the GCC Capital markets

Table 6.2 displays the results of the co-integration test among GCC stock markets for the period 2000-2006. Since there are six variables representing the six GCC countries, there can be at most 5 linearly independent co-integrating vectors, i.e., $r \leq 5$.

Table 6.2: Likelihood Ratio Test for Co-integration in the GCC Capital Markets

Co-integration Test						
Null Hypothesis		Alternative Hypothesis	<i>Trace Statistic</i>	<i>0.05 Critical Value</i>	<i>Max-Eigen Statistic</i>	<i>0.05 Critical Value</i>
None	$r=0$	$r \geq 0$	121.14 *	95.75	65.03 *	40.08
At Most 1	$r=1$	$r \geq 1$	56.10	69.82	21.53	33.88
At Most 2	$r=2$	$r \geq 2$	34.58	47.86	17.82	27.58
At Most 3	$r=3$	$r \geq 3$	16.75	29.80	12.06	21.13
At Most 4	$r=4$	$r \geq 4$	4.69	15.49	3.86	14.26
At Most 5	$r=5$	$r \geq 5$	0.83	3.84	0.83	3.84

Source: Author's Calculations

Notes:

r corresponds to the number of co-integrating vectors. In VAR, maximum lag is 4.

MacKinnon-Haug-Michelis (1999) is used for critical values.

* indicates the rejection of the null hypothesis of non-stationary (no co-integration) at the 5% significance level.

For the null hypothesis of no co-integrating vectors ($r=0$), the trace statistic (121.14) exceeds the critical value (95.75). Therefore, the null hypothesis is rejected at the 5% significance level and this means that there exists at least one co-integrating vector between the six GCC capital markets. The same conclusion is reached with the Max-Eigen statistic (trace statistic 65.03 versus the critical value 40.07 at the 5% significance level). This shows that there is a long run relationship between the market prices of the six countries. However, at the 5% significance level, the results for $r=1$, $r=2$, $r=3$, $r=4$ and $r=5$ show that the null hypothesis of no co-integrating vectors cannot be rejected. Hence, the findings indicate the existence of only one co-integrating vector among the six GCC capital markets. This implies that the degree of financial integration among GCC capital markets is weak.

A common stochastic trend among the GCC markets is generally expected due to similar cultural characteristics between these countries and the recent implementation of deregulation and privatization programs.

Another possible explanation for the existence of integration is the plentiful savings in the hands of GCC investors. The excess liquidity ignited by high oil prices and the repatriation of capital after September 11 events increased the capital movements from one GCC country to another. In addition, GCC market investors have a similar cultural background in terms of stock market investing. The common Arabic language also facilitates cross border investing.

Despite these factors, integration among GCC is found to be weak. The weak integration can be ascribed to several factors. GCC countries agreed in 2003 on a customs union at a fixed tariff rate of 5% and the removal of other barriers that can hinder trade among its members. According to Phylaktis and Ravazzolo (2002), trade interdependence results in the extension of economic activity from one country to another and increases the movement of output. However, GCC markets have a low level of interregional trade and this could explain the low integration in its markets. Differences in investment laws, capital controls and limitations on stock ownership also can justify the weak integration. Other barriers that deter investments in these markets by regional investors include the absence of cross- listings and of essential institutions to provide effective settlement and brokerage services. The cross-listings of stocks was recently allowed in only three GCC countries (Bahrain, Kuwait and UAE), but investors are not accustomed to this process, notwithstanding the high costs of trading.

According to Calvo and Mendoza (2000), when information is costly, investors' behavior will be influenced by other market participants that are supposed to possess more information. As a result, market movements tend to be influenced by rumors and trend. In Arab markets, the insufficient flow of information negatively affects the transparency of markets. Further, Arab investors lack the financial experience and culture of investing. All these factors have led to a herd behavior that was translated in major contagion effects across GCC markets.

To sum, the data presents evidence of weak integration among GCC capital markets, and does not support the high degree of contagion of market corrections that was observed across different GCC markets. Instead, the reason for the series of market corrections of 2006 can be the similar speculative behavior of Arab investors. The corrections can also be partly explained by the relative dominance of the financial sector on GCC stock markets (it ranges from 17% to 62% of the total listed companies) and the limited diversification across GCC sectors (See Table 6.3).

6.2.2 Multivariate Co-integration Test for the North African Capital Markets

Table 6.4 illustrates the results of a co-integration test for the North African capital markets of Egypt, Morocco and Tunisia where at most two co-integrating vectors can exist.

Table 6.4: Likelihood Ratio Test for Co-integration in the North African Capital Markets

Co-integration Test						
Null Hypothesis		Alternative Hypothesis				
			<i>Trace Statistic</i>	<i>0.05 Critical Value</i>	<i>Max-Eigen Statistic</i>	<i>0.05 Critical Value</i>
None	$r=0$	$r \geq 0$	25.18	29.80	19.79	21.13
At Most 1	$r=1$	$r \geq 1$	5.93	15.49	4.38	14.26
At Most 2	$r=2$	$r \geq 2$	1.00	3.84	1.00	3.84

Notes:

r corresponds to the number of co-integrating vectors. In VAR, maximum lag is 4. MacKinnon-Haug-Michelis (1999) is used for critical values.

At the 5% significance level, the trace statistic (25.18) for the first null hypothesis ($r = 0$) is less than the critical value (29.80). Hence, the null hypothesis is not rejected indicating that no co-integrating vector exists among these three markets. There is no need to proceed with the

second ($r=1$) and third null hypotheses ($r=2$). Also, no evidence of integration is found between Egypt, Morocco and Tunisia according to Max-Eigen statistic.

The result of no integration possibly can be explained by the differences in the economic structure of these countries and the weak trade ties among these markets. Further, the absence of integration is empirically sustained by the fact that while the markets of Morocco and Tunisia recorded gains in 2006, the Egyptian market faced several corrections similar to other GCC countries. It could be that these three markets provide more diversification benefits for regional investors compared to other Arab capital markets.

6.2.3 Multivariate Co-integration Test for the MENA Capital Markets

All eleven MENA countries are combined to test for the presence of price co-movements among them over the period 2000-2006. Table 6.5 depicts the results of Johansen co-integration test. Since there are eleven capital markets, at most ten co-integrating vectors may exist to indicate perfectly integrated capital markets.

Table 6.5: Likelihood Ratio Test for Co-integration in the MENA Capital Markets

Co-integration Test						
Null Hypothesis		Alternative Hypothesis				
			<i>Trace Statistic</i>	<i>0.05 Critical Value</i>	<i>Max-Eigen Statistic</i>	<i>0.05 Critical Value</i>
None	$r=0$	$r \geq 0$	445.24 *	285.14	106.35 *	70.53
At Most 1	$r=1$	$r \geq 1$	388.89 *	239.24	85.36 *	64.50
At Most 2	$r=2$	$r \geq 2$	253.53 *	197.37	62.35 *	58.43
At Most 3	$r=3$	$r \geq 3$	191.18 *	159.53	53.55 *	52.36
At Most 4	$r=4$	$r \geq 4$	137.63 *	125.62	39.58	46.23
At Most 5	$r=5$	$r \geq 5$	98.05*	95.73	37.12	40.08
At Most 6	$r=6$	$r \geq 6$	60.93	69.82	26.85	33.88
At Most 7	$r=7$	$r \geq 7$	34.08	47.86	16.93	27.58
At Most 8	$r=8$	$r \geq 8$	17.15	29.80	10.39	21.13
At Most 9	$r=9$	$r \geq 9$	6.76	15.49	6.76	14.26
At Most 10	$r=10$	$r \geq 10$	0.00	3.84	0.00	3.84

Notes:

r corresponds to the number of co-integrating vectors. In VAR, maximum lag is 4.

MacKinnon-Haug-Michelis (1999) is used for critical values.

* indicates the rejection of the null hypothesis of non-stationary (no co-integration) at the 5% significance level.

For each of the first six hypotheses ($r=0$, $r=1$, $r=2$, $r=3$, $r=4$, $r=5$), the trace statistics are greater than the 5% critical value. Therefore, at least five co-integrating vectors exist. For the seventh null hypothesis ($r = 6$), the critical value (69.81) exceeds the trace statistic (60.93) and the null hypothesis is not rejected. Therefore, there exist six co-integrating vectors among the MENA markets. Evaluating the Max-Eigen statistics at the 5% significance level, the first four null hypotheses ($r=0$, $r=1$, $r=2$, $r=3$) are rejected. Thus, at least three co-integrating vectors exist between the eleven Arab markets. The fifth null hypothesis ($r = 4$) is not rejected as the Max-Eigen statistic (39.58) is less than the critical value (46.23). This shows that there are four co-integrating vectors among the eleven MENA countries according to Max-Eigen statistics. The

two test statistics provide evidence that the capital markets in the MENA countries exhibit a moderate level of price co-movements among them, though they are not perfectly integrated.

However, Arab capital markets lack adequate regulations and there is an absence of policy coordination among different countries. As a result, one would expect a weak form of market integration among them, in line with the findings of the GCC region. The moderate level of integration supported empirically could be explained by the cultural similarities inherent in the investment behavior of Arab investors.

6.2.4 Bivariate Co-integration Tests for the Arab markets and the World Developed Markets

This section tests for co-integration between Arab markets and developed markets. The Shuaa Arab composite index, the Shuaa GCC composite index⁴, FTSE 100 and S&P 500 are used as proxies for the Arab and two developed markets respectively.

Table 6.6 summarizes the four co-integration tests for each of the MENA and GCC markets with the US and the UK between the period 2000-2006. For each test, two index series are used implying that at most 2 co-integrating vectors can exist to indicate perfect integration.

⁴ The Shuaa Arab composite index includes the markets of Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Tunisia and UAE.

Table 6.6: Likelihood Ratio Test for Co-integration in the Arab and GCC markets and the world developed markets

Co-integration Test								
Null Hypothesis		Alternative Hypothesis	<i>Trace Statistic</i>	<i>Trace Statistic</i>	<i>0.05 Critical Value</i>	<i>Max-Eigen Statistic</i>	<i>Max-Eigen Statistic</i>	<i>0.05 Critical Value</i>
			<u>US</u>	<u>UK</u>		<u>US</u>	<u>UK</u>	
<u>Arab Markets</u>								
None	$r=0$	$r \geq 0$	7.00	13.50	15.49	5.75	10.34	14.26
At Most 1	$r=1$	$r \geq 1$	1.26	3.16	3.84	1.26	3.16	3.84
<u>GCC Markets</u>								
None	$r=0$	$r \geq 0$	6.85	13.08	15.49	5.24	9.36	14.26
At Most 1	$r=1$	$r \geq 1$	1.61	3.72	3.84	1.61	3.72	3.84

Notes:

r corresponds to the number of co-integrating vectors. In VAR, maximum lag is 4.

MacKinnon-Haug-Michelis (1999) is used for critical values.

The first two rows show the results of the co-integration test between the Arab markets and both the developed markets of US and UK. Both the Trace and Max-Eigen statistics are less than the 5% critical levels and the null hypothesis ($r = 0$) is rejected. This implies that no integration exists between the Arab capital markets and the US and the UK markets.

The last two rows show the results of the co-integration test between the GCC market and both the developed markets of US and UK. Similarly, comparing the Trace and Max-Eigen statistics to the critical levels, the null hypothesis ($r = 0$) is not rejected at 5% significance level. This also implies that no integration exists between the GCC capital markets and the US and the UK markets.

According to Chen et al. (2002), a lack of co-integration suggests that the price series do not exhibit long-run relationships and they can drift randomly far away from each other. The above set of results indicates that the Arab market as a whole and GCC markets are segmented from world developed markets. According to Bekaert and Harvey (1995), segmentation is greatly influenced by the economic and financial policies and the regulations of different countries. Arab capital markets have very low market capitalization, trading volumes, and number of traded shares compared to world developed markets, and they can be generally considered as immature. Further, Arab markets are underdeveloped in terms of laws and investors confidence when compared to world developed markets. They are also considered, to different extents, isolated because of various restrictions on investment, despite efforts underway to liberalize markets in the Arab world in general and the GCC region in particular. Indeed, many challenges still lie ahead. Institutional developments are traditionally regarded as a main obstacle to foreign investments in the region (Girard, 2004). In many Arab countries, stock market investing is fully or partially inaccessible to foreign investors due to political conflicts in the region, government intervention and the slow pace of globalization. The situation is even more complicated because most of the Arab markets lag behind the technological advances of the world developed markets. Technological developments facilitate trading in capital markets through enhanced clearance and settlement mechanisms, ease of information dissemination and better brokerage services.

In this chapter, the empirical findings of both unit root and Johansen co-integration tests are presented. Hence, there is a long run relationship between market prices of the GCC markets, albeit there is a weak form of formal integration. The results also indicate a moderate integration among MENA capital markets, and that Arab markets are found to be isolated from the rest of

the world developed markets. The main implications of these findings are further discussed in the following chapter.

CHAPTER SEVEN

CONCLUSIONS AND POLICY IMPLICATIONS

The last few years witnessed significant changes in the history of Arab capital markets. Between 2000 and 2005, Arab markets experienced an upward trend that was fuelled by high liquidity resulting from rising oil prices. In 2006, however, a market correction originated in Saudi Arabia and spilled over to the other Arab markets throughout the year. One after the other, GCC markets experienced a harsh adjustment in stock prices. The high contagion spillover effects reached the Jordan and Egyptian capital markets, but did not affect other Arab markets or world developed markets.

As a part of plans to form an economic union, GCC countries are expecting to use a unified currency by 2010. A close look at GCC financial markets shows the lack of formal agreements between markets. There are no harmonized rules and regulations for cross-listings, cross memberships, joint ventures and no compatible clearing and settlements systems, in addition to imposing restrictions on foreign investments. Still a high degree of contagion was observed among most GCC markets and some Arab markets. This study tests empirically the degree of co-integration in market prices co-movements among Arab capital markets and with the developed world markets using the Johansen Co-integration approach. Unlike previous studies, this research uses the daily market prices covering the period between 2000 and 2006, which includes both a boom and a correction phase.

The empirical results of the multivariate Johansen cointegration approach show weak evidence of price co-movements among the capital markets of GCC. Evidence of integration in the GCC markets is a reflection of the continuous attempts by the countries to integrate their

economies and markets in preparation for a planned economic union and debut of a common currency in the GCC region. According to Darrat and Al-Shamsi (2005), GCC countries need preconditions for economic unification and the existence of compatible markets is one of these conditions. Also, the results indicate that the macroeconomic fundamentals that affect one GCC market also affect other GCC markets. To illustrate, over the 2000-2005 period, continuous oil price increases positively affected Arab markets. However, while the trend in oil prices continued throughout 2006, GCC markets experienced their first market corrections in that year. This suggests that factors other than macroeconomic fundamentals are driving the markets.

However, the low degree of integration implies two things. First, GCC markets are not yet fully integrated in preparation for the 2010 expected currency union. To reach the objective of a single market economy, GCC stock markets need to be further synchronized in preparation for an economic union and the introduction of a common currency by 2010. Many criteria for the convergence in the GCC countries are still below the requirements which prevailed in Europe at the time of preparation for single currency union. Second, the spillover effects experienced in 2006 can be partly explained by the prevailing long run price co-movements. It is likely that the observed contagion resulted from a herd behavior by Arab investors. According to Hernandez (2001), there is a type of contagion in which investors react to a negative shock in one market and pull out capital from another country without any fundamentals or economic link explaining the behavior. However, as investors' awareness and financial education improve, the adverse effect of linkages between GCC capital markets could be lessened.

The Johansen Co-integration test is also applied on the market prices of all eleven MENA countries. The results show a moderate long run relationship among the prices of these markets.

This implies that there exists a moderate level of integration between Arab markets in the absence of explicit agreements for integration.

In order to achieve greater financial integration in the region, capital market authorities should take many concrete steps to update the legal regulatory frameworks to meet international standards, to improve corporate governance standards and market transparency, to increase the autonomy of exchanges by separating the supervisory role from the management role and to increase investor financial education. According to Maghyereh (2006), the presence of legal and regulatory frameworks enables better governance in the financial markets and protects foreign investors, creating an attractive environment in Arab markets. In addition, Arab capital market authorities should harmonize efforts to establish a compatible trading infrastructure including electronic trading systems, central securities depository and clearing and settlement codes. It is recommended that new policies are developed to encourage private sector participation and family-owned businesses to go public. This would ensure greater diversification of investments across different economic sector compared to the currently dominance of the banking sector. In addition, more IPOs could be expected in the markets in the near future with increased restructuring. Specifically, the liberalization of Saudi market, the region's largest market in terms of market capitalization, is an important step for integration in the Arab markets.

The bivariate co-integration tests between each of the Arab and GCC markets and world developed markets show no evidence for long run price co-movements. This indicates that Arab markets are still immature and isolated from the rest of the world. By implementing liberalization and privatization programs, Arab countries could reap the benefits from integration with the world developed markets. Further, the inexistence of long run relationship between the

Arab markets and world develop markets implies that Arab markets can provide diversification benefits for international investors (Chen et al., 2002).

To sum, in order to survive in the new era of globalization and to build up a comparative advantage, Arab markets should restructure and move towards more formal means of integration. Integration in capital markets results in the efficient allocation of investments, better credit rating, increased foreign investments and a reduction in the cost of borrowing.

Further research can investigate the degree of integration based on the economic and financial ties of MENA countries. Also, capital markets integration should be tested while taking into consideration the effects of country macro variables and institutional framework, including economic determinants (such as GDP), oil prices and investment restrictions. Market liberalization is also likely to affect capital market integration, and future research should examine the impact of liberalization on different Arab markets.

REFERENCES

- Abu Dhabi Securities Market. Available online at <http://www.adsm.co.ae>
- Acemoglu, D., F. Zilibotti. (1997). Was Prometheus Unbound by chance? Risk Diversification and Growth, *Journal of Political Economy*, 105, 709-751.
- Agenor, Pierre-Richard. (2001). Benefits and Costs of International Financial Integration: Theory and Facts, Policy Research Working Paper, World Bank Institute, No. 2699.
- Al Ahram Weekly Online. Available online at <http://weekly.ahram.org.eg>
- Amman Stock Exchange. Available online at <http://www.ase.com.jo>
- Arab Monetary Fund. Available online at <http://www.amf.org.ae>
- Arab News: The Middle East's Leading English Language Daily. Available online at <http://www.arabnews.com>
- Arshanapalli, B., Doukas, J. (1993). International Stock Market Linkages: Evidence from the Pre- and Post-October 1987 period, *Journal of Banking and Finance*, 17, 193-208.
- Asham, Maher. MENA Stock Markets, Riding the Upward Trend Towards Global Markets, 7th annual conference for MENA finance, Lebanese American University, Byblos, Lebanon. May 2005.
- Baele Lieven, Annalisa Ferrando, Peter Hördahl, Elizaveta Krylova and Cyril Monnet. (2004). Measuring Financial Integration in the Euro Area, European Central Bank Working Paper, No.14.
- Bahrain Stock Exchange. Available online at <http://www.bahrainstock.com>
- Beirut Stock Exchange. Available online at <http://www.bse.com.lb>
- Bekaert, Geert. and Campbell. R. Harvey. (1997). Emerging Equity Market Volatility, *Journal of Financial Economics*, 43, 29-77.
- Bekaert, G., and Harvey, C. R. (1995). Time-varying world market integration, *The Journal of Finance*, 50, 403-444.
- Bekaert, G., C. R. Harvey, and C. Lundblad. (2002). Does Financial Liberalization Spur Growth?, NBER Working Paper, No. 8245. (Cambridge, Mass.: National Bureau of Economic Research).

- Berthélemy, J-C. and S. Démurger. (2000). Foreign direct investment and economic growth: theory and application to China, *Review of Development Economics*, 4 (2), 140-155.
- Bikhchandani Sushil and Sunil Sharma. (2001). Herd Behavior in Financial Markets, IMF Staff Papers No.47.3 (Washington: International Monetary Fund).
- Borensztein, E., De Gregorio, J., and J.W. Lee. (1998). How Does Foreign Investment Affect Growth?, *Journal of International Economics*, 45, 115-135.
- Bourse de Tunis. Available online at <http://www.bvmt.com.tn>
- Bowe, Michael and Nikolaos Mylonidis, 1999, Is the European Capital Market Ready for the Single Currency? *Journal of Business Finance and Accounting*, 26, 1-32.
- Brooks, Chris. (2002). *Introductory Econometrics for Finance*, The ISMA centre University of Reading: Cambridge University Press.
- Cairo and Alexandria Stock Exchange. Available online at <http://www.egyptse.com>
- Calvo Guillermo A., Enrique G. Mendoza. Capital Markets Crises and Economic Collapse in Emerging Markets: An Informational Frictions Approach, *American Economic Review*, 90(2), 59-64.
- Capgemini & MerrillLynch. (2006). World Wealth Report.
- Casablanca Stock Exchange. Available online at <http://www.casablanca-bourse.com>
- Cha, B. and S. Oh. (2000). The Relationship between Developed Equity Markets and the Pacific Basin's Emerging Equity Markets, *International Review of Economics and Finance*, 9, 299-322.
- Chan, K. C., Cup, B. E. and M. S. Pan. (1992). An Empirical Analysis of Stock Prices in Major Asian Markets and the United States, *The Financial Review*, 27, 289-307.
- Chan, K.C., B.E. Cup and M.S. Pan. (1997). International stock market efficiency and integration: A study of eighteen nations, *Journal of Business Finance and Accounting*, 24(6), 803-814.
- Chen, G.M., M. Firth and O.M. Rui. (2002). Stock Market Linkages: Evidence from Latin America, *Journal of Banking and Finance*, 26, 1113-1141.
- Choudhry, Taufiq. (1994). Stochastic trends and stock prices: an international inquiry, *Applied Financial Economics*, 4, 383-390.
- Darrat Ali F., Khaled Elkhail and Sam R. Hakim. (2000). On the Integration of Emerging Stock Markets in the Middle East, *Journal of Economic Development*, 25 (2), 119-129.

- Darrat, Ali F. and Fatima S. Al-Shamsi. (2005). On the Path of Integration in the Gulf Region, *Applied Economics*, 39(4), 1055-1058.
- Dickey, D.A. and Fuller, W.A. (1979). Distribution of the estimators for autoregressive time series with a unit root, *Journal of the American Statistical Association*, 74, 427-431.
- Doha Securities Market. Available online at <http://www.dsm.com.qa>
- Dubai Financial Market. Available online at <http://www.dfm.co.ae>
- Eun, C., Shim, S.(1989). International Transmission of Stock Market Movements, *Journal of Financial and Quantitative Analysis*, 24, 241-256.
- Fisher, Kenneth L., and Meir Statman. (2003). Consumer Confidence and Stock Returns, *Journal of Portfolio Management*, 30, 115-128.
- Floros, Christos. (2005). Price Linkages Between the US, Japan and UK Stock Markets, *Journal Financial Markets and Portfolio Management*, 19(2), 169-178.
- Forbes, K.J., Rigobon, R. (2002). No contagion, only interdependence: measuring stock market comovements, *The Journal of Finance*, 57, 2223-2261.
- Fraser, Patricia and Oluwatobi Oyefeso. (2005). US, UK and European Stock Market Integration, *Journal of Business Finance and Accounting*, 32(1) and (2), 306-686.
- Giannone, Domenico, and Lucrezia Reichlin. (2006). Trends and Cycles in the Euro Area: How Much Heterogeneity and Should we Worry About It?, *European Central Bank Working Paper*, No 595. (London: European Central Bank).
- Girard, E. and E. Ferreira. (2004). On the Evolution of Inter- and Intraregional Linkages to Middle East and North African Capital Markets, *Quarterly Journal of Business and Economics*, 43, 21-43.
- Global Investment House KSCC. (2006). GCC Market Review August 2006. Kuwait. Available online at www.globalinv.net.
- Grubel, H. (1968). Internationally Diversified Portfolios, *American Economic Review*, 58, 1299-1314.
- Gulf Capital Group, Gulf capital Report. Available online at <http://www.Gulfcapital.com>.
- Gulf Cooperation Council (GCC), 1981, Foundation and Objectives. Available online at <http://www.gcc-sg.org>.

- Gulf Economist: Persian Gulf Economy and Politics. Available online at <http://www.gulfeconomist.com>
- Gulf Times: Qatar's Daily Newspaper. Available online at <http://www.gulf-times.com>
- Gunduz, Lokman and Mohammed Omran, 2000, Stochastic Trends and Stock Prices in Emerging Markets: The Case of Middle East and North Africa Region, Paper presented at METU International Conference in Economics IV, Ankara.
- Hammoudeh, S. and E. Aleisa. (2004). Dynamic Relationships among GCC Stock Markets and NYMEX Oil Futures, *Contemporary Economy Policy*, 22, 250-269.
- Harvey, Campbell R. (2000). The Drivers of Expected Returns in International Markets, *Emerging Markets Quarterly*, 4, 32- 49.
- Hassan, Aqil Mohammed Hadi (2003). Financial Integration of Stock Markets in the Gulf: Multivariate Cointegration Analysis, *International Journal of Business*, 8(3), 335-346.
- Hernández, Leonardo F. and Rodrigo O. Valdés. (2001). What drives contagion: Trade, neighborhood, or financial links?, *International Review of Financial Analysis*, 10(3), 203-218.
- Hilliard, J. E. (1979). The Relationship Between Equity Indices on World Exchanges, *The Journal of Finance*, 34, 103-114.
- IEA (International Energy Agency). Available online at <http://www.iea.org>.
- IIF (Institute of International Finance). (August 15, 2006). Summary Appraisal: Gulf Cooperation Council Countries. The Institute of International Finance, Inc. Washington, D.C.
- International Labour Office. Global Employment Trends Brief, January 2007.
- International Monetary Fund. Foreign Direct Investment Trends and Statistics Prepared by the Statistics Department. Approved by Carol S. Carson (2003).
- International Monetary Fund. (2006). Regional Economic Outlook: Middle East and Central Asia, May. Washington, D.C.
- International Monetary Fund. (2007). Regional Economic Outlook: Middle East and Central Asia, May. Washington, D.C.
- International Monetary Fund. (2006). Middle East and North Africa, Economic Developments and Prospects. Washington, D.C.

- International Monetary Fund. (2005). Annual Report on Exchange Arrangements and Exchange Restrictions 2005,
- Jeon, Bang Nam and George M. Von Furstenberg. (1990). Growing International Co-Movement in Stock Price Indexes, *The Quarterly Review of Economics and Business*, 30(3), 15-30.
- Johansen, S. (1995). *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*, Oxford University Press, 4, 45-66.
- Johansen, Søren. (1991). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models, *Econometrica*, 59, 1551-1580.
- Kanas, Angelos. (1998). Linkages Between the US and European Equity Markets: Further Evidence From Cointegration Tests, *Applied Financial Economics*, 8, 607-614.
- Kasa, K., (1992). Common Stochastic Trends in International Stock Markets, *Journal of Monetary Economics*, 29, 95-124.
- King, Mervyn A. and Wadhwani, Sushil. (1990). Transmission of Volatility Between Stock Markets, *The Review of Financial Studies*, 3 (1), 5-33.
- Koch, P. D. and T.W. Koch. (1993). Dynamic Relationships among the Daily Levels of National Stock Indexes. In S. R. Stansell, ed., *International financial market integration*. Blackwell, 299-328.
- Kose, M. Ayhan, Eswar S. Prasad, and Marco E. Terrones. (2003). *Financial Integration and Macroeconomic Volatility*, IMF Staff Papers No.50.1 (Washington: International Monetary Fund).
- Kose M. Ayhan, Eswar Prasad, Kenneth Rogoff, and Shang-Jin Wei. (2006). *Financial Globalization: A Reappraisal*, IMF Working Paper, No.189. (Washington: International Monetary Fund).
- Krugman, R. Paul and Anthony J. Venables. (1993). *Integration, Specialization, and Adjustment*, National Bureau of Economic Research (NBER) Working Paper No. 4559.
- Kuwait Stock Exchange. Available online at <http://www.kse.com.kw>
- Lagoarde-Segot and Lucey. (2005). Stock Market Predictability in the MENA: Evidence from New Variance Ratio Tests and Technical Trade Analysis, *The Institute for International Integration Studies Discussion Paper Series*, No. 92.
- Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature*, 35, 688-726.

- Levine, Ross. (2001). International Financial Liberalization and Economic Growth, *Review of International Economics*, 9(4), 688-704.
- Levy, H. and M. Sarnat. (1970). International diversification of investment portfolios, *American Economic Review*, 60, 668-675.
- MacKinnon, James G., Alfred A. Haug, and Leo Michelis.(1999). Numerical Distribution Functions of Likelihood Ratio Tests For Cointegration, *Journal of Applied Econometrics*, 14, 563-577.
- Maghyereh A. and Haitham Al-Zoubi and Sadeq Abderraheem. (2005). Is there a diversification benefit from investing in the Arab Gulf stock markets? A multivariate GARCH analysis. *Global Business and Economics Review*, 7(4), 324-342.
- Maghyereh, A. (2006).Regional Integration of Stock Markets in MENA Countries, *Journal of Emerging Market Finance*, 5, 59-94
- Maghyereh, A. and H. Al-Zoubi. (2004). Modelling the Dynamic Interdependence of MENA Stock Markets: A Multivariate Analysis, *Journal of Economic Research*, 9, 239-270.
- Malliaris A. G. and Jorge L. Urrutia. (1992).The International Crash of October 1987: Causality Tests, *Journal of Financial and Quantitative Analysis*, 27(3), 353-364.
- Manning, N.(2002).Common Trends and Convergence? South East Asian Equity Markets, 1988–1999, *Journal of International Money and Finance*, 21, 183-202.
- Marashdeh, Hazem, 2005, Stock Market Integration in the MENA Region: An Application of the ARDL Bounds Testing Approach, University of Wollongong Economics Working Paper No. 05-27. Available online at: <http://www.uow.edu.au/commerce/econ/wpapers.html>
- Masih A.M.M. and Masih, R. (1997). Dynamic Linkages and the Propagation Mechanism Driving Major International Stock Markets: An Analysis of the Pre- and Post-Crash Eras, *Quarterly Review of Economics and Finance*, 37(4), 859-885.
- Masson, Paul R. (1999). Multiple Equilibria, Contagion, and the Emerging Market Crises, IMF Working Paper, No. 164. (Washington: International Monetary Fund)
- Masson, Paul R. (1998). Contagion-Monsoonal Effects, Spillovers, and Jumps Between Multiple Equilibria, IMF Working Paper, No.142. (Washington: International Monetary Fund)
- Mendoza, Enrique G., Quadrini, Vincenzo and Rios-Rull, José-Victor. (2007). Financial Integration, Financial Deepness and Global Imbalances, National Bureau of Economic Research (NBER) Working Paper, No.12909.

- Meric, I., and Meric, G. (1989). Potential gains from international portfolio diversification and inter-temporal stability and seasonality in international stock market relationships, *Journal of Banking and Finance*, 13, 627-640.
- Muscat Securities Market. Available online at <http://www.msm.gov.om>
- Narayan, P., R. Smyth and M. Nandha. (2004). Interdependence and Dynamic Linkages between the Emerging Stock Markets of South Asia, *Accounting and Finance*, 44, 419-439.
- Neaime, Simon. Liberalization and Financial Integration of MENA Stock Markets. Paper presented at the Economic Research Forum's 9th Annual Conference on Finance and Banking in Al- Sharja – United Arab Emirates, 26-28 October 2002.
- Noyer, Christian. The Development of Financial Markets in the Euro Area, Speech at the Royal Institute of International Affairs, London, 26 June 2000, http://www.ecb.int/key/00/sp000626_1.htm
- Obstfeld, Maurice. (1994). Risk-Taking, Global Diversification, and Growth, *American Economic Review*, 85, 1310-1329.
- OECD (Organization for Economic Cooperation and Development). (2005). MENA-OECD Investment Programme. OECD Publishing.
- Patterson Neil, Marie Montanjees, John Motala and Colleen Cardillo. (2004) Foreign Direct Investment: Trends, Data, Availability, Concepts, and Recording Practices, *International Monetary Fund*, 1(1), 1-44. (Washington D.C.)
- Phillips, P.C.B. and Perron, P. (1988). Testing for a unit root in time series regression, *Biometrika*, 75, 335-346.
- Phylaktis, Kate and Fabiola Ravazzolo. (2002). Measuring Financial and Economic Integration with Equity Prices in Emerging Markets, *Journal of International Money and Finance*, 21, 879-903.
- Roca E.D., Selvanathan E.A. and Shepherd W.F. (1998). Are the ASEAN Equity Markets Interdependent?, *ASEAN Economic Bulletin*, 15, 109-121.
- Saadi-Sedik, T. and Martin Petri. (2006). The Jordanian Stock Market-Should You Invest in It for Risk Diversification or Performance?, IMF Working Paper No.187 (Washington: International Monetary Fund).
- Schwarz, G. (1978). Estimating the Dimension of a Model, *Annals of Statistics*, 6, 461-464.
- Sheng, Hsiao-Ching and Anthony H.Tu. (1998). A study of cointegration and variance decomposition among national equity indices before and during the period of the Asian financial crisis, *Journal of Multinational Financial Management*, 10, 345-365.

Shuaa Capital PJSC. Available online at <http://www.shuaacapital.com>

Stiglitz, J. (2002). *Globalization and its Discontents*, New York: Norton.

Stiglitz, J.E. (2000). Capital Market Liberalization, Economic Growth and Instability. *World Development*, 28(6), 1075-1086.

Stulz, Rene M. (1981). A model of international assets pricing, *Journal of Financial Economics*, 9, 923-934.

Summers. H. Lawrence.. (2000). International Financial Crises: Causes, Prevention, and Cures, *American Economic Review*, 90 (2), 1-16.

Summary Appraisal Gulf Cooperation Council Countries, 2006. The Institute of International Finance, Inc.

Tadawul Stock Exchange. Available online at <http://www.tadawul.com.sa>

Townsend, R. (1994). Risk and Insurance in Village India, *Econometrica*, 62, 539-592.

Trichet, Jean Claude The Process of Financial Integration, Mais Lecture at the Class Business School, London May 2006. Available online at https://www.ecb.int/press/key/date/2006/html/sp060511_1.en.html.

UNCTAD (United Nations Conference on Trade and Development). (2006). *World Investment Report*. Switzerland.

World Federation of Exchanges. Available online at <http://world-exchanges.org>

Wurgler, J. (2000). Financial Markets and the Allocation of Capital, *Journal of Financial Economics*, 58, 187-214.

Yahoo Finance. Available online at <http://www.quote.yahoo.com>

Yang, J., J.W. Kolari and I. Min. (2004). Stock Market Integration and Financial Crises: The Case of Asia, *Applied Financial Economics*, 13, 477-486.

APPENDICES

Appendix A
Table 4.2 Shuaa Capital Price Indices
(US\$ Million)

MARKET NAME	2000	2001	2002	2003	2004	2005	Q1 2006	Q2 2006	Q3 2006	2006
ALGERIA STOCK EXCHANGE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BAHRAIN STOCK EXCHANGE	817	795	833	1,017	1,223	1,434	1,307	1,292	1,426	1,418
EGYPT CAPITAL MARKET	563	307	291	410	872	2,084	2,131	1,572	2,057	2,205
AMMAN FINANCIAL MARKET	784	1,028	1,006	1,584	2,631	5,119	4,520	3,828	3,839	3,422
KHARTOUM STOCK EXCHANGE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KUWAIT STOCK EXCHANGE	1,104	1,462	1,855	3,040	3,291	5,892	5,151	5,261	5,492	5,709
BEIRUT STOCK EXCHANGE	808	593	610	636	890	1,954	2,339	2,318	2,050	1,747
CASABLANCA STOCK EXCHANGE	807	652	579	868	1,041	1,082	1,447	1,409	1,541	1,779
MUSCAT SECURITIES MARKET	811	612	769	1,083	1,403	1,737	1,777	1,649	1,800	1,832
DOHA SECURITIES MARKET	956	1,355	1,793	2,804	4,148	7,922	6,510	5,587	5,569	5,084
SAUDI CAPITAL MARKET	1,154	1,164	1,163	1,985	3,631	7,186	7,594	5,667	4,737	3,424
TUNIS STOCK EXCHANGE	1,112	832	730	868	912	933	1,103	1,128	1,238	1,386
UAE MARKET	795	1,020	1,121	1,448	2,939	5,939	5,154	3,725	4,016	3,427
Shuaa Arab Composite Index	925	957	1,027	1,617	2,663	5,095	5,035	3,975	3,773	3,238

Source: www.shaaacapiat.com

Appendix B
Table 4.3 Market Capitalization of Arab Stock Markets
(US\$ Million)

MARKET NAME	2000	2001	2002	2003	2004	2005	Q1 2006	Q2 2006	Q3 2006	2006
ALGERIA STOCK EXCHANGE	-	-	-	144	140	91	146	91	97	96
BAHRAIN STOCK EXCHANGE	6,624	6,601	7,716	9,702	13,513	17,364	16,903	17,313	21,227	21,122
EGYPT CAPITAL MARKET	30,791	24,309	26,339	27,847	38,077	79,508	78,316	65,508	84,785	93,496
AMMAN FINANCIAL MARKET	4,943	6,314	7,087	10,963	18,383	37,639	34,929	31,837	32,710	29,729
KHARTOUM STOCK EXCHANGE	-	-	-	747	2,058	3,242	3,992	3,563	3,824	4,624
KUWAIT STOCK EXCHANGE	19,848	26,662	35,099	59,528	73,581	123,893	106,269	105,863	106,825	105,950
BEIRUT STOCK EXCHANGE	1,583	1,248	1,395	1,503	2,331	4,917	7,081	7,003	7,135	8,304
CASABLANCA STOCK EXCHANGE	10,876	9,031	8,564	13,050	25,175	27,274	37,476	37,497	42,750	49,415
MUSCAT SECURITIES MARKET	3,518	2,634	5,268	7,246	9,318	12,062	12,334	12,034	13,090	13,037
PALESTINE STOCK EXCHANGE	-	-	-	-	-	-	3,157	2,498	1,613	2,547
DOHA SECURITIES MARKET	-	-	10,567	26,702	40,435	87,143	70,028	64,048	65,778	60,905
SAUDI CAPITAL MARKET	67,166	73,201	74,851	157,306	306,256	646,121	676,100	525,040	457,381	326,852
TUNIS STOCK EXCHANGE	2,809	2,230	2,126	2,440	2,574	2,821	3,354	3,317	3,818	4,222
DUBAI FINANCIAL MARKET	-	-	9,470	14,284	35,091	111,993	103,484	83,589	95,932	86,895
ABU DHABI SECURITIES MARKET	-	-	20,376	30,363	55,490	132,413	116,200	93,762	93,980	80,745
TOTAL	148,158	152,230	208,858	361,825	622,422	1,289,638	1,269,111	1,052,078	1,031,879	888,121

Source: Arab Monetary Fund Database

Data for 1994 and 1995 include the participating markets of Jordan, Bahrain, Tunisia, Oman, Morocco, Saudi Arabia, Egypt, and Kuwait.

Data for 2002 include all the participating markets plus those of Abu Dhabi, Dubai and Qatar

Data for 2003 include all the participating markets plus those of Sudan and Algeria.

Data for 2005 include all the participating markets plus those of Palestine.

Appendix C
Table 4.4 Value of Shares Traded on Arab Stock Markets
(US\$ Million)

MARKET NAME	2000	2001	2002	2003	2004	2005	Q1 2006	Q2 2006	Q3 2006	Q4 2006	2006
ALGERIA STOCK EXCHANGE	-	-	-	-	0	0	0	0	0	0	0
BAHRAIN STOCK EXCHANGE	245	250	206	261	463	711	195	378	579	235	1,387
EGYPT CAPITAL MARKET	11,799	5,913	6,444	4,349	6,824	27,672	16,979	8,751	10,349	12,874	48,953
AMMAN FINANCIAL MARKET	406	934	1,335	2,607	5,327	23,802	6,553	6,275	5,459	3,330	21,617
KHARTOUM STOCK EXCHANGE	-	-	-	67	131	501	149	318	343	159	969
KUWAIT STOCK EXCHANGE	4,208	11,711	22,123	54,729	51,811	97,304	15,909	15,716	10,167	17,808	59,600
BEIRUT STOCK EXCHANGE	118	53	115	131	198	923	1,180	395	248	208	2,031
CASABLANCA STOCK EXCHANGE	1,211	841	1,440	2,443	3,743	8,056	1,702	2,006	1,639	3,763	9,110
MUSCAT SECURITIES MARKET	551	420	582	1,334	1,985	3,321	737	518	463	497	2,215
PALESTINE STOCK EXCHANGE	-	-	-	-	-	1,490	357	132	186	192	1,067
DOHA SECURITIES MARKET	-	-	883	3,220	6,343	28,251	4,752	4,956	6,259	4,618	20,585
SAUDI CAPITAL MARKET	17,313	22,223	30,974	159,056	472,998	1,103,567	481,464	355,372	374,640	191,466	1,402,942
TUNIS STOCK EXCHANGE	687	342	246	189	255	534	113	180	107	164	564
DUBAI FINANCIAL MARKET	-	-	688	1,027	13,736	110,301	27,940	31,525	21,536	13,734	94,735
ABU DHABI SECURITIES MARKET	-	-	363	1,004	4,450	28,505	5,920	7,600	4,028	1,674	19,222
TOTAL	36,539	42,688	65,400	230,417	568,264	1,434,938	563,950	434,122	436,003	250,722	1,684,997

Source: Arab Monetary Fund, AMDB

Data for 1994 and 1995 include the participating markets of Jordan, Bahrain, Tunisia, Oman, Morocco, Saudi Arabia, Egypt, and Kuwait.

Data for 2002 include all the participating markets plus those of Abu Dhabi, Dubai and Qatar

Data for 2003 include all the participating markets plus those of Sudan and Algeria.

Data for 2005 include all the participating markets plus those of Palestine.

Appendix D
Table 4.5 Volume of Shares Traded on Arab Stock Markets
(US\$ Million)

MARKET NAME	2000	2001	2002	2003	2004	2005	Q1 2006	Q2 2006	Q3 2006	Q4 2006	2006
ALGERIA STOCK EXCHANGE	-	-	-	0	0	0	0	0	0	0	0
BAHRAIN STOCK EXCHANGE	422	313	353	405	337	458	113	220	244	152	729
EGYPT CAPITAL MARKET	953	1,184	833	1,368	2,435	5,310	2,135	1,606	2,542	2,731	9,014
AMMAN FINANCIAL MARKET	178	335	456	1,000	1,322	2,583	878	1,202	1,348	840	4,268
KHARTOUM STOCK EXCHANGE	-	-	-	4,367	2,147	1,731	140	5,143	1,938	362	7,583
KUWAIT STOCK EXCHANGE	6,758	20,825	42,163	49,565	33,540	52,201	9,029	10,613	7,002	11,014	37,658
BEIRUT STOCK EXCHANGE	20	15	26	23	25	90	73	34	16	12	135
CASABLANCA STOCK EXCHANGE	16	16	22	35	180	439	55	47	36	40	178
MUSCAT SECURITIES MARKET	144	124	191	294	350	452	110	272	270	271	923
PALESTINE STOCK EXCHANGE	-	-	-	-	-	369	70	44	61	58	233
DOHA SECURITIES MARKET	-	-	80	190	305	1,033	810	367	687	565	2,429
SAUDI CAPITAL MARKET	552	690	1,736	5,566	10,298	12,281	3,247	18,845	18,960	13,388	54,440
TUNIS STOCK EXCHANGE	29	21	17	13	21	41	8	10	16	22	56
DUBAI FINANCIAL MARKET	-	-	148	326	5,122	25,542	8,760	12,989	11,280	6,616	39,645
ABU DHABI SECURITIES MARKET	-	-	61	235	947	8,317	3,153	3,884	2,636	1,622	11,295
TOTAL	9,073	23,523	46,086	63,389	57,029	110,847	28,581	55,276	47,036	37,693	168,586

Source: Arab Monetary Fund, AMDB

Data for 1994 and 1995 include the participating markets of Jordan, Bahrain, Tunisia, Oman, Morocco, Saudi Arabia, Egypt, and Kuwait.

Data for 2002 include all the participating markets plus those of Abu Dhabi, Dubai and Qatar

Data for 2003 include all the participating markets plus those of Sudan and Algeria.

Data for 2005 include all the participating markets plus those of Palestine.

Appendix E
Table 4.6 Number of Listed Companies on Arab Stock Markets
(US\$ Million)

MARKET NAME	2000	2001	2002	2003	2004	2005	Q1 2006	Q2 2006	Q3 2006	2006
ALGERIA STOCK EXCHANGE	-	-	-	3	3	3	3	2	2	2
BAHRAIN STOCK EXCHANGE	41	42	40	44	45	47	47	49	50	50
EGYPT CAPITAL MARKET	1,071	1,110	1,150	967	792	744	706	656	632	603
AMMAN FINANCIAL MARKET	163	161	158	161	192	201	209	214	222	227
KHARTOUM STOCK EXCHANGE	-	-	-	47	48	49	50	51	52	52
KUWAIT STOCK EXCHANGE	86	88	95	108	125	156	161	172	175	180
BEIRUT STOCK EXCHANGE	13	14	13	14	16	15	15	15	16	16
CASABLANCA STOCK EXCHANGE	54	55	55	52	53	54	54	55	58	63
MUSCAT SECURITIES MARKET	131	96	140	141	123	125	124	124	119	121
PALESTINE STOCK EXCHANGE	-	-	-	-	-	28	28	27	31	33
DOHA SECURITIES MARKET	-	-	25	28	30	32	33	34	36	36
SAUDI CAPITAL MARKET	75	76	68	70	73	77	79	80	81	86
TUNIS STOCK EXCHANGE	44	45	46	45	44	45	46	46	48	48
DUBAI FINANCIAL MARKET	-	-	12	13	18	30	33	36	40	46
ABU DHABI SECURITIES MARKET	-	-	24	30	35	59	59	59	59	60
TOTAL	1,678	1,687	1,826	1,723	1,597	1,665	1,647	1,620	1,621	1,623

Source: Arab Monetary Fund, AMDB

Data for 1994 and 1995 include the participating markets of Jordan, Bahrain, Tunisia, Oman, Morocco, Saudi Arabia, Egypt, and Kuwait.

Data for 2002 include all the participating markets plus those of Abu Dhabi, Dubai and Qatar

Data for 2003 include all the participating markets plus those of Sudan and Algeria.

Data for 2005 include all the participating markets plus those of Palestine.

Appendix F
Table 6.3 Companies Listed on Stock Exchanges in the Gulf Cooperation Council (GCC) Region

Sectors	Bahrain Stock Exchange	Kuwait Stock Exchange	Dubai Financial Market	Abu Dhabi Securities Market	Muscat Securities Market	Tadawul Stock Exchange	Doha Securities Market
Financial Sector	26	59	29	30	40	16	13
Real Estate & Construction	0	31	9	13	0	8	0
Industrial	2	26	0	4	66	36	7
Services and Other	14	58	14	17	49	34	16
Total Listed Companies	42	174	52	64	155	94	36

Source: Individual Stock Exchanges' Website accessed on August 7, 2007