Financial integration of the MENA emerging stock markets

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Financial Integration of the MENA Emerging Stock Markets

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by

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Certification

I, Hazem Marashdeh, declare that this dissertation, submitted in fulfillment of the requirement for the award of Doctor of Philosophy in the faculty of commerce, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Hazem Marashdeh

December 2005
Dedication

To the dearest friend

my father

Ali Marashdeh
Acknowledgments

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Abstract

The main objective of this study is to examine the financial integration among four emerging stock markets in the Middle East and North Africa (MENA) region, namely, Egypt, Turkey, Jordan and Morocco. Their interrelationships with three developed markets, the US, UK and Germany, are also examined. The motivation behind this study is that, although a lot of research has been focused on stock market integration, the emphasis has been mostly on developed markets. Stock market integration in the MENA region has not been investigated deeply enough despite the region being of a global economic and political importance.

To attain this objective, the study conducts recent econometric techniques on the monthly time series of stock market price indices. It starts with testing for a unit root in the presence of structural change at an unknown time of the break, using the Innovational Outlier (IO) model. To empirically examine the financial integration, the study utilizes the newly proposed autoregressive distributed lag (ARDL) approach to cointegration. The ARDL approach has been recognized as more preferable in estimating the long-run equilibrium relationship than other cointegration approaches in small samples with mixed order process. Finally, the study explores the short and long-run dynamic relationships among these markets using Granger-causality within a correctly specified vector error correction model (VECM).

The empirical results indicate that all variables show evidence of non-stationarity, even in the presence of structural change. The endogenously determined times of the breaks for all markets coincide with observed real events which affected each market. This result is consistence with the efficient market hypothesis as the non-stationarity random walk is associated with the weak form of the efficient market hypothesis. Consequently, this result emphasises that the stock markets in the MENA region are efficient.

The cointegration test results show that there are long-run equilibrium relationships among all stock markets in the MENA region. This indicates that stock markets in the MENA region move together in the long-run. So, at the regional level all markets are integrated. At the same time no long-run equilibrium relationship is found between MENA markets and developed markets. This means that the MENA stock markets are segmented from developed markets. However, Egypt was the exceptional
case; the study found that the stock market of Egypt has long-run equilibrium relationship with the US and UK markets.

The implications of these findings are analysed at two levels, the regional and international. At the regional level, the existence if cointegration among the MENA markets implies the existence of the law of one price (LOOP). This means that the potential of regional investors for obtaining abnormal profits through portfolio diversification is limited in the long-run. The reason for this is that as the MENA stock markets are cointegrated, abnormal profits will be arbitraged away in the long-run. However, despite no arbitrage opportunities in the long-run, investors can still achieve arbitrage profits through portfolio diversification in the short-run.

At the international level, the results show that stock markets in Turkey, Jordan and Morocco are not integrated with developed markets. This means that there is no long-run impact from developed stock markets towards these markets. However, a long-run relationship is found between Egypt and both US and UK when Egypt is a dependent variable. Based on these results, there are opportunities for international investors to obtain long-run gains through international portfolio diversification in stock markets of Turkey, Jordan and Morocco. Also at the same time, investors from these three countries have the opportunities to obtain long-run gains through investing in developed markets. The existence of long-run relationships between Egypt and both US and UK implies that the potential for investors from the Egyptian stock market to obtain abnormal profit through portfolio diversification in the US and UK is limited in the long-run. However, there are opportunities for achieving abnormal profit by investing in Germany as it is not cointegrated with the MENA markets. In the short-run, arbitrage opportunities and possible profits may also be achieved from diversification as the LOOP may not hold.

In addition to these findings, an important contribution is made by this study. It contradicted Granger’s (1986) theory on the relationship between the existence of cointegration and market efficiency. Granger (1986) asserted that the existence of cointegration between two stock prices implies the ability to predict each price movement, which indicates market inefficiency. Also, this study does not fully agree with another stream of studies, such as Wallace (1992), Baffes (1994), Engle (1996), Ahlgren and Antell (2002) and Masih and Masih (2002) in which they asserted that cointegration does not necessarily imply market inefficiency or efficiency. However, what this study tries to bring out is that if cointegration exists between two stock
markets then these markets are efficient in the long-run because the existence of cointegrated vector implies the (LOOP). Therefore, little or no arbitrage opportunities or possible benefit can be achieved from the diversification of a portfolio across markets. However, with the short-run error correction model (ECM), there could exist arbitrage opportunities and possible benefits from diversification. That is, the LOOP may not hold in the short run.

The results of Granger-causality test based on the vector error correction model (VECM) reveal the existence of short-run causal relationships among the MENA markets. This means that these markets influence each other. Also, the results show that developed markets influenced stock markets in the MENA region. In the short-run, there is unidirectional Granger-causality running from stock prices in Turkey, Morocco, the US and UK to Egypt. Also, there is unidirectional Granger-causality running from Germany and the US towards Turkey. In addition, The UK and Turkey are found to Granger-cause the stock prices in Jordan. Finally, there is a unidirectional Granger-causality from Germany to Morocco.

Finally, despite the empirical results show that there is a possibility of an increase in the portfolio equity flow to the MENA stock markets, the statistics of portfolio equity flow show little portfolio inflow to the region from developed countries over the period of study. Some of the reasons behind this situation are that most of these markets are still from some perspective underdeveloped, vulnerable to macroeconomic shocks and political instability in the region. Based on this, the study suggests that huge efforts should be carried on to improve the institutional reforms in these markets and increase the degree of openness for foreign capital. Also increasing the markets capitalization and adopting new technology are very crucial factors for attracting equity portfolio to the region.
Table of Contents

Certification ii
Dedication iii
Acknowledgment iv
Abstract v
Table of Contents viii
List of Tables xi
List of Figures xii
Abbreviations xiii
Publication from the research xiv

Chapter 1. Introduction
1.1 Background of the Study 1
1.2 Objective of the Study 4
1.3 Data and Methodology 7
   1.3.1 Data Sources 7
   1.3.2 Method of the Study 8
1.4 Structure of the Study 9

Chapter 2. The Early Theoretical Models Relating to Stock Market Integration
2.1 Introduction 12
2.2 The Notion of Stock Markets Integration 13
2.3 The Early Theoretical Studies Relating to Stock Markets Integration 18
2.4 Asset Pricing Model for Testing Stock Market Integration 22
2.5 Arbitrage Pricing Theory (APT) for Testing Stock Markets Integration 30
2.6 Alternative Approaches for Testing Stock Markets Integration 36
2.7 Conclusion 38

Chapter 3. The Recent Techniques Relating to Stock Market Integration: The Cointegration Approach
3.1 Introduction 40
3.2 Cointegration Approach for Testing Stock Market Integration 41
3.3 The Asian Financial Crisis and Stock Market Integration 54
3.4 Efficient Market Hypothesis 60
   3.4.1 Cointegration and Stock Market Efficiency 61
   3.4.2 More Evidences on Stock Markets Efficiency 66
   3.4.3 A new Approach for the Relationship between Cointegration and Efficiency 67
3.5 The Integration of the Emerging Stock Markets in the MENA Region 69
Chapter 4. Features and Characteristics of the Emerging Stock Markets in the MENA Region

4.1 Introduction

4.2 General Economic Features of the MENA Region

4.3 An Overview of the Emerging Stock Markets in the MENA Region

4.3.1 Stock Market Liberalization of the Emerging Stock markets in MENA Region

4.3.2 The Stock Market in Egypt

4.3.3 The Stock Market in Turkey

4.3.4 The Stock Market in Jordan

4.3.5 The Stock Market in Morocco

4.4 Conclusion

Chapter 5. Structural Changes and Efficiency in the MENA Stock Markets

5.1 Introduction

5.2 Data and descriptive statistics

5.3 The Conventional Augmented Dickey-Fuller (ADF) and Phillips–Perron (PP) Unit Root Tests

5.4 The Development of Testing for Structural Change

5.4.1 Procedures for Selecting the Order of the Lag

5.4.2 Procedures for Determining the Time of the Break

5.5 Testing for Structural Changes in MENA Stock Markets

5.6 The Random Walk Behavior and the Efficiency of the MENA Stock Markets

5.7 Conclusion

Chapter 6. Stock Market Integration in the MENA Region: Cointegration and Causality Tests

6.1 Introduction

6.2 The Autoregressive Distributed Lag (ARDL) Approach to Cointegration

6.3 Model Specification

6.4 Interpretation of the Results

6.4.1 Stock Market of Egypt

6.4.2 Stock Market of Turkey

6.4.3 Stock Market of Jordan

6.4.4 Stock Market of Morocco
List of Tables

2.1 A summary for the Results of the Main Previous Studies 35
3.1 Summary of Selective empirical Studies on Stock Market Integration 57
4.1 Economic Overview for MENA Countries 86
4.2 Openness of Stock Markets in MENA Region 89
4.3 Portfolio Equity Net Flows to Stock Markets in MENA Region 90
4.4 Egypt Stock Market Indicators 95
4.5 Istanbul Stock Exchange Indicators 100
4.6 Amman Stock Exchange Indicators 106
4.7 Casablanca Stock Exchange Indicators 111
5.1 Descriptive Statistics for Monthly Stock Returns in (Local Currency) 136
5.2 Descriptive Statistics for Monthly Stock Returns in ($US) 138
5.3 Correlation Coefficients for Monthly Stock Indices in (Local Currency) 140
5.4 Correlation Coefficients for Monthly Rate of Returns in (Local Currency) 140
5.5 Correlation Coefficients for Monthly Stock Indices in ($US) 142
5.6 Correlation Coefficients for Monthly Rate of Return in ($US) 142
5.7 Estimated Results of ADF and PP Unit Root Tests (Local Currency) 145
5.8 Estimated Results of ADF and (PP) Unit Root Tests ($US) 145
5.9 Estimated Results of ADF and PP Unit Root Tests (Local Currency) 146
5.10 Estimated Results of ADF and PP Unit Root Tests ($US) 146
5.11 Empirical Results, Perron’s (1997) Model (IO2), (Local Currency) 163
5.12 Empirical Results, Perron’s (1997) Model (IO1), (Local Currency) 163
5.13 Empirical Results, Perron and Vogelsang (1992) (IO), (Local Currency) 165
5.14 Empirical Results, Perron’s (1997) Model (IO2), ($US) 168
5.15 Empirical Results, Perron’s (1997) Model (IO1), ($US) 168
5.16 Empirical Results, Perron and Vogelsang (1992) (IO) Model, ($US) 169
6.1 F-Statistics for Testing the Existence of a long-Run Relationship 184
6.2 Long-Run Coefficients Estimated Based on ARDL (1,0,0,0,1,1,0) Model Selected Based on SBC. Dependent Variable: Egypt (lnE) 185
6.3 Error Correction Model (ECM) Results for the Selected ARDL (1,0,0,0,1,1,0) Model Selected Based on SBC. Dependent Variable: ΔlnE 187
6.4 Long-Run Coefficients Estimated Based on ARDL (1,0,0,0,0,0,1) Model Selected Based on SBC. Dependent Variable: Turkey (lnT) 188
6.5 Error Correction Model (ECM) Results for the Selected ARDL (1,0,0,0,0,0,1) Model Selected Based on SBC. Dependent Variable: ΔlnT 190
6.6 Long-Run Coefficients Estimated Based on ARDL (1,0,1,0,0,0,2,0) Model Selected Based on SBC. Dependent Variable: Jordan (lnJ) 191
6.7 Error Correction Model (ECM) Results for the Selected ARDL (1,0,1,0,0,0,2,0) Model Selected Based on SBC. Dependent Variable: ΔlnJ 192
6.8 Long-Run Coefficients Estimated Based on ARDL (1,0,0,0,0,0,0) Model Selected Based on SBC. Dependent Variable: Morocco (lnM) 193
6.9 Error Correction Model (ECM) Results for the Selected ARDL (1,0,0,0,0,0,0) Model Selected Based on SBC. Dependent Variable: ΔlnM 194
6.10 The long-Run Impacts on Stock Markets in the MENA Region 195
6.11 Net Inward Portfolio Equity Flows to developing Countries, 1995-2003 200
6.12 Granger Causality Results Based on Vector-Error Correction Model 208
6.13 Recent American Aids to Egypt 209
List of Figures

5.1 Stock Price Indices in MENA region (Local Currency) 118
5.2 Stock Price Indices in MENA region ($US) 118
5.3 Stock Price Indices in All Countries ($US) 120
5.4 Monthly Stock Price Index in Egypt (Local Currency) 121
5.5 Monthly Stock Price Index in Egypt ($US) 121
5.6 Monthly Stock Price Index in Turkey (Local Currency) 122
5.7 Monthly Stock Price Index in Turkey ($US) 122
5.8 Monthly Stock Price Index in Jordan (Local Currency) 123
5.9 Monthly Stock Price Index in Jordan ($US) 123
5.10 Monthly Stock Price Index in Morocco (Local Currency) 124
5.11 Monthly Stock Price Index in Morocco ($US) 124
5.12 Monthly Stock Price Index in United Kingdom (Local Currency) 125
5.13 Monthly Stock Price Index in United Kingdom ($US) 125
5.14 Monthly Stock Price Index in Germany (Local Currency) 126
5.15 Monthly Stock Price Index in Germany ($US) 126
5.16 Monthly Stock Price Index in the United States 127
5.17 Monthly Rate of Return in Egypt (Local Currency) 128
5.18 Monthly Rate of Return in Egypt ($US) 128
5.19 Monthly Rate of Return in Turkey (Local Currency) 129
5.20 Monthly Rate of Return in Turkey ($US) 129
5.21 Monthly Rate of Return in Jordan (Local Currency) 130
5.22 Monthly Rate of Return in Jordan ($US) 130
5.23 Monthly Rate of Return in Morocco (Local Currency) 131
5.24 Monthly Rate of Return in Morocco ($US) 131
5.25 Monthly Rate of Return in United Kingdom (Local Currency) 132
5.26 Monthly Rate of Return in United Kingdom ($US) 132
5.27 Monthly Rate of Return in Germany (Local Currency) 133
5.28 Monthly Rate of Return in Germany ($US) 133
5.29 Monthly Rate of Return in United States (Local Currency) 134
5.30 Plots of the series and Estimated Timing of Structural Breaks 162
Abbreviations

ADFL Augmented Dickey Fuller
ADR American Depositary Receipts
AFM Amman Financial Market
APT Arbitrage Pricing Theory
ARDL Autoregressive Distributed Lag
ARVAR Augmented Restricted Vector Autoregression
ASE Amman Stock Exchange
AUVAR Augmented Unrestricted Vector Autoregression
CAPM Capital Asset Pricing Model
CASE Cairo and Alexandria Stock Exchange
CMA Capital Market Authority
CRDW Cointegration Regression Durbin Watson
CSE Casablanca Stock Exchange
ECT Error Correction Model
EMH Efficient Market Hypothesis
GARCH Generalized Autoregressive Conditional Heteroscedasticity
GCC Gulf Cooperation Council
GDP Gross Domestic Product
GDR Global Depositary Receipts
GNP Gross National Product
HSBC Hong Kong and Shanghai Banking Corporation
ICAPM International Asset Pricing Model
IMF International Monetary Fund
IPO International Public Offering
IRF Impulse Response Function
ISE Istanbul Stock Exchange
JD Jordanian Dinar
JJ Johansen-Juselius
JSC Jordan Securities Commission
LOOP Law of One Price
MENA Middle East and North Africa
OECD Organization for Economic Cooperation and Development
OLS Ordinary Least Square
PP Phillips and Perron
SDC Securities Depository Centre
UVAR Unrestricted Vector Autoregression
VAR Vector Autoregressive Model
VDC Variance Decomposition
VECM Vector Error Correction Model
WTO World Trade Organization
Publication from the Research


