

**ESSAYS IN CORPORATE FINANCE:
AN ANALYSIS OF STOCK MARKET INVESTMENT PATTERNS
IN EMERGING COUNTRIES FROM A BEHAVIORAL AND A
TRADITIONAL PERSPECTIVE**

A Ph.D. Dissertation

by

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June 2017

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Bilkent University 2017

To my dearest baby girl Almina

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The Graduate School of Economics and Social Sciences
of
İhsan Dođramacı Bilkent University

by

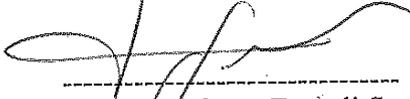
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In Partial Fulfillment of the Requirements for the Degree of
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İHSAN DOĐRAMACI BİLKENT UNIVERSITY
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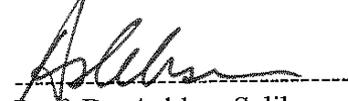
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ABSTRACT

ESSAYS IN CORPORATE FINANCE: AN ANALYSIS OF STOCK MARKET INVESTMENT PATTERNS IN EMERGING COUNTRIES FROM A BEHAVIORAL AND A TRADITIONAL PERSPECTIVE

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June 2017

This thesis investigates the investment patterns in emerging stock markets first from a behavioral then from a traditional perspective.

The first two chapters deal with affective motivations in the stock investment decision. First, we develop the hypothesis concerning the affect-based investment motivations in the stock markets and the role of affective self-affinity. Based on Social Identity Theory, Affect literature, Socially Responsible Investing literature and Home Bias literature, we propose that identification with different dimensions of a company may trigger affect-based extra investment motivation. The following chapter tests the hypotheses developed in the first chapter using partial least squares path analysis with Turkish stock investors. We conclude that the ideas of socially responsible investing and nationalism have significant positive effects on the investment motivation. Likewise, the people and the groups that the investors identify

themselves with have significant positive effects on the affect-based motivations to invest in the companies, which are perceived to support those people and groups.

The last chapter, studies the return patterns in MENA stock markets during the Arab Spring events in an event study setting. Considering the three-year period of 2010-2013, we study the effects of 172 events on the stock markets of nine countries in the region, namely; Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia. Using Brown and Warner (1985) event study methodology, we have found some events have relatively large effects, though we cannot find significant reactions on the average. Hence, we cannot conclude that stock markets react significantly to the events during Arab Spring.

Keywords: Affect, Emerging Markets, Investor Behavior, Socially Responsible Investing, Stock Market Investment Patterns.

ÖZET

KURUMSAL FİNANS ALANINDA ÇALIŞMALAR: GELİŞMEKTE OLAN ÜLKELERDEKİ HİSSE SENEDİ YATIRIM SEYRİNİN DAVRANIŞSAL VE GELENEKSEL PERSPEKTİFTEN İNCELENMESİ

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Bu tez geliřmekte olan ülkelerdeki hisse senedi yatırım seyrini öncelikle davranışsal sonra da geleneksel finans perspektifinden incelemektedir.

İlk iki bölüm hisse senedi yatırım kararında duygusal motivasyonları konu edinmektedir.Öncelikle, hisse senedi piyasalarında duygusal yatırım motivasyonları ve duygusal benlik çekiminin rolü ile ilgili hipotezler oluşturulmuştur. Sosyal Kimlik Kuramı, Duygu Literatürü, Sosyal Yatırım Literatürü ve Yerli Varlıklara Yatırım Önyargısı baz alınarak, bir şirketin farklı özellikleri ile özdeşleşmenin duygusal yatırım motivasyonunu tetikleyebileceği öngörülmüştür.Bir sonraki bölümde de kısmî

küçük kareler yol analizi kullanılarak ilk bölümde geliştirilen hipotezler Türk hisse senedi yatırımcıları üzerinde test edilmiştir. Bu testler sonucunda, sosyal yatırım ve milliyetçilik düşüncelerinin yatırım motivasyonu üzerine anlamlı arttırıcı etkisi olduğu sonucuna varılmıştır. Aynı şekilde, yatırımcıların kendilerini özdeşleştirdiği grup ve kişilerin, o grup ve kişileri desteklediği düşünülen şirketlere yatırım yapma noktasında duygusal motivasyon üzerine anlamlı ve arttırıcı etkisi vardır.

Son bölüm ise, bir vaka analizi zemininde Orta Doğu ve Kuzey Afrika bölgesi hisse senedi piyasalarının Arap Baharı olayları boyunca getiri seyrini incelemektedir. 2010-2013 yılları arasındaki üç yıllık zaman dilimi dikkate alınarak, 172 olayın bölgedeki dokuz hisse senedi piyasasına olan etkileri çalışılmıştır. Bu ülkeler; Bahreyn, Mısır, Ürdün, Kuveyt, Lübnan, Fas, Suudi Arabistan, Suriye ve Tunus'tur. Brown ve Warner (1985) vaka analizi yöntemi kullanılarak, bazı olayların görece büyük etkileri olduğunu bulmakla beraber ortalamada anlamlı bir etki görülmemiştir. Böylece, hisse senedi piyasalarının Arap Baharı olaylarına karşı genelde anlamlı bir tepkisi olduğu sonucuna varılamamıştır.

Anahtar Kelimeler: Duygu, Gelişmekte Olan Ülkeler, Hisse Senedi Piyasaları Yatırım Seyri, Sosyal Yatırım, Yatırımcı Davranışı.

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TABLE OF CONTENTS

ABSTRACT.....	iii
ÖZET.....	iv
ACKNOWLEDGMENTS	iii
TABLE OF CONTENTS.....	v
LIST OF TABLES	vii
LIST OF FIGURES	ix
CHAPTER 1 INTRODUCTION AND MOTIVATION OF THE STUDY.....	1
1.1 Summary of Findings.....	5
1.2 Organization of this study	9
CHAPTER 2 BEHAVIORAL APPROACH: THEORY.....	12
2.1 Rational Investors.....	13
2.2 Challenge by Behavioral Finance	15
2.2.1 Limits to Arbitrage	17
2.2.2 Psychology	20
2.3 Hypotheses Development.....	28
2.3.1 Hypothesis Concerning Positive Attitude	28
2.3.2 Hypotheses Concerning Antecedents of Affective Self-affinity (Identification with the Company)	30
2.4 Significance of Turkish Stock Market and Individual Investors	35
2.5 Contribution of This Study.....	40
CHAPTER 3 BEHAVIORAL APPROACH: EMPRICAL TESTS	42

3.1 Introduction	42
3.2 Brief Literature and Hypotheses	46
3.2.1 Affective Self-Affinity and Positive Attitude.....	46
3.2.2 Social Identity Theory, Affective Self-Affinity and Its Antecedents..	48
3.3 Methodology	53
3.3.1 Survey Design and Measurement	53
3.3.2 Sampling and Data	57
3.4 Analysis and Results	65
3.5 Conclusion.....	78
 CHAPTER 4 TRADITIONAL APPROACH.....	 84
4.1 Introduction	85
4.2 Literature Review.....	89
4.3 Sampling and Data	93
4.4. Research Method and Results	108
4.4.1 Research Method	112
4.4.2 Results	113
4.5 Conclusion.....	131
 CHAPTER 5 CONCLUSION AND DISCUSSION	 133
 REFERENCES	 136
 APPENDICES	 149
A: SMART PLS FINAL RESULTS OF THE STRUCTURAL MODEL.....	149
B: SMART PLS QUALITY CRITERIA FOR THE STRUCTURAL MODEL	165
C: THE PATH MODEL.....	190
D: TABLES EXPLAINING THE ARAB SPRING AR'S AND EVENTS ..	191

LIST OF TABLES

Table 1: Cluster Information and Company-Industry Return Comparison	59
Table 2: Personal and Investor Characteristics of the Investors Participating in the Study	62
Table 3: The Breakdown of the Responses to the Main Variables in the Model	66
Table 4: Multitrait-Multimethod Matrix (MTMM) Analysis for SRI Related Ideas...	69
Table 5: Multitrait-Multimethod Matrix (MTMM) Analysis for Idea/Ideal Related ASA.....	71
Table 6: Summary of the Structural Model	74
Table 7: Summary of the Structural Model with Performance Dummy.....	77
Table 8: Descriptive Statistics for the Stock Indices of the Sample Countries	95
Table 9: Country Snapshot.....	102
Table 10: The Most Dramatic Ten Reactions by the Stock Markets.....	115
Table 11: Extreme Abnormal Returns Matrix	118
Table 12: Extreme Absolute Abnormal Returns Matrix.....	122
Table 13: Extreme Negative Abnormal Returns Matrix.....	125
Table 14: Country Average Abnormal Returns (Mean Adjusted).....	129
Table 15: Domestic and Non-domestic events Average Abnormal Returns (Mean Adjusted).....	130
Table 16: Country Average Abnormal Returns (Market model).....	131
Table 17: Domestic and Non-domestic events Average Abnormal Returns (Market model)	131
Table 18: Path Coefficients.....	149
Table 19: Confidence Intervals- Bias Corrected.....	151
Table 20: Indirect Effects.....	152
Table 21: Confidence Intervals-Bias Corrected.....	152
Table 22: Total Effects.....	153

Table 23: Confidence Intervals-Bias Corrected.....	155
Table 24: Outer Loadings	157
Table 25: Confidence Intervals – Bias Corrected	159
Table 26: Outer Weights	161
Table 27: Confidence Intervals – Bias Corrected	163
Table 28: R-Square	165
Table 29: Confidence Intervals – Bias Corrected	165
Table 30: R-Square Adjusted.....	165
Table 31: Confidence Intervals – Bias Corrected	166
Table 32: Average Variance Extracted (AVE)	167
Table 33: Confidence Intervals – Bias Corrected	168
Table 34: Composite Reliability	169
Table 35: Confidence Intervals – Bias Corrected	170
Table 36: Cronbach’s Alpha	171
Table 37: Confidence Intervals – Bias Corrected	171
Table 38: Heterotrait – Monotrait (HTMT) Ratio	172
Table 39: Confidence Intervals – Bias Corrected	181
Table 40: The Breakdown of the Significant Abnormal Returns by Sign.....	191
Table 41: Events Sample with Explanations	196

LIST OF FIGURES

Figure 1: GFCI rating and ranking of Istanbul, Turkey over time.....	36
Figure 2: Number of Individual vs. Institutional Investors by Year.....	37
Figure 3: TL Value of Stock Holdings by Individual vs. Institutional Investors by Year.....	38
Figure 4: Number of Domestic vs. Foreign Investors in Turkish Stock Market	39
Figure 5: TL Value of Stock Holdings by Domestic vs. Foreign Investors in Turkish Stock Market.....	39
Figure 6: Frequency Distribution of Answers to the Affect-Based Extra Investment Motivation Question	65
Figure 7: 2 nd Order Construct Idea/Ideal Related ASA Demonstrated with the Weights of the 1 st Order Constructs	70
Figure 8: The Structural Model with Significant Paths Reported.....	72
Figure 9: The Timeline of Arab Spring Events	99
Figure 10: Cumulative Return (CR) Graphs.....	111
Figure 11: Structural Model - All Paths are Reported Along With the Corresponding P-values.....	190
Figure 12: Comparison of Mean-Adjusted and Market-Adjusted Abnormal Returns	210

CHAPTER 1

INTRODUCTION AND MOTIVATION OF THE STUDY

This study investigates the investment patterns in emerging stock markets first from a behavioral then from a traditional perspective. As evidence of deviations from rationality presented by behavioral finance stream accumulates, its implications for investment behavior has attracted an increasing attention from the researchers. However, the accumulated evidence has not succeeded to nullify the rule of the traditional finance, which bases its arguments on the rationality principle. Hence, we are experiencing a scientific era of finance where two paradigms exist together. This study is an attempt to study investment patterns in emerging countries from both perspectives in two different settings.

In the first setting, we have individual non-professional investors trying to decide on the investee companies in the stock market. Traditional approach assumes that the investors are purely rational, and they are simply preference maximizers given all available market constraints and information, which is processed under strict Bayesian statistical principles (McFadden, Machina, & Baron, 1999). Hence, they

would choose among the stocks by maximizing their expected return for a given level of risk given all market information (Clark-Murphy & Soutar, 2004). However, this type of rationality is challenged by the psychological views that individuals' behavior is influenced by the interactions of perceptions, motives, attitudes and affect. Hence, their decision may deviate from the optimal decision suggested by the rational-agent model (Kahneman, 2003). Following this stream, we argue that investment decision is not purely rational and is affected by externalities such as perceptions, motives, attitudes and affect of the investors.

As Damasio (1994) suggested, feelings are an integrated part of the human reason and individuals are heavily guided by heuristics, which provides efficiency, and sometimes lead to biases. Decisions are heavily guided by heuristics and biases, in particular when the decision to be made is complex, and when the decision makers do not have complete information with limited time to process it (Ackert & Deaves, 2009). Investment decision is a complex decision where it is challenging to analyze the financial indicators and possible prospects of every company and come up with the best option among the numerous stocks traded in the market. Moreover, it is almost impossible to collect all the relevant information and process it correctly to end up with the maximized expected return for a given level of risk. Therefore, in making investment decisions in which investors have limited time, capacity and information to process, investors are highly guided by heuristics and biases.

Considering the extant literature on affect heuristic and its implications on investment decisions (see Slovic, Finucane, Peters, & MacGregor, 2002, 2007; McGregor, Slovic, Dreman, & Berry, 2000), we study the dynamics of affect-based investment motivations in this thesis.

In explaining the dynamics of affect-based investment motivations, we highly utilize from theories in different fields. Our cross-disciplinary research extends the behavioral finance research by exploring in particular how the affect heuristic may influence investors' decisions with a foundation in marketing, psychology and finance. Our theoretical foundation is social identity theory (SIT) (Tajfel, 1978, 1981; Tajfel & Turner, 1985; Turner, 1975, 1982, 1984, 1985) to explain how investors identify themselves with groups, people, and finally ideas/ideals and how these identifications may result in an increase in the affective investment motivation in the company's stock. The marketing research has a long history of customer-corporation identity/brand connection and social identity theory, suggesting that firms attract and retain customers who become loyal and repeat purchasers. When there is a connection between a customer's sense of self and a firm, a deep and mutual relationship develops (Bhattacharya & Sen, 2003) as customers use the symbolic properties of the relationship to communicate their identities (Press & Arnould, 2011). Firms in turn benefit from repeat purchase and price premiums (Lam, 2012). We examine the implications of investor identity to a firm and purchase intention.

The purpose of this study is, hence, to explore the relationship between an investor's affective self-affinity (ASA hereafter) for a company, its antecedents and their purchase intention of a stock. We have found very little research that explored this relationship. ASA is an investor's perception of the congruence between the company and their own personal identity (an identity that may be associated with people, groups of people or ideas and ideals, etc.) (Aspara, Olkkonen, Tikkanen, Moisander, & Parvinen, 2008). Past research has shown that an investor's identification with a company has a positive effect on their determination to invest over similar firms that

have relatively similar return (Aspara & Tikkanen, 2011b). Further research by Aspara & Tikkanen (2011a) has indicated ASA and positive attitude may explain the affect-based extra investment motivation. Our research furthers this stream by suggesting that three dimensions of identification, specifically; group related, company-people related and idea/ideal related, may create extra affective investment motivation by increasing ASA towards a company. Hence, we identify three antecedents that influence ASA aroused in the investor. By treating ASA as a mediator, we study the effects of the antecedents of ASA on the affect-based extra investment motivation. We choose two dimensions representing idea/ideal related ASA, which includes socially responsible investing (SRI hereafter) related ideas and nationality related ideas, which in past research seem to influence individuals' consumption and investment decisions. (Statman, 2004; see the extant literature in Chapter 2 section 2.3.2). Thus, our study contributes to the existing literature by connecting the heavily studied literatures of "Affect", "Social Identity Theory", "Socially Responsible Investing", and "Nationalism and Home Bias".

Our results indicate that as positive attitude towards the investee company increases, the affect-based extra investment motivation increases. Our major contribution that adds to the emerging stream of literature; group-related ASA, company-people related ASA and idea/ideal related ASA are all significantly and positively mediated by ASA and have significant effects on affect-based extra investment motivation both directly and indirectly. In summary, if firms can develop ASA, then investors will tend to hold their shareholdings and invest more into their firm.

In the second setting, we study the effects of uncertainty about the sustainability of the regime and incumbent decision-makers in a country on the corresponding country stock markets. This time, we study the stock market investment patterns from a traditional approach by studying the abnormal returns using an event study procedure. We consider Arab Spring as a natural case for the political uncertainty and study the effects of Arab Spring events on the country stock indices of MENA countries. Hence, the study investigates how markets price the sustainability of the political regime and/or a change in the incumbent decision-makers using the events of the Arab Spring.

The economic consequences of political instability have been the topic of many studies. There are studies examining the effects of political uncertainty on the real economy (Bernanke, 1983; Bloom, Bond, & Van Reenen, 2007), on firm's access to funding (Francis, Iftekhhar, & Zhu, 2014; Pastor & Veronesi, 2013), and on different financial markets (Abadie & Gardeazabal, 2003; Kelly, Pastor, & Veronesi, 2016; Mauro, Sussman, & Yafeh, 2006). There are other studies considering specifically the terrorist attacks as a source of political uncertainty. Chen and Siems (2004) examine the effect of terrorist attacks on the US and the global stock markets. The authors find significant negative abnormal returns, both in the US and the global stock markets in response to the terrorist events they analyze between 1915 and 2001. Confirming this result, studying the stock, bond and commodity markets between 1994 and 2005, Chesney, Reshetar, and Karaman (2011) also find that majority of the 77 terrorist events they investigate has significant negative effects on at least one of the European, American or global stock market indices.

In our study, we investigate the stock market reaction to the events that took place during the period of political unrest in the Arab world (a.k.a. Arab Spring) by focusing on the major stock market indices of the MENA region. Considering the three-year period of 2010-2013, we study the effects of 172 events on the stock markets of nine countries in the region, namely; Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia. We collect the event dates from the Al-Jazeera and The guardian Arab Spring timelines, which are the two most important sources of news during this process. Using Brown and Warner (1985) event study methodology, we study the abnormal returns of the country indices both with mean-adjusted returns and market and risk adjusted returns approach (using market model). In market adjusted returns approach we used MSCI World index as the benchmark index. We employed robustness check using MSCI Emerging Markets Index as the benchmark index and the results did not change.

Our study specifically focuses on the Arab Spring period and seeks to capture the magnitude of the stock market reaction to the Arab Spring events. We examine each event in the country of its origin as well as its effects on other countries' indices. This allows us to observe the effects of events from one country to another in the region and observe possible return spillovers, in the sense of a significant returns reaction of one country to the events emanating from other countries.

1.1 Summary of Findings

The results of the first section of this thesis suggest that as the ASA increases for a specific person, for a specific group, and/or for a specific idea/ideal increase, the

ASA for the company which employs that particular person, supports that particular group, or supports that particular idea/ideal also increases. The ideas discussed in this study are socially responsible investing (SRI) related ideas and nationality related ideas. In other words, as individuals' ASA for SRI related ideas increases, their ASA for a company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. In a similar manner, as individuals' ASA for nationality related ideas increases, their ASA for the company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. Furthermore, any increase in ASA results in an increase in the affective investment motivation to the particular company's stock. Likewise, positive attitude towards the investee company may further explain the extra affective investment motivation. Hence, companies may use people, groups, and/or different ideas/ideals such as SRI related ideas and nationality related ideas to create a bond between the company and the investor. This may, in turn, create extra motivation for investment into those companies' stocks.

Our results have implications for both researchers and practitioners. For researchers in the behavioral finance field, it is necessary to incorporate marketing, sociology, psychology, etc. to understand the dynamics of investors since past research has suggested that investors are influenced by other externalities and do not necessarily always behave rationally in their investing decisions. We have introduced ASA from the marketing field with a foundation of SIT to assist in attempting to further the field in explaining investing decisions. As SIT suggests that individuals identify themselves with groups, people, ideas/ideals and companies, our research suggests that investors do identify themselves with certain aspects of a firm and will invest accordingly. The implications for practitioners suggest that investors are motivated by

externalities over and beyond basic numerical data. As such, externalities such as SRI or nationality can influence investors. Top managers can utilize this knowledge to influence current and future investors by strategically focusing on positioning their firm favorably in the eyes of the potential investor to develop ASA. From a marketing point of view, communicating such aspects to the public is beneficial for the company because it attracts the particular investor profile that is sensitive about those aspects. From a finance point of view, however, ASA may work against the fundamentals and hence mitigate the financial efficiency especially when affective and cognitive cues are diverging. The literature suggests that in such instances, the affective side tends to dominate the final decision (Nesse & Klaas, 1994; Rolls, 1999). However, as the number of cognitive cues increases it outweighs the affective cues, which results in a decision that does not work against the efficiency of the financial markets (Su, Chang, & Chuang, 2010).

The results of the second section suggest that the political uncertainty during the Arab Spring period of 2010 -2013 does not significantly influences the nine countries in the MENA region on the average. However, the exploratory analysis concerning the abnormal returns in the markets suggests that there are some extreme events creating relatively large effects. We present the breakdown of these extreme reactions, which are the abnormal returns falling into the five percent tails of the distribution. The 3-year period from December 2010 to December 2013 which covers the hottest conflicts in Arab Spring period created relatively large reactions that are ranging from -0.09 percent to -1.49 percent in magnitude. The extreme abnormal returns during this three-year period averaged to be negative for all countries in our sample implying the frequency of the negative events as well as underlying the negative effects of the

political uncertainty during that period. When we aggregate out these extreme day zero abnormal returns over our sample period range from -45.60 percent (Egypt response to 56 events) to -2.36 percent (Saudi Arabia response to 24 events). Multiple events point out the spillover effects by causing the highest extreme reactions in the MENA stock markets, which amounts to -72.87 percent (by 65 events) total abnormal returns over our sample period.

Since we did not differentiate between positive and negative events, it will be beneficial to present the abnormal returns as deviation from zero abnormal returns, which is expected on a non-event day. Hence, we present the extreme absolute abnormal returns. Those absolute mean abnormal returns by countries range from 1.08 percent (Saudi Arabia reaction to events from Yemen) to 4.33 percent (Saudi Arabia reaction to its own events). Spillover effects are again underlined by high reactions to domestic events as well as non-domestic events. For instance, Bahrain's average reaction to the events of Saudi Arabia is as much as its average reaction to that of Bahrain. Concentrating on the absolute rather than the signed returns causes total effects become more remarkable. Egypt and Syria experience 145 and 77 total absolute abnormal returns during our sample period. These extreme reactions indicate the possible negative effects of serious political uncertainty experienced by the two countries. However, in order to conclude that Arab Spring events created significant reaction in the region, we need to test the average abnormal returns.

When we concentrate on the extreme negative events in our sample which created relatively large effects, the results range from -1.52 percent to -2.81 percent on average. Moreover, the average negative abnormal returns imply that not only

domestic events but also non-domestic events created large return reactions in the MENA countries. Hence, we conclude that some of the events during the Arab Spring period leads to large reactions in the MENA stock markets. The effects are valid not only for domestic events but also for non-domestic events in the region.

However, when we consider the average abnormal returns during the sample period we don't observe any significant reactions. For none of the countries, the Arab Spring events created an overall reaction in the stock markets of the countries in our sample. When we differentiate between the domestic and non-domestic events and test the average abnormal returns generated by these two groups of events, we still do not observe an overall significant reaction by the countries in our sample. Likewise, when we test the average abnormal return by all of the countries in our sample over our sample period, we do not observe a significant overall reaction by the markets in the region. Therefore, we cannot conclude that Arab Spring events affected the countries in the region significantly although we have significant individual event level reactions.

1.2 Organization of this study

Chapter 2 provides an overview of the Affect, Social Identity Theory, Socially Responsible Investing, and Nationalism / Home Bias literature, which constitutes the base for developing the hypotheses concerning the relationship between identification with different dimension of a company and extra affect-based investment motivation to invest in that company and then develops the hypotheses to be tested in the empirical study. Chapter 2 concludes by presenting the contribution of the study to the

existing literature. We contribute to the literature by: i) theoretically hypothesizing the specific relationship between identification with different dimensions of a company namely; group-related, company-people related and idea-ideal related affective self-affinities, and the extra investment motivation into that company; ii) defining idea/ideals related affective self-affinity as two dimensional with socially responsible investing and nationalism as the dimensions and hence tying these heavily studied literatures, iii) empirically testing the above stated hypotheses with active real individual stock investors in Turkey and documenting the significant positive effects of identification with different dimensions of a company on the affect-based investment motivations into stock of that company.

Chapter 3 tests the hypotheses developed in the previous chapter using partial least squares path analysis and presents the empirical study. We use survey data from non-professional individual investors who are actively trading in Turkish Stock Market and test the hypotheses. Chapter 3 concludes the behavioral section by presenting the results of the empirical study.

Chapter 4 studies the effects of political uncertainty on the stock markets by taking the huge conflict in the MENA region, which is referred to as Arab Spring, as a natural case for political uncertainty. We study the effects of Arab Spring events on the stock market indices of the nine MENA countries, namely; Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia using Brown and Warner (1985) event study method. Chapter 4 presents the related literature, states the contribution of the study to the existing literature, and then investigates the

abnormal returns in the aforementioned stock markets and finally concludes by presenting the results of the empirical study.

Chapter 5 concludes the thesis with a final discussion of the results.

CHAPTER 2

BEHAVIORAL APPROACH: THEORY

This section of the thesis is the behavioral section, which first develops the hypotheses concerning the relationship between the identification with different dimensions of a company and affect-based stock investment motivations; and then empirically tests the developed hypotheses.

This chapter demonstrates how investors deviate from the rationality assumption and how affect heuristic is incorporated in the investment decision by addressing to the related literature. Then, we tie the discussion to social identity theory to come up with the hypotheses concerning the effects of identification with different dimensions of a company on the investment motivation into that company. Finally, we conclude by developing the hypotheses based on the extant literature.

2.1 Rational Investors

Economic theorists have long held the rationality principle, which suggests that the rational agents are simply preference maximizers given all available market constraints, and information that is processed under strict Bayesian statistical principles (McFadden et al., 1999). The rational behavior, in a broad sense, is sensible, planned, and consistent behavior, which governs most economic conducts such as consumption, investment, etc. A rational agent, as Herb Simon (1986) suggests, is a maximizer and will never accept less than the best.

This standard model of rationality is attained by a combination of three components; perception rationality, preference rationality and process rationality. Perception rationality implies that perceptions and beliefs are formed processing the available information using strict Bayesian statistical principles. Preference rationality suggests that preferences are primitive, consistent and immutable. Finally, process rationality implies that the individuals are simply preference maximizers so the cognitive process is preference maximization (McFadden et al., 1999).

The rational expectations principle was first formulated by Muth (1961) in the context of microeconomics. The implications of the assumptions that rational expectations theory holds have subsequently been investigated by Lucas, Sargent, Kydland, Prescott and others.

This definition of rationality is convenient because, with additional assumptions, it leads to analysis of demand and benefit/cost and hence constitutes the base for many

economic theories. Moreover, it is successful in the sense that it enables to assess the incentive schemas and arbitrage opportunities in the financial markets which is used to design financial contracts.

Following this stream, the traditional finance literature comes up with the well-known Efficient Market Hypothesis (EMH), by Eugene Fama (1970), which has dominated the literature for over thirty years. EHM bases its arguments on the assumption that investors have rational expectations. That is, they make optimal use of all available relevant information. Thus, in traditional finance, rationality means the agents immediately update their beliefs correctly and consistent with the Bayesian rules as soon as they receive new information. In addition, agents make choices to maximize expected utility. Thus, agents are rational, internally consistent, and utility maximizers who pursue self-interest. Hence, according to EMH, individuals invest rationally by forming expectations about future financial returns of stocks based on all available public information. This implies that “a security’s price equals its fundamental value” (Barberis & Thaler, 2003). Therefore, if individuals are fully rational, no factors - except for public information - affect individual decision concerning investment.

Even if some individual investors deviate from the optimal decision, the rational investors will take advantage of the resulting arbitrage opportunity and correct any mispricing by pushing it towards the fundamental value (Friedman, 1953). Thus, traditional finance assumes that investors maximize their expected return for a given level of risk given all market information, which is processed under strict Bayesian rules (Clark-Murphy & Soutar, 2004).

2.2 Challenge by Behavioral Finance

Rational agents model is challenged by behavioral finance both at the micro and macro level. Hence, their decision may deviate from the optimal decision suggested by the rational agents model (Kahneman, 2003). In contrast to the traditional finance assumption, micro level behavioral stance suggests that individuals are not rational because their decision are subject to biases due to the interactions of perceptions, motives, attitudes and affect. Macro level behavioral stance asserts that markets are affected by the collective biased decisions. Katona (1951) was one of the first to advocate the psychological approach to economic and business behavior. Katona combines the psychological theories, studies, and methods with the problems concerning economic, consumer and business behavior and come up with a measure of consumer expectations, which eventually have become the University of Michigan Consumer Sentiment Index (Katona, 1951).

The classical assumption that individuals invest rationally by forming expectations about future financial returns of stocks based on all available public information, which is consistent with the rational expectations theory, has been increasingly challenged by the works of Shefrin (2002), Shleifer (2000), French and Roll (1986), Ito, Lyons, and Melvin (1998), Karrh (2004), Wärneryd (2001) and several others. French and Roll (1986) documented that private information explains the higher volatility during exchange trading hours, instead of public information. Likewise, Ito et al.(1998) provide evidence of private information in the foreign exchange market in Tokyo by documenting the doubling of variance at the lunch-return with the introduction of trading. In addition to documenting private information in the

financial markets, using psychological research tools to provide alternative approach to financial market anomalies is another stream of study that challenges to the above stated assumption (Shefrin, 2002; Shleifer, 2000; Wärneryd, 2001). As such, the field of behavioral finance has grown to attempt to understand the various influences that affect investor behavior beyond the fundamentals of a pure monetary incentive (Mokhtar, 2014).

Behavioral finance not only challenges the assumptions of the traditional finance but also provide explanations for the puzzles of it, with the help of limits to arbitrage argument. One of the famous puzzles in traditional finance is “equity premium puzzle” which refers to the empirical finding of unproportionately large margin provided by the stocks compared to the bonds during the last decade. Benartzi and Thaler (1995) provides an explanation for this puzzle with the “myopic loss aversion” argument, which uses behavioral finance tools. They suggest that investors are loss averse and update their portfolios frequently, which together lead to myopic loss aversion and can explain the equity premium puzzle. They also show that the equity premium is consistent with the premium suggested by the parameters previously estimated by the study of prospect theory with annual update of portfolios.

Other examples of puzzles that behavioral approach provides an explanation include the conservatism principle of share prices, the tendency of investors to sell winning papers too soon and holding the losing investments for too long, overconfidence of investors and herding behavior in the financial markets. Hence, once considered as a controversial revolution against the traditional finance and economic theory,

behavioral finance solves the puzzles, applied to new settings, and provide explanation to the financial phenomena.

Shefrin states the key message of the behavioral finance as “people are imperfect processors of information and are frequently subject to bias, error, and perceptual illusions.” (Shefrin, 2002, pp. X). The main assertions are the use of rule of thumbs (heuristics), the effect of the form as well as substance (framing) and the implication of these two on the prices (inefficient prices). These three dimensions considered to tell the behavioral finance approach. Barberis and Thaler, who are considered as the two creators of the field, define behavioral finance as composed of two sections: limits to arbitrage and psychology. Therefore, we will present the challenges under two headings. In section 2.2.1, we present the arguments about limits to arbitrage (which addresses the last point of Shefrin; inefficient prices) and in section 2.2.2 we present the psychological stance toward the rationality principle (which addresses the first two points by Shefrin; heuristics and framing).

2.2.1 Limits to Arbitrage

As it is mentioned above, traditional finance assumes that a security’s price reflects its fundamental value since investors are rational and markets are frictionless. Hence, a security’s price equals to discounted value of expected future cash flows, and it is right. This implies that, no one can beat the market, meaning no one can earn more than what is warranted for the risk s/he takes. Even if there are individual deviations from optimality that results in mispricing, it cannot survive due to the rational investors who exploit the resulting arbitrage opportunities and push the prices back to

its fundamentals (Friedman, 1953). That is, rational investors are the key in preserving the efficiency in the financial markets. They exploit the arbitrage opportunities, if any, and drive the prices to their correct values. However, another key assumption of the traditional finance is that arbitrage is riskless.

Behavioral finance challenges this stance by arguing that the arbitrage strategies, which are supposed to be costless (and hence riskless) may, in fact, be costly, risky, and do not disappear quickly (Shleifer & Vishny, 1997). Arbitrage means simultaneously buying and selling the same, or similar, securities that are mispriced in two different markets and hence generating profits with no initial capital (Sharpe, Alexander, & Bailey, 1990). However, in real life, professional investors may avoid to exploit such opportunities as they are highly volatile, require capital and subject to considerable risk thereby mispricing may remain unchallenged (Shleifer & Vishny, 1997). There are four limits to the arbitrage opportunities discussed in the literature; fundamental risk, noise trader risk, performance requirements/agency costs, and implementation costs.

Fundamental risk is the most obvious and prominent risk that an arbitrageur may face with. The risk is the risk of arrival of new bad information concerning the security after the arbitrageur bought it. In order to engage in an arbitrage strategy, the arbitrageur should simultaneously long and short two securities, which are substitutes in order to hedge against the fundamental risk. However, most of the time, it is impossible to find perfect substitutes for the mispriced security, which leaves the arbitrageur vulnerable to fundamental risk of the mispriced security. Even if there exists a perfect substitute, the fundamental risk related to the substitute security is still

valid. Therefore, the arbitrageur is subject to the fundamental risk of both securities included in the arbitrage strategy (Shleifer & Vishny, 1997; Barberis & Thaler, 2003).

Besides, noise trader risk, which is introduced first by De Long, Shleifer, Summers, and Waldmann (1990), implies that the mispricing may even get worse in the short run. The majority of the individual investors in the financial markets do not follow economists' advice and they fail to diversify by picking a small number of stocks (De Long et al., 1990). Alternatively, they invest in mutual funds or hedge funds with high fees, to get benefit from their diversification strategies, which are shown to fail in beating the market (Jensen, 1968). These investors are referred to as "noise investors" and they base their investment decisions on noise thinking that the noise would provide them an edge (Black, 1986). These noise investors may get even more pessimistic about the future in the short-run and arbitrageurs are subject to the risk of mispricing which will not recover in the short-run.

This risk is closely related to another risk, which is called performance requirements or agency costs. Institutional investors and fund managers are evaluated based on their performance; i.e., the returns they generate. Noise trader risk may even affect institutional investors and fund managers as well. They would want to prevent their customers from withdrawing their funds because of the negative returns in the short-run due to mispricing in the market. This may result in institutional investors' liquidation of their positions earlier. Hence, even institutional investors and fund managers may not exploit mispricing in the market, and they would rather contribute to the mispricing. Hence, arbitrageurs are subject to this performance requirements risk.

Last but not the least, implementation costs such as commissions, bid-ask spread, increased commissions for shorting securities among others, are also other factors contributing to the arbitrageurs' risk. These are the well-known costs to any investors. Besides, there are other costs related to exploiting the mispricing in the market. Finding out mispricings and learning about it requires highly specialized labor force and could be expensive. Moreover, exploiting those mispricings requires expensive IT systems, which are designed to trade at the high-frequency speed. Therefore, in the simplest term, these implementation costs make arbitrage costly and limit it.

2.2.2 Psychology

The second section of the behavioral finance, as referred by Barberis and Thaler, is psychology. Behavioral finance departs from traditional finance by suggesting that investors are not fully rational and they are affected by emotions and psychology. Hence, they may deviate from optimal decision that is suggested by utility maximization under strict Bayesian rules, and they may make suboptimal decisions.

Especially, in complex decisions, individuals tend to use “short cuts and emotional filters”, which simplify the decision making process (Tversky & Kahneman, 1974). These short cuts are called “heuristics”. In many studies, Kahneman and Tversky showed that these heuristics are efficient, useful and time saver. However, they also found that in situations, where individuals have to assess the probabilistic outcomes and the value of those probabilistic outcomes, heuristics might result in “systematic errors”. Those systematic are called as “biases”.

In the following two sections, we will the most prominent heuristics and biases first, and then focus on the affect heuristic in particular.

2.2.2.1 Heuristics and Biases

Heuristics are rule of thumbs that individuals use most of the time in their decision-making process. Kahneman and Tversky underlined the functionality of these heuristics by stating, “These heuristics are highly economical and usually effective, but they lead to systematic and predictable errors’ in certain task situations” (Tversky & Kahneman, 1974: 1131). The most prominent heuristics referred by Kahneman and Tversky are representativeness, availability, and anchoring heuristics. The affect heuristic is relatively new compared to the aforementioned heuristics and will be addressed in detail in a separate section, following the discussion of heuristics and biases.

- 1) *Representativeness*: Representativeness is the judgement based on resemblance. It is the heuristic for “judging the probability that an object or event A belongs to a class or process B” (Kahneman & Tversky, 1972, pp. 141). The degree to which A resembles B signals the probability that A belongs to category B. That is, individuals use stereotypes established in their heads to quickly judge a new event, person, or an object. In finance, for instance, investors may judge a company positively because it produce high quality goods or because it has high recent returns and mistakenly consider it as a good investment alternative (Chen, Kim, Nofsinger, & Rui, 2007).

Likewise, investors may tend to invest in best performing mutual funds, although past performance is not an indicator of future performance.

2) *Availability*: Availability is the judgement based on the ease of retrieval. It is used when people try to assess “the frequency of a class” or “the probability of an event” (Kahneman & Tversky, 1972, pp. 150). This is a very sensible and useful short cut in many cases as more frequent instances are most probably recalled better and faster than less frequent instances. However, there are other factors distracting this process such as the higher weights given to the relatively more recent or dramatic or relevant instances. In finance, availability heuristic manifests itself in the decisions of which market to invest (Shiller, 1998), or which stock to invest (Barber & Odean, 2008). Even analysts may be affected by availability heuristic such that they evaluate the long term growth in earnings per share of companies optimistically (pessimistically) when the economy is good (bad) (Lee, O’Brien, & Sivaramakrishnan, 2005). Hence, they assign more weight to the recent information concerning the economy in making judgements.

3) *Anchoring*: Anchoring is the judgement based on a reference point/ starting point. In many situations where the outcomes are uncertain, individuals make decisions based on an initial value, which is adjusted as new information comes. However, those adjustments are generally insufficient, meaning individuals stay attached (anchored) too much to the initial point (Kahneman & Tversky, 1972). For instance, individuals, who are asked to estimate the time required to complete a project, underestimate the required time if they start from a low anchor (zero). In contrast, if they are given the maximal time required for similar projects, which is the new and higher anchor, they provide

much higher estimates (Buehler, Griffin, & Peetz, 2010). In finance, investors may anchor to the recent performance of a stock and make investment decisions accordingly. In particular, if a stock's price declines considerably in a very short period of time, then investors may anchor to the high initial price and invest in the specific stock. The reason why they do so is that they anchor to the recent high price and think that the decline in the price is an opportunity to buy the stock at a discount. Hence, they implicitly assume that the stock price will increase at the near future to its original (initial) value. However, this may be due to the fundamentals of the stock or the initial high price could be a mispricing in the market and now the fair price is restored in the market.

In conclusion, the three most prominent heuristics have significant effects on the individual decision-making. Although Kahneman and Tversky mostly pointed out those heuristics as efficient and functional mechanisms, there is a stream of research studying the negative implications and shortcomings of them, rather than their value. These are called behavioral biases. The most prominent biases are Overconfidence Bias, Disposition Effect, Loss Aversion, Regret Aversion, Representativeness Bias, Availability Bias, and Anchoring Bias.

- 1) *Overconfidence Bias*: This is the tendency of individuals to overestimate their knowledge and skills. Individuals often assess their capabilities and skills higher than those of their peers (Odean, 1998). This bias has two main implications: i) Overconfident investors trade excessively in the market, which increases trading volume and costs. ii) Overconfident investors take bad bets ignoring their information disadvantage (Shefrin, 2000). Odean (1999) shows

that investors with discount brokerage accounts engage in excess trading due to overconfidence. The resulting transaction cost is so high that it cannot be covered by the gains.. The effect of overconfidence on excess trading is documented by several other studies (see Glaser & Weber, 2003; Statman, Thorley, & Vorkink, 2006).

- 2) *Disposition Effect*: This is the tendency of investors to sell the winning stocks too early and to hold the losing stock too long (Henderson, 2012). The findings of Bailey, Kumar, and NG (2011) study support the disposition effect. Odean (1998) and Frazzini (2006) shows that investors and mutual funds are more likely to realize gains than losses in line with the disposition effect.
- 3) *Loss Aversion*: This is the tendency of individuals to prefer avoiding from losses as opposed to achieving gains. As a result, investors may hold losing investment positions more than it is suggested by the fundamental analysis (Pompian, 2012). Thaler, Tevrsky, Kahneman, and Schwartz (1997:659) suggests that loss aversion has two main implications: “i) Investors who display myopic loss aversion will be more willing to accept risks if they evaluate their investments less often ii) If all payoffs are increased enough to eliminate losses, investors will accept more risk.”
- 4) *Regret Aversion*: This is the tendency of individuals to avoid the pain of regret after a bad decision. Individulas often compare the actual outcomes of the decision made and the possible outcomes of the decision not made. If the possible outcome of a not made decision is better, than the individual feels regret. Hence, “the utility of a choice option depends on the feelings generated by the results of rejected options” (Zeelenberg, Beattie, & de Vries, 1996: 150).

- 5) *Representativeness Bias*: As suggested by representativeness heuristic, individuals tend to classify new events/information based on classifications obtained by past experience. This may lead to wrong classifications when two events are superficially similar but in reality they turn out to be very different. In finance, for instance, investors may judge a company positively because it produce high quality goods or because it has high recent returns and mistakenly consider it as a good investment alternative (Chen et al., 2007). Likewise, investors may tend to invest in best performing mutual funds, although past performance is not an indicator of future performance.
- 6) *Availability Bias*: As suggested by availability heuristic, individuals make judgements based on ease of retrieval. This may lead to erroneous judgements since people tend to recall more recent or more dramatic or more relevant instances better and faster. Therefore, they may assign higher weights to such instances and make erroneous decisions. Financial analysts may be affected by availability bias such that they evaluate the long term growth in earnings per share of companies optimistically (pessimistically) when the economy is good (bad) (Lee et al., 2005). Hence, they assign more weight to the recent information concerning the economy in making judgements.
- 7) *Anchoring Bias*: As suggested by anchoring heuristic, individuals make decisions based on an initial point/reference point, which is adjusted for new information. This leads to irrational behavior as the adjustments are usually insufficient and individuals stick too much to the initial point (Kahneman & Tversky, 1972). Investors may anchor to the recent performance of a stock and make investment decisions accordingly. In particular, if a stock's price declines considerably in a very short period of time, then investors may anchor

to the high initial price and invest in the specific stock. The reason why they do so is that they anchor to the recent high price and think that the decline in the price is an opportunity to buy the stock at a discount. Hence, they implicitly assume that the stock price will increase at the near future to its original (initial) value. However, this may be due to the fundamentals of the stock or the initial high price could be a mispricing in the market and now the fair price is restored in the market.

2.2.2.2 Affect Heuristic

Affect Heuristic is one of the recent heuristics in the literature. It refers to the tendency of an individual to “rely on good or bad feelings experienced in relation to a stimulus” (Slovic et al., 2002). If an individual is in a positive (negative) emotional state, s/he is more likely to perceive a thing/activity as being low (high) risky with high (low) benefits.

Decision researchers addressed to the importance of affect in the decision-making process relatively recently. Shafir, Simonson, and Tversky (1993:32) conceded, “People’s choices may occasionally stem from affective judgements that preclude a thorough evaluation of the options”. Zajonc (1980) asserts that all perceptions include some affective dimension and he argued that affective reactions are very often the first reactions to the stimuli. Many researchers assigned a central role to affect in motivating the behavior in the context of dual process theories (Epstein, 1994). The analytic and experiential systems are two complementary systems processing information. The experiential system, which is characterized by its affective basis, is

quicker, easier and more efficient especially in complex and uncertain situations.

Hence, affect-based mechanism manifests itself in the decision when the individuals have limited information and limited time and capacity to process that information.

One of the most striking findings is by Damasio (1994) who argues that feelings are an integrated part of human reason. He studies the patients with brain damage, which impairs their ability to feel but leaves the analytical abilities intact. He finds that those patients with impaired feelings become socially dysfunctional and cannot make rational decisions even though they are intellectually capable of analytical reasoning. Therefore, Damasio (1994) underlines the significance of feelings in human reason in a positive manner. Damasio (1994) suggests that thoughts are composed of images, sounds, smells, ideas, etc. Those images are associated with either positive or negative feelings. If expected outcome of an event is associated with the positive (negative) feelings, individuals tend to make positive (negative) decisions. Hence, he asserts that affective reactions are inseparable parts of human reason.

The Nobel winner scientist Kahneman refers affect heuristic as one of the most important developments in the decision-making literature. Affect heuristic has been considered as another general heuristic similar to the heuristics mentioned above, such as representativeness, availability and anchoring. Similar to them, affect serves as an orienting mechanism based on “similarity” and “memorability” (Kahneman and Frederick, 2002).

There is a dearth of researches studying the influence of affect on decision-making. In the stock investment decision, for instance, investors provide paradoxical risk-return

evaluations considering the stocks that are associated with strong positive affect. Consistent with the affect heuristic, the investors under consideration of the study expects high returns with low risk, which is against the theory of risk-return, for the stocks that they love (Statman, Fisher, & Anginer, 2008). In a similar manner, a study by Ang, Chua, and Jiang (2010) demonstrated how affect for “class A” shares results in higher valuation by investors compared to “class B” shares of the same companies.

In conclusion, affect heuristic is one of the rules of thumb that decision makers, investors in our case, may utilize. It is effective on the decision and behavior especially when the individual has limited information, limited time and limited capacity. We will study its possible implications for stock investment decision in this thesis.

2.3 Hypotheses Development

We have hypotheses concerning the influence of the affective and attitudinal evaluations of the company on the investment motivation and hypotheses concerning the influence of the identification with different dimensions of a company on the investment motivation through increased affective self-affinity.

2.3.1 Hypothesis Concerning Positive Attitude

The first hypothesis concerns the relationship between the positive attitude towards the company and the affect-based extra investment motivation. As suggested by the literature positive attitude always involves affect beside cognitive associations (Eagly,

Mladinic & Otto, 1994; Eagly & Chaiken, 1993; Zanna & Rempel, 1988; Breckler & Wiggins, 1989a, 1989b). Hence, we assume that an overall affective evaluation towards a company manifests as overall attitude, indicating how much a person likes/dislikes the object (Ajzen & Fishbein, 1980). Individuals may use those overall feelings to guide judgments (Damasio, 1994; Slovic et al., 2002; Zajonc, 1980), particularly in complex decisions where it is difficult to judge pros and cons of various alternatives such as the investment alternatives (Statman, et al., 2008).

Past research has focused on ASA and its influence on decision-making (e.g. Slovic et al., 2002, 2007; Finucane, Alkhami, Slovic, & Johnson, 2000). Researchers in the finance field investigated the influence of ASA in the stock investment decision due to the paradoxical return and risk evaluations (high expected return-low risk) of stocks of companies by investors which are associated with strong positive affect (Statman et al., 2008). In a similar manner, a study by Ang et al.(2010) demonstrated how ASA for “class A” shares results in higher valuation by investors compared to “class B” shares of the same companies.

There is a dearth of research that studies the specific relationship between the extra investment motivation to invest in companies and affective/attitudinal evaluations. However, recent behavioral finance research focused on the impact of ASA towards companies’ brands and corporate images on the willingness to invest in those companies (Aspara & Tikkanen, 2008, 2010a, 2010b; Frieder & Subrahmanyam, 2005; Schoenbachler, Gordon, & Aurand, 2004), and examined the relationship between the affect-based extra investment motivation and two explanatory variables; positive attitude towards the company and ASA (Aspara & Tikkanen, 2011a). The

results from this research indicate that a positive attitude towards a company and ASA for a company causes investors to have extra motivation to invest in a company's stock after controlling for several demographic and investor characteristics. As such, we follow the foundation of the literature and first test their hypothesis concerning the attitudinal evaluation and then we further the stream of research and develop hypotheses regarding affective evaluation and the antecedents of ASA.

Hence, we hypothesize that as positive attitude towards the company increases, the affect-based extra investment motivation gets stronger.

H1: As positive attitude of an individual towards a company increases, his/her affect-based extra investment motivation to invest in the company's stock, over and beyond its expected return and risk, increases.

2.3.2 Hypotheses Concerning Antecedents of Affective Self-affinity

(Identification with the Company)

Affect may also manifest as identification, especially at the higher levels. Our theoretical foundation is social identity theory (SIT) which helps explain the relationship of ASA aroused in people and its antecedents (Tajfel, 1978, 1981; Tajfel & Turner, 1985; Turner, 1975, 1982, 1984, 1985; Aspara et al., 2008). According to SIT, people identify themselves with social groups and this makes the social identity of a person that shapes the self-concept of him/her (Tajfel & Turner, 1985; Ashforth & Mael, 1989; Kramer, 1991). This is the categorization of an individual's self with some particular domains, whereby the self refers to a social unit instead of a unique

person (Brewer, 1991; Turner, 1987). Once categorizing self into, or identifying self with a social group, the cognition, perception, and behavior starts to be regulated by the specific group standards; a process called “depersonalization” (e.g. Hogg, 1992: 94; Turner, 1987: 50-51).

In addition to the cognitive side (self-categorization), evaluative (group self-esteem) and emotional (affective) components of the social identity has attracted attention from researchers (Ellemer, Kortekaas, & Ouwerkerk, 1999). The affective component of the identification - which is understudied in the literature but highly suggested to be in the agenda for future research by Brown (2000) - is the main determinant of in-group favoritism (Ellemer et al., 1999). This idea is quite similar to that of Brewer (1979) which puts SIT as “a theory of in-group love rather than out-group hate”. Moreover, the prototypical similarity between the group members is the basis for the attraction (liking) among the group members (Hogg, Hardie, & Reynolds, 1995). Hence, the affective component of the social identity ties up the discussion to the antecedents of ASA, specifically to group related ASA, implying that individuals may assign affective significance to group identification (Aspara et al., 2008).

Individuals may also identify themselves with abstract ideas/ideals such as nationality/national heritage (Nuttavithisit, 2005), corporate social responsibility (CSR hereafter) (Sen, Bhattacharya, & Korshun, 2006; Bhattacharya, Korshun, & Sen, 2009; Currás-Pérez, Bigné-Alcañiz, & Alvarado-Herrera, 2009) high status (Sirgy, 1982), natural health (Thompson & Troester, 2002), etc. In the same manner, people may identify themselves with people according to the social identity theory

(Ashforth & Mael, 1989; Hogg & Voughan, 2002; Tajfel & Turner, 1985; Ahearne, Bhattacharya, & Gruen, 2005) since personnel is perceived as essential to the identity of a company (Balmer, 1995; Harris & De Chernatory, 2001; Jo Hatch & Schultz, 1997). Considering the affective component of the social identity theory along with individuals' identification with people and ideas/ideals, individuals may have ASA's for ideas/ideals and for people.

We argue that antecedents of ASA and their effect on investment motivation can be modelled in a path analysis. The antecedents of ASA are proposed by Aspara et al. (2008) in qualitative research, but its relationship with ASA and affect-based extra investment motivation has not been studied empirically. Specifically, we can explore the effect of group related ASA, company-people related ASA and finally idea/ideal related ASA on the ASA for the company aroused in the investor which will, in turn, influence the extra affective motivation to invest in the company's stock. As individuals identify themselves with groups, ideas/ideals, and people, they well may have ASA's for groups, ideas/ideals and people since identification has affective conclusions. Thus, when "a certain group is perceived to be essential for the identity of a company" (Aspara et al., 2008: 11), the ASA for the specific group is transferred to the company itself. Likewise, when a person is employed by a company and hence perceived to be "essential for the identity of that company", the ASA for a specific person is transferred to the company (Aspara et al., 2008).

The same mechanism is valid for idea/ideal related ASA: If the idea/ideal, with which an individual identify himself/herself, is perceived to be essential for a company, then the ASA for the specific idea/ideal is transferred to the company (Aspara et al., 2008).

Following Statman (2004), we propose two main ideas contributing to idea/ideal related ASA, namely, SRI related ideas and nationality related ideas. As Domini (1992) and Hamilton, Jo, and Statman (1993) refer; SRI is the expression of a desire for an "integration of money into one's self and into the self, one wishes to become." Investors engaging in socially responsible investment decisions are said to "mix money with morality" in the decision-making process (Diltz, 1995). Hence, they filter out the products or stock offerings taking the compatibility of the parent company with their beliefs and values into account (Kelley & Elm, 2003). Thus, companies may use CSR to distinguish themselves, if they are successfully managing CSR related activities (Sen et al., 2006; Drumwright, 1994). With the extant literature on SRI, it can be concluded that "SRI related ideas" is one of the ideas influencing investment decision. Considering the literature on dimensions of corporate social responsibility and socially responsible investing (Carrol, 1979; Martin, 1986; Porter & Kramer, 2002; Saiia, 2002; Hill, Stephens, & Smith, 2003; Rivoli, 2003; Dillenburg, Greene, & Ereksion, 2003; Guay, Doh, & Sinclair, 2004; Hill, Ainscough, Shank, & Manullang, 2007; Dahlsrud, 2008; Adams & Hardwick, 1998; Heinkel, Kraus, & Zechner, 2001), and the screens used by the most ethical funds around the world (Spencer, 2001; Belsie, 2001; Hill et al., 2003, 2007; Guay et al., 2004; Renneboog, Horst, & Zhang, 2008), we hypothesized it to be a formative construct, which is formed by four factors; animal-welfare, environmental responsibility, fair labor practices, and volunteer activities.

The next indicator contributing to idea/ideal related ASA, nationality-related ideas, is among the abstract ideas that individuals identify themselves with (Nuttavuthisit, 2005). Its effect on the consumption decision has been studied as "Consumer

nationalism” and “national loyalty” in the marketing literature (see Rawwas, Rajendran, & Wuehrer, 1996; Wang, 2005; Baughn & Yaprak, 1993). Over 60 country-of-origin (CO) research studies have studied the effect of nationalism on the consumption decision, and the effect is evident in the literature (see Samiee (1994) for an overview of the 60 studies; e.g. Han, 1988; Shimp & Sharma, 1987). Since stockholding/ownership can be viewed as experiential consumption - which is consistent with the idea that goods that can be consumed are not limited to physical products and services but also include experiences (Solomon, Bamossy, & Askegaard, 2002) - national loyalty or consumer nationalism can be adapted to stock investment decision as well. A nationalist consumer considers the domestic economy in his/her consumption decision and prefers domestic brands. He/she perceives buying imported products as ruining the economy and as unpatriotic (Rawwas et al., 1996).

Accordingly, a nationalist investor is hypothesized to have a tendency to prefer stocks of the companies that are perceived to contribute to national development. This idea of favoring domestic equity investment is presented in detail in the home bias literature as well. The home bias literature discusses the tendency of the investors to invest in the domestic equities heavily despite the international diversification benefits (see Lewis (1999) for a detailed literature on equity and consumption home biases).

Accordingly, the negative effect of patriotism on the investment abroad is demonstrated by Morse and Shive (2011), revealing that patriotism is, indeed, influential on the investment decision.

Following the detailed discussion presented, the hypotheses concerning the antecedents of ASA to be tested in this study are:

H2_a: The stronger the ASA an individual has for an idea or ideal, the stronger the ASA he/she has for a company perceived to support or to represent it, which will result in stronger affect-based investment motivation.

H2_b: The stronger the ASA an individual has for a group of people, the stronger ASA he/she has for a company perceived to support or to represent it, which will result in stronger affect-based investment motivation.

H2_c: The stronger the ASA an individual has for a person, the stronger the ASA he/she has for a company perceived to employ that person, which will result in stronger affect-based investment motivation.

2.4 Significance of Turkish Stock Market and Individual Investors

We test the aforementioned hypotheses with the Turkish individual investors investing in Turkish stock markets. Our sample of interest is composed of non-professional individual stock investors as the past research suggests that these individuals deviate the most from the rationality assumptions of traditional finance (e.g., Grinblatt & Keloharju, 2000, 2001; Lee, Shleifer, & Thaler, 1991; Odean, 1998; Poteshman & Serbin, 2003; Warneryd, 2001).

Individual investor behavior attracted attention of the researchers significantly first because of the consumer behavior literature. Considering the fact that investors of certain companies are also consumers of the products/services produced/carried out by those companies, it is inevitable that the mechanisms working for consumer behavior may also work for investment behavior. Increasing convenience of participation in the stock market (Aspara & Tikkanen, 2011a) which leads to growing

participation by individuals and households in the stock markets in many countries (e.g. Guiso et al., 2003; Warneryd, 2001) makes individual investors even more significant among the players in the stock market.

As for the Turkish stock market, it is one of the most promising markets among the stock markets of emerging countries. It can be said that it is not yet at the level that its potential signifies but it is one of the 10 centers that is likely to become more significant in the near future according to the Global Financial Centers Index (GFCI), 2013¹. Moreover, its GFCI score is getting even higher day by day. Figure 1 demonstrates the increasing trend of GFCI rating of Istanbul for the period before we distributed our survey. Having signed the Initial Settlement for Strategic Partnership with NASDAQ OMX Group on 3 July 2013, Istanbul is now even more promising for being a more significant financial center in the near future. Thus, studying the individual investor behavior in such a promising stock market may capture young researchers' attention.

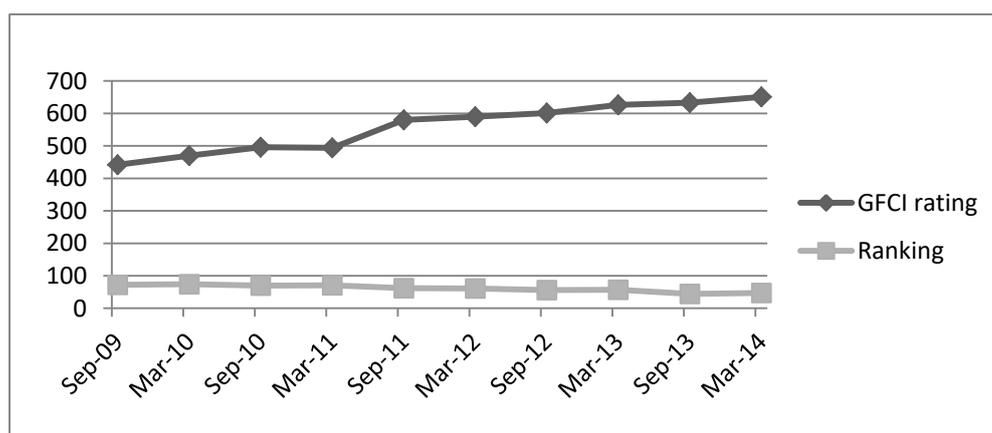


Figure 1: GFCI rating and ranking of Istanbul, Turkey over time

¹ Source: The Global Financial Centers Index- 2013 March-Sept volumes

Concerning the significance of the individual investors joining the Turkish stock market, it is increasing both in the number of investors and in the magnitude of the portfolios hold by the investors. Figure 2 demonstrates the increasing trend by individual investors in Turkish stock market from 2006 to 2013. Although there is an increasing trend for the institutional investors as well, the numbers are minimal when it is compared to the number of individual investors. Likewise, the total value of stockholdings by individual investors dominates the market, although this time institutional holdings are in a comparable magnitude to that of individual. Figure 2:

Number of Individual vs. Institutional Investors by Year

shows the comparison between the two groups from 2006 to 2013.

As the figures imply, the individual stock investors in Turkey are a significant party in the stock market players. They hold a significant portion of the stock holdings, which can influence the stock market investment patterns in general. Therefore, studying individual stock investors, in one of the most promising emerging markets is essential to understand the stock market investment patterns in emerging economies.

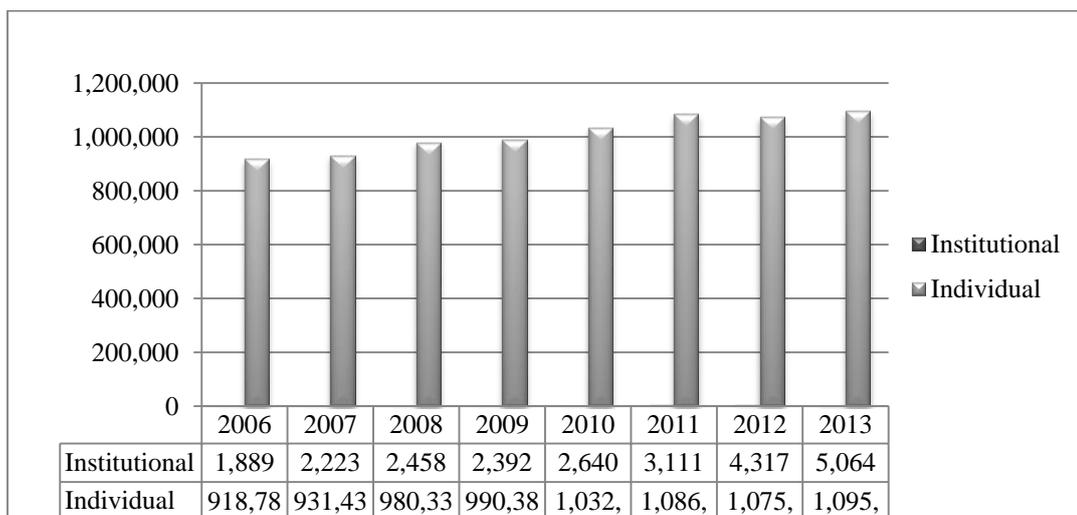


Figure 2: Number of Individual vs. Institutional Investors by Year

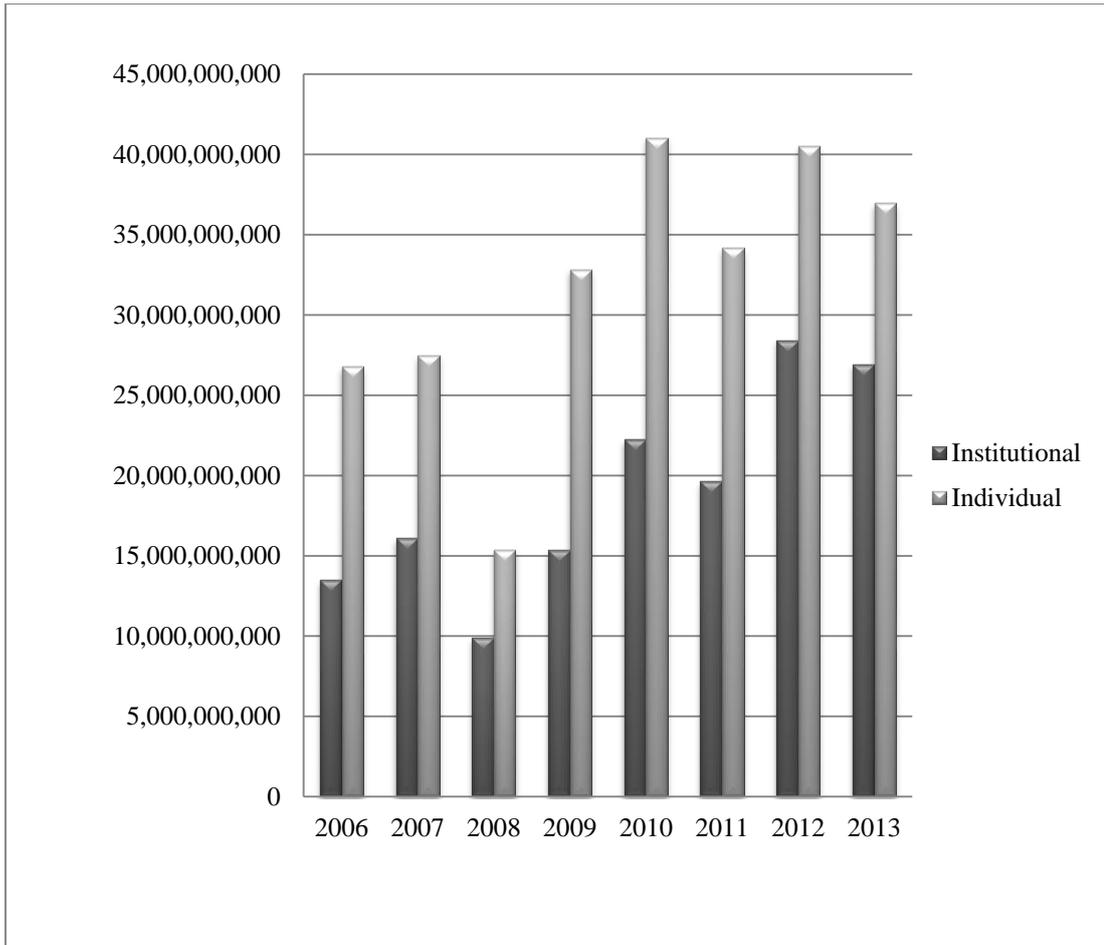


Figure 3: TL Value of Stock Holdings by Individual vs. Institutional Investors by Year

In promising emerging economies, such as Turkey, the foreign participation rate in the stock markets is quite high in general. However, we include only the domestic investors in our survey since the survey is conducted in Turkish. Therefore, we have to justify the significance of the domestic stockholders compared to that of foreigners. In Turkish stock market, the number of domestic investors significantly dominates the market with 99% share as it is demonstrated in Figure 4. When the portfolio sizes are compared, however, foreign investors hold almost 63% of the total value of stockholding. Yet, domestic investors are still a significant party of the market representing the 37% of the total stockholdings, which is worth to investigate. Figure

5 presents the comparison between the portfolio sizes of domestic vs. foreign stock investors.

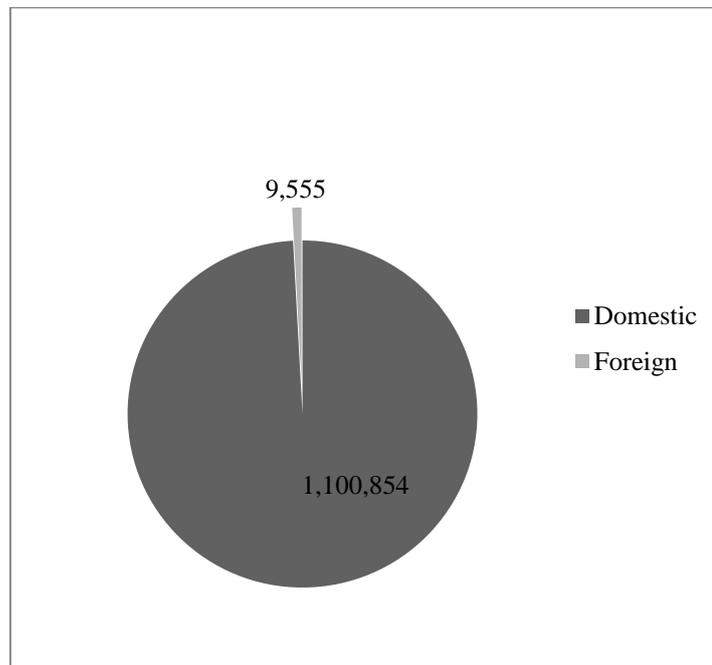


Figure 4: Number of Domestic vs. Foreign Investors in Turkish Stock Market

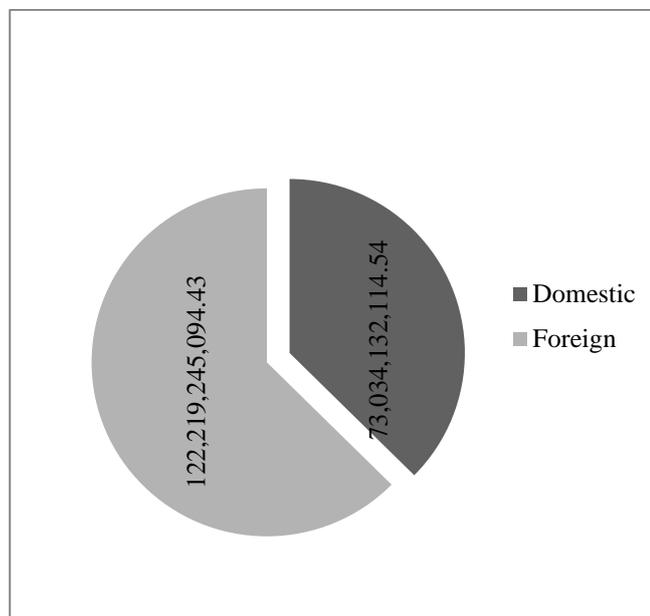


Figure 5: TL Value of Stock Holdings by Domestic vs. Foreign Investors in Turkish Stock Market

In conclusion, we consider Turkey as one of the most promising stock markets among the emerging stock markets and take it as our test field for the developed hypotheses.

Hence, we test the hypotheses concerning the investment motivations in the stock markets with Turkish individual investors. This adds value to our study as there are few studies conducted with the real investors' data since it is difficult to obtain. The contact information of stock investors is highly confidential in Turkey, and central securities depository (CSD) for capital market instruments is quite strict about it. As a result, studying the private dynamics of individual investors in Turkish stock market is another factor contributing to the existing literature.

2.5 Contribution of This Study

The contribution of this study to the existing literature is twofold: First, it theoretically develops the hypotheses concerning the influence of identification with different dimensions of a company on the affect-based investment motivations. In doing that, the study ties the heavily studied literatures of affect, social identity theory (SIT), socially responsible investing (SRI) and nationalism/home bias and creates its own niche in the literature. The current study theoretically suggests and hypothesizes the influence of identification with groups, people, and ideas such as SRI and nationalism would result in higher affect-based investment motivation in the companies, which are perceived to support the particular groups/ideas or employ the particular person.

Secondly, the study empirically tests the hypothesized relationships in the Turkish Stock Market, using the survey data from non-professional investors who are actively trading in the stock market. The tests are done using partial least squares path analysis, which is a new and alternative way to study causal and newly proposed

relationships between latent variables. Hence, the current study is an open source for young researchers who are willing to use this methodology in a finance context.

To the best of our knowledge, this thesis is the first in theoretically hypothesizing the aforementioned relationships and in empirically testing them with real active individual investors. Existing studies show affect-based motivations in the stock investment decision (Aspara & Tikkanen, 2011a), but, they do not provide an explanation of how affect is triggered in the investors, how that dynamic works, what are the specific factors creating it. This study provides that explanation theoretically and further tests it empirically.

CHAPTER 3

BEHAVIORAL APPROACH: EMPIRICAL TESTS

This chapter is the second chapter of the behavioral section and it empirically tests the hypotheses developed in the previous chapter². As it is theoretically addressed in the second chapter, individuals are not fully rational and they may deviate from the rationality principle especially when they face with complex decisions, they have limited information and limited time to process that information. Therefore, we consider investment decision as such an instance and study investor behavior in that context.

3.1 Introduction

As suggested in the second chapter, economic theorists have long held the rationality principle, which suggests that the rational agents are simply preference maximizers given all available market constraints, and information that is processed under strict

² Usul, Özdemir, and :Kiessling (2017) is based on chapter 2 and 3 of this thesis study.

Bayesian statistical principles (McFadden et al., 1999). Following this stream, the traditional finance literature assumes that while making investment choices, investors maximize their expected return for a given level of risk given all market information (Clark-Murphy & Soutar, 2004). However, this type of rational-agent model is challenged by the psychological views that individuals' behavior is influenced by the interactions of perceptions, motives, attitudes and affect. Hence, their decision may deviate from the optimal decision suggested by the rational-agent model (Kahneman, 2003). As such, the field of behavioral finance has grown to attempt to understand the various influences that affect investor behavior beyond the fundamentals of a pure monetary incentive (Mokhtar, 2014).

Investors do not have all available information and have limited time to process it. Therefore, they develop shortcuts and make their investment decisions based on heuristics and biases (Ackert & Deaves, 2009). The affect heuristic (a mental shortcut that allows people to make decisions and solve problems quickly and efficiently, in which emotions of fear, pleasure, surprise, etc. influences decisions) is one of those shortcuts, studied heavily in the literature. Affective heuristics research has suggested that affective reactions guide information processing and judgment (Zajonc, 1980), especially in uncertain and complex decisions (Loewenstein, Weber, Hsee, & Welch, 2001; Mellers, 2000). Damasio (1994) refers to emotions as “an integral component of the machinery of reason”. He indicates that reason and emotions are in such a close interplay that when a potential outcome of an action is associated with positive (negative) feelings then it becomes a beacon of incentive (alarm) (Damasio, 1994). Affective heuristics play a significant role not only in the final decision but also in setting the alternatives to be considered. Among the thousands of stocks, investors

often consider purchasing the stocks that were the first to attract their attention (Barber & Odean, 2008). Likewise, research has suggested that affect-laden imagery from word associations are predictive of preferences for investing in new companies on the stock market (MacGregor et al., 2000). Even though affect-based decisions are quicker, easier and more efficient in complex decisions, they can be faulty as they are subject to manipulation and inherent bias (Slovic et al., 2007).

Behavioral finance research proposes a stochastic discount factor based upon investors' sentiment relative to the fundamental value of the stock as the behavioral portion of the purchase decision is significant (Shefrin, 2008). Several recent studies underline the significance of the psychological affect in people's decision making mechanism (see Slovic et al., 2002, 2007; Finucane et al., 2000; MacGregor et al., 2000) suggesting that an investment is not an isolated mechanism and can also be influenced by factors other than financial returns and risk such as the affective evaluations concerning the company brands and corporate images (Statman et al., 2008; Ang et al., 2010; Freider & Subrahmanyam, 2005; Schoenbachler et al., 2004).

Our cross-disciplinary research extends the behavioral finance research by exploring in particular how the affect heuristic may influence investors' decisions with a foundation in marketing, psychology and finance. Our theoretical foundation is social identity theory (SIT) (Tajfel, 1978, 1981; Tajfel & Turner, 1985; Turner, 1975, 1982, 1984, 1985) to explain how investors identify themselves with groups, people, and finally ideas/ideals and how these identifications may result in an increase in the affective investment motivation in the company's stock. The marketing research has a long history of customer-corporation identity/brand connection and social identity

theory, suggesting that firms attract and retain customers who become loyal and repeat purchasers. When there is a connection between a customer's sense of self and a firm, a deep and mutual relationship develops (Bhattacharya & Sen, 2003) as customers use the symbolic properties of the relationship to communicate their identities (Press & Arnould, 2011). Firms in turn benefit from repeat purchase and price premiums (Lam, 2012). We examine the implications of investor identity to a firm and purchase intention.

The purpose of this study is, hence, to explore the relationship between an investor's affective self-affinity (ASA hereafter) for a company, its antecedents and their purchase intention of a stock. We have found very little research that explored this relationship. ASA is an investor's perception of the congruence between the company and their own personal identity (an identity that may be associated with people, groups of people or ideas and ideals, etc.) (Aspara et al., 2008). Past research has shown that an investor's identification with a company has a positive effect on their determination to invest over similar firms that have relatively similar return (Aspara & Tikkanen, 2011b). Further research by Aspara and Tikkanen (2011a) has indicated ASA and positive attitude may explain the affect-based extra investment motivation. Our research furthers this stream by suggesting that three dimensions of identification, specifically; group related, company-people related and idea/ideal related, may create extra affective investment motivation by increasing ASA towards a company.

Hence, we identify three antecedents, which influence ASA aroused in the investor. By treating ASA as a mediator, we study the effects of the antecedents of ASA on the affect-based extra investment motivation. We choose two dimensions, namely

socially-responsible investing (SRI hereafter) related ideas and nationality related ideas, as representatives of idea/ideal related ASA since past research shows that they influence individuals' consumption and investment decisions significantly (Statman, 2004; see the extant literature in section 2.2). Thus, our study contributes to the existing literature by connecting the heavily studied literatures of "Affect", "Social Identity Theory", "Socially Responsible Investing", and "Nationalism and Home Bias".

Our results indicate that as positive attitude towards the investee company increases, the affect-based extra investment motivation increases. Our major contribution that adds to the emerging stream of literature; group-related ASA, company-people related ASA and idea/ideal related ASA are all significantly and positively mediated by ASA and have significant effects on affect-based extra investment motivation both directly and indirectly. In summary, if firms can develop ASA, then investors will tend to hold their shareholdings and invest more into their firm.

3.2 Brief Literature and Hypotheses

3.2.1 Affective Self-Affinity and Positive Attitude

Past research has focused on ASA and its influence on decision-making (e.g. Slovic et al., 2002, 2007; Finucane et al., 2000). Researchers in the finance field investigated the influence of ASA in the stock investment decision due to the paradoxical return and risk evaluations (high expected return-low risk) of stocks of companies by investors which are associated with strong positive affect (Statman et al., 2008). In a

similar manner, a study by Ang et al. (2010) demonstrated how ASA for “class A” shares results in higher valuation by investors compared to “class B” shares of the same companies.

There is a dearth of research that studies the specific relationship between the extra investment motivation to invest in companies and affective/attitudinal evaluations. However recent behavioral finance research focused on the impact of ASA towards companies’ brands and corporate images on the willingness to invest in those companies (Aspara & Tikkanen, 2008, 2010a, 2010b; Frieder & Subrahmanyam, 2005; Schoenbachler et al., 2004), and examined the relationship between the affect-based extra investment motivation and two explanatory variables; positive attitude towards the company and ASA (Aspara & Tikkanen, 2011a).

The results from this research indicate that a positive attitude towards a company and ASA for a company causes investors to have extra motivation to invest in a company’s stock after controlling for several demographic and investor characteristics. As such, we follow the foundation of the literature and first test their hypothesis concerning the attitudinal evaluation and then we further the stream of research and develop hypotheses regarding affective evaluation and the antecedents of ASA.

The first hypothesis concerns the relationship between the positive attitude towards the company and the affect-based extra investment motivation. As suggested by the literature positive attitude always involves affect beside cognitive associations (Eagly et al., 1994; Eagly & Chaiken, 1993; Zanna & Rempel, 1988; Breckler & Wiggins,

1989a, 1989b). Hence, we assume that an overall affective evaluation towards a company manifests as overall attitude, indicating how much a person likes/dislikes the object (Ajzen & Fishbein, 1980). Individuals may use those overall feelings to guide judgments (Damasio, 1994; Slovic et al., 2002; Zajonc, 1980), particularly in complex decisions where it is difficult to judge pros and cons of various alternatives such as the investment alternatives (Statman et al., 2008). That is why we hypothesize that as positive attitude towards the company increases, the affect-based extra investment motivation gets stronger.

H1: As positive attitude of an individual towards a company increases, his/her affect-based extra investment motivation to invest in the company's stock, over and beyond its expected return and risk, increases.

3.2.2 Social Identity Theory, Affective Self-Affinity and Its Antecedents

Affect may also manifest as identification, especially at the higher levels. Our theoretical foundation is social identity theory (SIT) which helps explain the relationship of ASA aroused in people and its antecedents (Tajfel, 1978, 1981; Tajfel & Turner, 1985; Turner, 1975, 1982, 1984, 1985; Aspara et al., 2008). According to SIT, people identify themselves with social groups and this makes the social identity of a person, which shapes the self-concept of him/her (Tajfel & Turner, 1985; Ashforth & Mael, 1989; Kramer, 1991). This is the categorization of an individual's self with some particular domains whereby the self refers to a social unit instead of a unique person (Brewer, 1991; Turner, 1987). Once categorizing self into, or identifying self with a social group, the cognition, perception, and behavior starts to

be regulated by the specific group standards; a process called “depersonalization” (e.g. Hogg, 1992: 94; Turner, 1987: 50-51).

In addition to the cognitive side (self-categorization), evaluative (group self-esteem) and emotional (affective) components of the social identity has attracted attention from researchers (Ellemers et al., 1999). The affective component of the identification - which is understudied in the literature but highly suggested to be in the agenda for future research by Brown (2000) - is the main determinant of in-group favoritism (Ellemers et al., 1999). This idea is quite similar to that of Brewer (1979) which puts SIT as “a theory of in-group love rather than out-group hate”. Moreover, the prototypical similarity between the group members is the basis for the attraction (liking) among the group members (Hogg et al., 1995). Hence, the affective component of the social identity ties up the discussion to the antecedents of ASA, specifically to group related ASA, implying that individuals may assign affective significance to group identification (Aspara et al., 2008).

Individuals may also identify themselves with abstract ideas/ideals such as nationality/national heritage (Nuttavithisit, 2005), corporate social responsibility (CSR hereafter) (Sen et al., 2006; Bhattacharya et al., 2009; Currás-Pérez et al., 2009) high status (Sirgy, 1982), natural health (Thompson & Troester, 2002), etc. In the same manner, people may identify themselves with people according to the social identity theory (Ashforth & Mael, 1989; Hogg & Voughan, 2002; Tajfel & Turner, 1985; Ahearne et al., 2005) since personnel is perceived as essential to the identity of a company (Balmer, 1995; Harris & De Chernatory, 2001; Jo Hatch & Schultz, 1997). Considering the affective component of the social identity theory along with

individuals' identification with people and ideas/ideals, individuals may have ASA's for ideas/ideals and for people.

We argue that antecedents of ASA and their effect on investment motivation can be modelled in a path analysis. The antecedents of ASA are proposed by Aspara et al. (2008) in qualitative research, but its relationship with ASA and affect-based extra investment motivation has not been studied empirically. Specifically, we can explore the effect of group related ASA, company-people related ASA and finally idea/ideal related ASA on the ASA for the company aroused in the investor which will, in turn, influence the extra affective motivation to invest in the company's stock. As individuals identify themselves with groups, ideas/ideals, and people, they will may have ASA's for groups, ideas/ideals and people since identification has affective conclusions. Thus, when "a certain group is perceived to be essential for the identity of a company" (Aspara et al., 2008: 11), the ASA for the specific group is transferred to the company itself. Likewise, when a person is employed by a company and hence perceived to be "essential for the identity of that company", the ASA for a specific person is transferred to the company (Aspara et al., 2008). The same mechanism is valid for idea/ideal related ASA: If the idea/ideal, with which an individual identify himself/herself, is perceived to be essential for a company, then the ASA for the specific idea/ideal is transferred to the company (Aspara et al., 2008).

Following Statman (2004), we propose two main ideas contributing to idea/ideal related ASA, namely, SRI related ideas and nationality related ideas. As Domini (1992) and Hamilton et al. (1993) refer; SRI is the expression of a desire for an "integration of money into one's self and into the self, one wishes to become."

Investors engaging in socially responsible investment decisions are said to “mix money with morality” in the decision-making process (Diltz, 1995). Hence, they filter out the products or stock offerings taking the compatibility of the parent company with their beliefs and values into account (Kelley & Elm, 2003). Thus, companies may use CSR to distinguish themselves, if they are successfully managing CSR related activities (Sen et al., 2006; Drumwright, 1994). With the extant literature on SRI, it can be concluded that “SRI related ideas” is one of the ideas influencing investment decision. Considering the literature on dimensions of corporate social responsibility and socially responsible investing (Carrol, 1979; Martin, 1986; Porter & Kramer, 2002; Saiia, 2002; Hill et al., 2003, 2007; Rivoli, 2003; Dillenburger et al., 2003; Guay et al., 2004; Dahlsrud, 2008; Adams & Hardwick, 1998; Heinkel et al., 2001), and the screens used by the most ethical funds around the world (Spencer, 2001; Belsie, 2001; Hill et al., 2003, 2007; Guay et al., 2004; Renneboog et al., 2008), we hypothesized it to be a formative construct, which is formed by four factors; animal-welfare, environmental responsibility, fair labor practices, and volunteer activities.

The next indicator contributing to idea/ideal related ASA, nationality-related ideas, is among the abstract ideas that individuals identify themselves with (Nuttavuthisit, 2005). Its effect on the consumption decision has been studied as “Consumer nationalism” and “national loyalty” in the marketing literature (see Rawwas et al., 1996; Wang, 2005; Baughn & Yaprak, 1993). Over 60 country-of-origin (CO) research studies have studied the effect of nationalism on the consumption decision, and the effect is evident in the literature (see Samiee (1994) for an overview of the 60 studies; e.g. Han, 1988; Shimp & Sharma, 1987). Since stockholding/ ownership can

be viewed as experiential consumption - which is consistent with the idea that goods that can be consumed are not limited to physical products and services but also include experiences (Solomon et al., 2002) - national loyalty or consumer nationalism can be adapted to stock investment decision as well. A nationalist consumer considers the domestic economy in his/her consumption decision and prefers domestic brands. He/she perceives buying imported products as ruining the economy and as unpatriotic (Rawwas et al., 1996). Accordingly, a nationalist investor is hypothesized to have a tendency to prefer stocks of the companies, which are perceived to contribute to national development. This idea of favoring domestic equity investment is presented in detail in the home bias literature as well. The home bias literature discusses the tendency of the investors to invest in the domestic equities heavily despite the international diversification benefits (see Lewis (1999) for a detailed literature on equity and consumption home biases). Accordingly, the negative effect of patriotism on the investment abroad is demonstrated by Morse & Shive (2011), revealing that patriotism is, indeed, influential on the investment decision.

Following the detailed discussion presented, the hypotheses concerning the antecedents of ASA to be tested in this study are:

H2_a: The stronger the ASA an individual has for an idea or ideal, the stronger the ASA he/she has for a company perceived to support or to represent it, which will result in stronger affect-based investment motivation.

H2_b: The stronger the ASA an individual has for a group of people, the stronger ASA he/she has for a company perceived to support or to represent it, which will result in stronger affect-based investment motivation.

H2_c: The stronger the ASA an individual has for a person, the stronger the ASA he/she has for a company perceived to employ that person, which will result in stronger affect-based investment motivation.

3.3 Methodology

3.3.1 Survey Design and Measurement

We have formative, reflective, and single item measures as well as single order and higher order latent variables. The dependent latent variable affect-based extra investment motivation and the independent latent variable positive attitude towards the company and the mediator variable ASA towards the company are based on the research of Aspara and Tikkanen (2011a).

Affect-based extra investment motivation is measured by a reflective two-item scale as:

1. *“When you invested in [company X]’s stock, on what basis did you make the investment decision?”*

0= *“I purchased [company X]’s stock because considering all the investment opportunities I was aware of, I expected to obtain the absolutely best possible financial returns relative to risk from [company X]’s stock.”*

...

6= *“I purchased [company X]’s stock simply because I liked [company X] as a company.”*

2. 0= *“I purchased [company X]’s stock because considering all the investment opportunities I was aware of, I expected to obtain the absolutely best possible financial returns relative to risk from [company X]’s stock.”*

...

6= *“I purchased [company X]’s stock because I had a positive attitude towards [company X].”*

The reason why we chose a Likert scale is that it detects deviation from “pure financial motivation” which corresponds to zero on the scale. This deviation -meaning the extra motivation that is affect-based on top of the financial motivations- is our dependent variable. We are not arguing that financial motivations do not exist in the stock investment decisions. However, what we are arguing is that there could be affect-based motivations over and beyond the financial motivations. Therefore, any deviation from zero on this scale will show different degrees of affect-based motivations revealed in the investment decision.

Positive attitude towards the company is measured by a reflective two-item scale, anchored by:

1. *“What kind of attitude did you have towards [company X]?”*

−3= *“very negative”*, +3= *“very positive”*

2. *“Did you like the products of [company X]?”*

−3= *“didn’t like at all”*, +3= *“liked very much”*

ASA towards the company is measured by a question adapted from Bergami and Bagozzi (2000), anchored by:

“How well did [company X] reflect the kind of person you are?”

0= “not at all”, 6= “very well”.

The following antecedents of ASA measures are created based on research by Aspara et al. (2008). We include three antecedents, namely group-related ASA, company-people related ASA, and idea/ideal related ASA in the model. 1) Group-related ASA and 2) Company-people related ASA are both measured by 5 points Likert scale type questions as follows:

Please identify yourself on the 5 points Likert scale below where:

1= “absolutely don’t agree”, 5= “absolutely agree”

- 1. “I think that [company X] is supportive to and reflects the groups I like and I feel close to.”*
- 2. “I think that [company X] employs the people I like and I feel close to.”*

Idea/Ideal related ASA is hypothesized to be a hierarchical latent variable including two first order factors; namely, SRI related ideas and nationality related ideas. It is difficult to develop a latent variable that involves all the ideas/ideals that an investor may value. However, the aforementioned two ideas are greatly discussed in the literature and they are among the most studied ideas reflected in people’s investment and consumption decisions.

As it is explained above, SRI related ideas have different dimensions contributing to the formation of the construct; hence, we hypothesized it to be a formative construct.

SRI related ideas are measured by a 5-point Likert scale questions as follows:

Please identify yourself on the 5 points Likert scale below where:

1= “absolutely don’t agree”, 5= “absolutely agree”

“I think that [company X] meets my below stated non-financial priorities and concerns:

- 1) Concerned for animal welfare*
- 2) Environmentally- responsible*
- 3) Concerned for fair labor practices*
- 4) Supportive to social responsibility projects”*

The next first order construct; nationality related ideas, is measured by a two-item reflective scale which addresses the ideas national brand, national development, domestic production, domestic capital. It is anchored by 5 points Likert scale type questions as follows:

Please identify yourself on the 5-point Likert scale below where:

1= “absolutely don’t agree”, 5= “absolutely agree”

“I think that [company X] meets my below stated non-financial priorities and concerns:

- 1) National brand owner and depends on domestic capital*
- 2) Domestic production and contributes to national development*

3.3.2 Sampling and Data

The questionnaire is a voluntary-based online survey, sent as a link with a cover letter, and participants were not paid for answering the questionnaire. Our sample of interest is composed of non-professional individual stock investors as the past research suggests that these individuals deviate the most from the rationality assumptions of traditional finance (e.g., Grinblatt & Keloharju, 2000, 2001; Lee et al., 1991; Odean, 1998; Poteshman & Serbin, 2003; Warneryd, 2001). Participants were asked to answer questions about the attitudinal and affective evaluations of their investment decisions in certain companies, which are publicly traded companies, listed in BIST30. More specifically, four companies, which have publicly known brands and products, are selected in order to have healthy evaluations about the brand and the products of the companies³.

In order to eliminate any potential performance and industry related biases we conducted cluster analysis to BIST companies based on the return and standard deviation of returns during the year prior to the survey, and we made sure that the selected companies are from the same cluster but in different industries. The cluster information and company-industry comparison are presented in Table 1. Company 1 is a bank, company 2 is a retailer, company 3 is a holding (conglomerate) and company 4 is a manufacturing firm. Thus, we select companies with similar return-risk profiles in order to eliminate any potential bias due to performance. In addition,

³ In order to distribute our survey to their clients, the intermediaries that we have contacted required us not to disclose the names of investee companies that the participants invested in, as it is private information of their customers. Hence, we are required not to provide the names of the investee companies; instead, we refer to them as company A, B, C, and D in the paper. However, we provide all the necessary information concerning the selected companies such as the risk and return profiles, their industry, and comparative performances with respect to that industry.

each company's return during the year/quarter prior to the survey is compared with the corresponding industry average to check whether there are any possible performance advantages of the selected companies compared to their industry. Results indicate that the average returns of the selected companies during the year/quarter prior to the survey are below their corresponding industry averages. Hence, we are confident that performance related bias is not a serious concern.

Table 1: Cluster Information and Company-Industry Return Comparison

PANEL A: Cluster Information				
	Average Return	Average Standard deviation	Number of Companies	
Cluster 1	0.0001	0.0343	199	
Cluster 2	-0.0008	0.0215	211	

PANEL B: Company-Industry Return Comparison				
1 Year Return Comparison				
Industry	Banks	Retailers	Holding	Manufacturing
Number of companies	16	10	51	24
Average industry return*	-0.054%	0.123%	0.009%	-0.027%
Selected company return*	-0.095%	0.014%	0.002%	-0.031%

1 Quarter Return Comparison				
Industry	Banks	Retailers	Holding	Manufacturing
Number of companies	16	10	51	24
Average industry return**	-0.159%	-0.070%	0.167%	-0.015%
Selected company return**	-0.192%	-0.071%	0.094%	-0.334%

* (**): Returns are calculated during the year (quarter) prior to the survey

Notes: BIST companies are clustered using two stage clustering method with respect to return and standard deviation of return during the year prior to the survey (Jan, 2013 – Jan, 2014). The selected four companies belong to the second cluster in Panel A.

In the first step of the questionnaire, respondents choose the company of which they currently hold stocks among the four companies presented to them and then continue to the second step to answer the questions based on the investment decision they

reveal in the first step.⁴ As a population of interest, individual Turkish stock investors in Turkey, especially in the three biggest cities in Turkey; namely Istanbul, Ankara and Izmir, are selected (total population of close to 20 million). The online survey was sent to all intermediary agencies in Turkey via email and the follow up calls are made only to several intermediary bank/agency offices and head offices in the three biggest cities. Note that almost 55% of the branches and almost 50% of the head offices of all intermediary agencies are located in these biggest three cities. Moreover, the contacted intermediary agencies account for 33% of the transaction volume in Turkey⁵. Hence, the sample is potentially an indicator of the Turkish stock investors who are investing in the specific four companies.

We sent 363 requests, and received 151 replies in total. Following Aspara and Tikkanen (2011a), we screened away the individuals who reported negative attitudinal evaluation which reflects the overall affective evaluation about the company as our hypotheses are only applicable to individuals who have positive affect (as opposed to negative) towards the company. Therefore, 13 of the replies were screened away due to negative attitude and five of them were eliminated because they were incomplete. So, after eliminating unusable and incomplete replies, we end up with 133 usable answers which yield a fairly good response rate of 36.6%. When we compare the answers that arrived early with those that arrived late, we see no significant differences between the two groups, which signal that non-response bias was not a serious concern. The resulting sample of 133 replies is appropriate for the methodology used (see Chin & Newsted, 1999).

⁴ Each respondent takes the questionnaire only for one company and we did not encounter a case in which the respondent selected more than one company.

⁵ Source: www.cmb.gov.tr

When we compare our sample with the Turkish stock investor population, we observe a quite similar profile. Our sample indicates a female-male ratio of 25.6%- 74.4% respectively, which is almost the same as that of the population, which is 25.2%- 74.8%⁶ respectively. When the age distribution is concerned, however, our sample has much higher young investor respondents than the actual data reveals. This is not surprising as the participation rate of younger population to online surveys is higher compared to that of older population (Bech & Kirstensen, 2009; Graefe, Mowen, Covelli, & Trauntvein, 2011; Kaplowitz, Hadlock, & Levine, 2005).

The descriptive statistics for the investors participated in the study are demonstrated with respect to the four companies in the Table 2. The table shows the demographic variables such as gender, age, marital status, education, and income as well as investor characteristics such as tracking activity, risk attitude, investor size, and financial literacy⁷. The overall characteristics of the individual investors participated in the study are middle aged, university or higher educated, moderately risk averse and small investors with a fundamental financial literacy. In general, the data does not reveal significant differences between the characteristics of different company investors except for number of stocks owned, investor size, tracking activity, and financial literacy. This confirms our assumption that the investors of the firms in this study are from the same population.

⁶ Source: <https://www.mkk.com.tr/en/>

⁷ The data for the average holding period, which is another indicator of the investor characteristics, was also collected in order to be included as a control variable in the model. However, since it is missing in more than half of the responses, it is excluded from the path model.

Table 2: Personal and Investor Characteristics of the Investors Participating in the Study

		company 1	company 2	company 3	company 4	overall sample	chi square	p value
TOTAL RESPONSES		46	32	33	22	133		
Gender								
1	male	65.2%	78.1%	87.9%	68.2%	74.4%		
2	female	34.8%	21.9%	12.1%	31.8%	25.6%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	5.869	.118
Age								
1	18-25	6.5%	6.3%	0.0%	9.1%	5.3%		
2	26-40	76.1%	50.0%	63.6%	68.2%	65.4%		
3	41-60	15.2%	43.8%	36.4%	22.7%	28.6%		
4	over 60	2.2%	0.0%	0.0%	0.0%	.8%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	12.859	.169
Marital Status								
1	married	69.6%	53.1%	78.8%	59.1%	66.2%		
2	single	28.3%	40.6%	21.2%	36.4%	30.8%		
3	other	2.2%	6.3%	0.0%	4.5%	3.0%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	6.557	.364
Education								
1	primary/secondary school	0.0%	0.0%	0.0%	0.0%	0.0%		
2	high school	2.2%	0.0%	0.0%	4.5%	1.5%		
3	vocational high school	2.2%	0.0%	0.0%	0.0%	.8%		
4	associate degree/2yearscollege	2.2%	3.1%	9.1%	4.5%	4.5%		
5	college/bachelor	56.5%	65.6%	54.5%	72.7%	60.9%		
6	master	32.6%	15.6%	27.3%	18.2%	24.8%		
7	doctoral degree	4.3%	15.6%	9.1%	0.0%	7.5%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	15.434	.421

Table 2 (cont'd)

Tracking Activity								
1	several times a day	65.2%	31.3%	45.5%	27.3%	45.9%		
2	daily	26.1%	56.3%	30.3%	40.9%	36.8%		
3	weekly	2.2%	9.4%	15.2%	27.3%	11.3%		
4	monthly	4.3%	3.1%	6.1%	4.5%	4.5%		
5	yearly or less than seldom	2.2%	0.0%	3.0%	0.0%	1.5%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	22.792	.030
Risk Attitude								
1	no risk taker	0.0%	0.0%	3.0%	0.0%	.8%		
2	highly risk averse	6.5%	0.0%	0.0%	9.1%	3.8%		
3	risk averse	10.9%	6.3%	9.1%	13.6%	9.8%		
4	moderate risk averse	39.1%	56.3%	54.5%	40.9%	47.4%		
5	risk seeker	32.6%	28.1%	21.2%	31.8%	28.6%		
6	highly risk seeker	2.2%	6.3%	6.1%	4.5%	4.5%		
7	very highly risk seeker	8.7%	3.1%	6.1%	0.0%	5.3%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	15.054	.658
Investor Size								
1	Small investor	87.0%	62.5%	66.7%	81.8%	75.2%		
2	Medium-sized investor	13.0%	37.5%	27.3%	18.2%	23.3%		
3	Large investor	0.0%	0.0%	6.1%	0.0%	1.5%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	13.356	.038
Financial Literacy								
1	Can do technical analysis	52.2%	28.1%	33.3%	22.7%	36.8%		
2	Have a fundamental knowledge	39.1%	71.9%	45.5%	54.5%	51.1%		
3	Have a little knowledge	6.5%	0.0%	15.2%	22.7%	9.8%		
4	Don't have a clear idea	2.2%	0.0%	6.1%	0.0%	2.3%		
5	Don't have an idea	0.0%	0.0%	0.0%	0.0%	0.0%		
	overall sample	34.6%	24.1%	24.8%	16.5%	100.0%	20.858	.013

Notes: The table presents the personal and investor characteristics with respect to the four companies. Chi-square test is applied to test the differences between the investors of four companies.

3.4 Analysis and Results

Figure 6 illustrates the responses to the first item of affect-based extra investment motivation question. Eighty percent of the respondents show affect-based extra investment motivation, either low or high in magnitude, which is averaged to be around 2.5. This supports our presumption that the investors may have extra affect-based motivations in the investment decision. The responses to the main variables in the model are also presented in the Table 3, to provide a general picture of the tendencies of the answers.

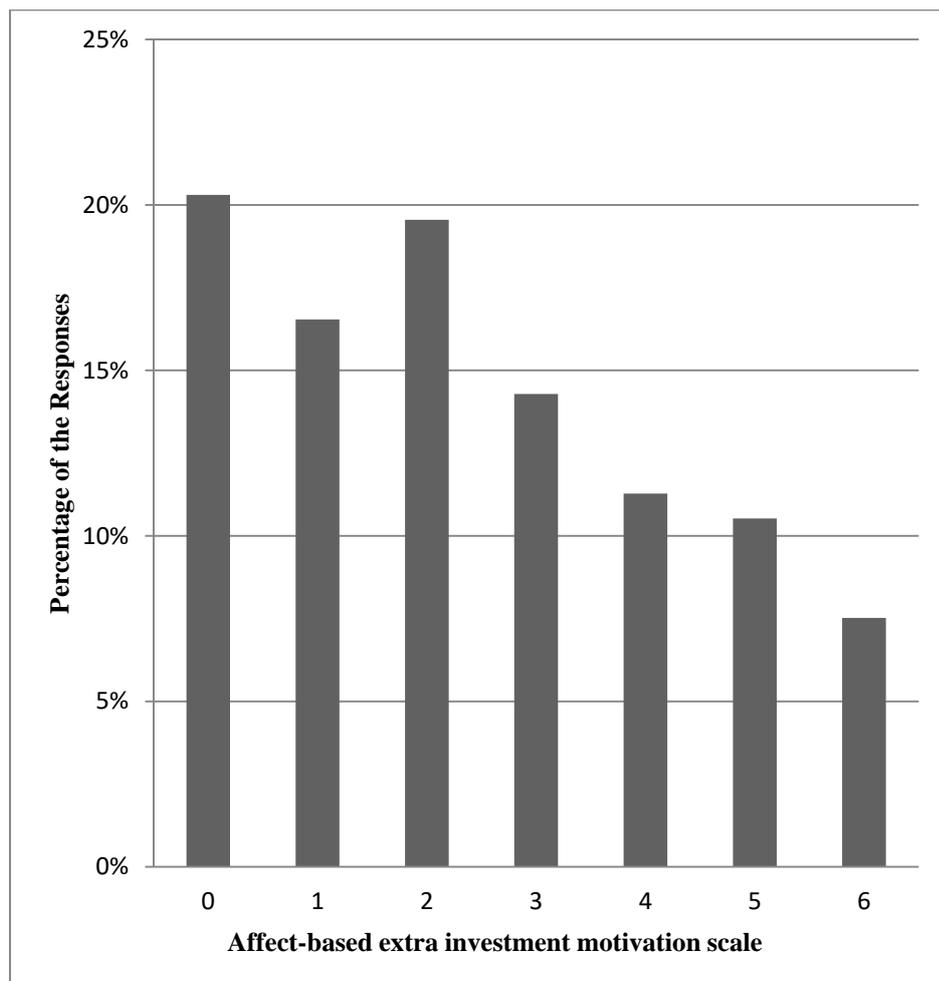


Figure 6: Frequency Distribution of Answers to the Affect-Based Extra Investment Motivation Question

Table 3: The Breakdown of the Responses to the Main Variables in the Model

Scale	The Variables					
	Affect-based Extra Investment Motivation		Affective Self-Affinity (ASA)			
	Item 1	Item 2				
0	20%	21%	3%			
1	17%	19%	4%			
2	20%	15%	11%			
3	14%	17%	9%			
4	11%	9%	23%			
5	11%	12%	43%			
6	8%	8%	7%			
Mean	2.4	2.4	4.0			
	Positive Attitude Toward the Company*					
	Item 1	Item 2				
0	11%	10%				
1	34%	20%				
2	37%	51%				
3	18%	19%				
Mean	1.6	1.8				
	Antecedents of Affective Self-Affinity (ASA)					
	Group Related ASA	Company-Related ASA				
1	10%	13%				
2	17%	17%				
3	18%	22%				
4	28%	31%				
5	27%	17%				
Mean	3.5	3.2				
	Idea-Ideal Related ASA					
	Socially-Responsible Investing Related Ideas				Nationality-Related Ideas	
	Item1	Item2	Item3	Item4	Item 1	Item 2
1	2%	3%	0%	2%	4%	5%
2	7%	5%	9%	4%	8%	14%
3	59%	42%	42%	36%	16%	13%
4	19%	38%	34%	42%	37%	29%
5	14%	12%	15%	17%	35%	39%
Mean	3.3	3.5	3.5	3.7	3.9	3.8

* The responses with negative scores on this variable are eliminated from the sample, as we are interested in the positive attitude rather than negative attitude towards the company.

Following Aspara and Tikkanen (2011a), we chose to use Partial Least Squares Structural Path Modelling, PLS-PM. PLS-PM has gained wider usage among empirical researchers due to less restrictive assumptions concerning the data than CBSEM techniques (e.g. sample size, data distribution, independency of observations, indicator type, etc.) as well as its superior convergence, reduced computational demands and exploratory capabilities in the absence of a theoretical foundation (Henseler, Ringle, & Sinkovics, 2009; Sosik, Kahai, & Piovoso, 2009; Chin & Newsted, 1999; Fornell & Cha, 1994). Specifically, we use the software SmartPLS, developed by Ringle, Wende, and Becker (2005). Significance results are based on a bootstrapping procedure with 2,000 resamples as suggested by Hair, Ringle, and Sarstedt (2011).

As suggested by Chin (1998), we employed a two-step evaluation of the model. At the first step, the measurement model is tested for internal consistency and construct validity, separately for reflective and formative measures. At the second step, structural paths are tested for significance. All reflective constructs exhibit good internal consistency implied by high Cronbach's alphas⁸ and composite reliability scores⁹, exceeding the threshold of 0.70 (Nunnally & Bernstein, 1994). Construct validity is attained by a combination of discriminant validity and convergent validity. Convergent validity is supported by high AVE¹⁰, above the threshold of 0.50 as suggested by Fornell and Larcker (1981). Concerning discriminant validity, we use

⁸ Reflective constructs; affect, positive attitude, nationality related ideas, reveal Cronbach's alpha scores of 0.908, 0.773, and 0.870 respectively.

⁹ Reflective constructs; affect, positive attitude, nationality related ideas, reveal composite reliability scores of 0.956, 0.898, and 0.936 respectively.

¹⁰ Reflective constructs; affect, positive attitude, nationality related ideas, reveal average variance extracted score of 0.916, 0.815, and 0.880 respectively.

HTMT criterion, which is shown to have superior performance compared to the classical approaches of Fornell-Larcker criterion and cross loadings (Henseler, Ringle, & Sarstedt, 2015). All of the HTMT values¹¹ are below the conservative threshold of 0.85, implying good discriminant validity (Kline, 2015). Thus, reflective constructs meet the reliability and validity requirements.

Concerning the formative construct, SRI related ideas, we assess the weights of the indicators and VIF scores for construct reliability and evaluate modified MTMM matrix for discriminant validity as suggested by Andreev, Heart, Maoz, and Pliskin (2009). All of the indicator weights in SRI related ideas are above the threshold value of 0.10¹² (Andreev et al., 2009). As Diamantopoulos and Winklhofer (2001) suggest insignificant indicators are preserved since they represent the domain aspect, which is theoretically explained above. Multicollinearity seems not to be an issue, as it is addressed by VIF scores lower than 3.3¹³ (Diamantopoulos & Sigauw, 2006). Finally, Table 4 presents the modified MTMM matrix, which addresses indicator-to-construct, and construct-to-construct correlations. Correlations between the constructs are all below the threshold value of 0.71 (MacKenzie, Podsakoff, & Jarvis, 2005), indicating good discriminant validity. Moreover, indicator-to-construct correlations reveal that the four indicators are more correlated with their corresponding construct than they are with the other constructs. Hence, discriminant validity is established.

¹¹ HTMT values for affect-positive attitude, affect-nationality related ideas and positive attitude-nationality related ideas are 0.409, 0.394 and 0.477 respectively.

¹² Weights of the indicators of the formative construct, SRI related ideas are 0.356 for animal welfare, 0.356 for environmental-responsibility, 0.203 for fair labor practices, and 0.259 for volunteer activities.

¹³ The VIF scores of the indicators of the formative construct, SRI related ideas, are 2.797 for animal welfare, 2.934 for environmental-responsibility, 1.563 for fair labor practices, and 1.811 for volunteer activities.

Table 4: Multitrait-Multimethod Matrix (MTMM) Analysis for SRI Related Ideas

MTMM MATRIX	1	2	3	4	5	6	7	8	9	10	11
1. Animal welfare	1										
2. Environmental-responsibility	.779*	1									
3. Fair labor practices	.562*	.553*	1								
4. Volunteer activities	.606*	.639*	.472*	1							
5. SRI related ideas	.906*	.913*	.721*	.795*	1						
6. Affect-based investment motivation	.158	.022	.134	.042	.101	1					
7. Positive attitude towards the company	.324*	.358*	.302*	.239*	.365*	.345*	1				
8. ASA	.307*	.310*	.246*	.271*	.339*	.346*	.649*	1			
9. Group related ASA	.304*	.299*	.244*	.176*	.308*	.341*	.476*	.580*	1		
10. Company-people related ASA	.421*	.467*	.307*	.352*	.469*	.183*	.405*	.535*	.621*	1	
11. Nationality related ideas	.299*	.217*	.227*	.217*	.283*	.342*	.402*	.304*	.423*	.212*	1

**(*). Correlation is significant at the 0.01(0.05) level in 2-tailed specification.

Notes: Table 4 presents the indicator-to-construct, and construct-to-construct correlations with the lower order formative construct of SRI-related ideas. Construct-to-construct correlations are highlighted with dark grey. Indicator-to-construct correlations are highlighted with light grey.

Figure 7 demonstrates the last construct; idea/ideal related ASA, which is a second order formative construct, composed of two first order factors; SRI related ideas and nationality related ideas. Following Becker, Klein, and Wetzels (2012), we employ two-stage approach with mode B for the hierarchical model. At stage one, the outer weights and loadings are calculated for the first order variables; SRI related ideas and nationality related ideas. At the second stage, the latent variable scores for the first order variables are used as indicators of the second order variable; idea/ideal related

ASA. The construct, idea/ideal related ASA exhibit good construct reliability implied by significant indicator weights higher than the threshold of 0.10¹⁴(Andreev et al., 2009) along with the VIF scores below the threshold value of 3.3¹⁵ (Diamantopoulos & Siguaw, 2006).

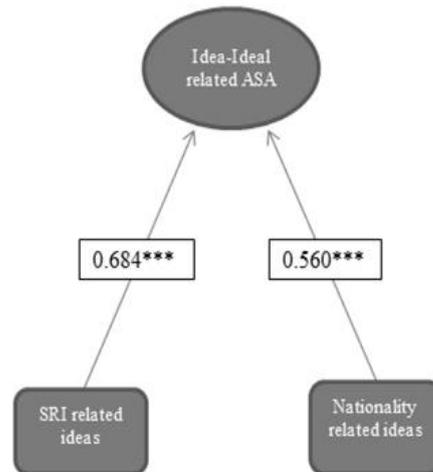


Figure 7: 2nd Order Construct Idea/Ideal Related ASA Demonstrated with the Weights of the 1st Order Constructs

Finally, Table 5 presents the modified MTMM matrix for discriminant validity. The discriminant validity of idea/ideal related ASA is supported by low construct-to-construct correlations, which are all below the threshold value of 0.71 (MacKenzie et al., 2005). Moreover, correlations of indicators are higher with their corresponding construct than with others, indicating good discriminant validity. Hence, construct reliability and discriminant validity is established at the second stage as well as at the first stage of the hierarchical latent variable modelling.

¹⁴ Weights of the indicators of the formative construct; idea/ideal related ASA, are 0.684 for SRI related ideas, and 0.560 for nationality related ideas.

¹⁵ The VIF scores of the indicators of the formative construct; idea/ideal related ASA, are 1.088 for both SRI related ideas and nationality related ideas.

Table 5: Multitrait-Multimethod Matrix (MTMM) Analysis for Idea/Ideal Related ASA

MTMM MATRIX		1	2	3	4	5	6	7	8
1.	Nationality related ideas	1							
2.	SRI related ideas	.343**	1						
3.	Idea/ideal related ASA	.778**	.857**	1					
4.	Group related ASA	.393**	.308**	.421**	1				
5.	Company-people related ASA	.292**	.469**	.473**	.621**	1			
6.	ASA	.343**	.339**	.415**	.580**	.535**	1		
7.	Affect-based extra investment motivation	.247**	.101	.203*	.341**	.183*	.346**	1	
8.	Positive attitude towards the company	.413**	.365**	.471**	.476**	.405**	.649**	.344**	1

**(*). Correlation is significant at the 0.01(0.05) level in 2-tailed specification.

Notes: Table 5 presents the indicator-to-construct, and construct-to-construct correlations with the higher order formative construct of idea-ideal related ASA. Construct-to-construct correlations are highlighted with dark grey. Indicator-to-construct correlations are highlighted with light grey.

Figure 8 depicts the structural model with significant path coefficients. The model explains 39.8% of ASA and 38.4% of Affect-based extra investment motivation.

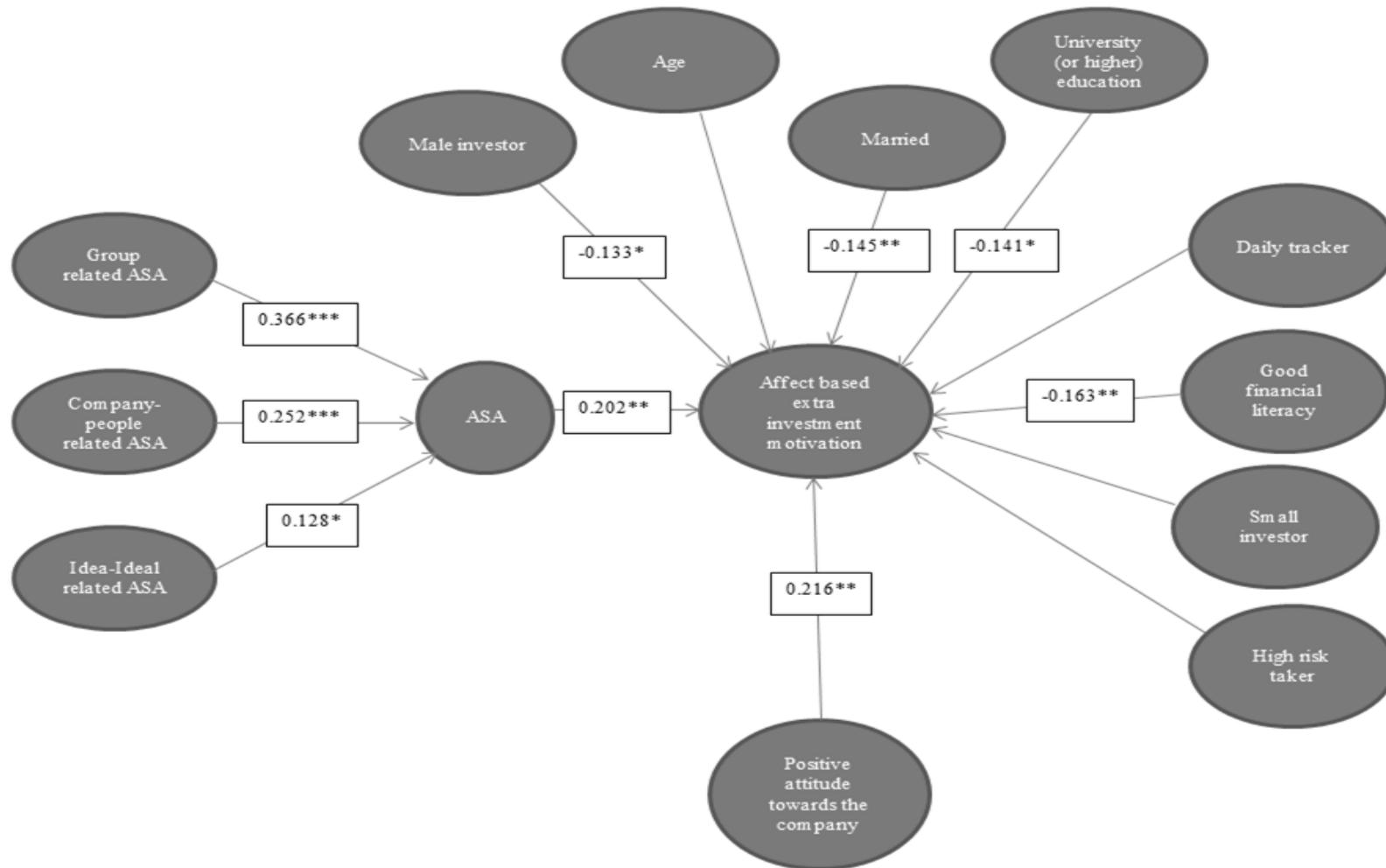


Figure 8: The Structural Model with Significant Paths Reported

Table 6 demonstrates the summary of the structural model findings. Positive attitude towards the company has significant direct effect on the dependent variable. As positive attitude towards a company increases affect-based extra investment motivation increases. Likewise, Antecedents of ASA; namely, group related, company-people related, and idea/ideal related ASA's, are significantly mediated by ASA which is significantly correlated with the dependent variable; affect-based extra investment motivation. That is, the antecedents of ASA included in the analysis have significant effects on the ASA aroused in the investor, which, in turn, increases the affect-based motivations to invest in the investee company; implying significant indirect effects on the affect based extra investment motivation. Moreover, all of the antecedents of ASA except for idea/ideal related ASA, have significant direct effects on the extra affective investment motivation.

All the detailed information concerning the structural model such as the paths along with their confidence intervals, quality criteria with the corresponding confidence intervals and finally the structural model with all the paths reported along with their p-values can be found at the appendices 1, 2 and 3.

Table 6: Summary of the Structural Model

Variables	Path coeff.	p-value
Positive attitude towards the company -> Affect	0.216	0.034**
Affective self-affinity (ASA) -> Affect	0.202	0.023**
Group related ASA -> ASA	0.366	0***
Idea/ideal related ASA -> ASA	0.128	0.089*
Company-people related ASA -> ASA	0.252	0.002***
Group related ASA -> Affect	0.074	0.037**
Idea/ideal related ASA -> Affect	0.026	0.145
Company-people related ASA -> Affect	0.051	0.053*
Controls		
Age -> Affect	0.059	0.261
Male investor -> Affect	-0.133	0.054*
Married -> Affect	-0.145	0.05**
University education -> Affect	-0.141	0.052*
Daily tracker -> Affect	-0.011	0.447
Good financial literacy -> Affect	-0.163	0.011**
High risk taker -> Affect	-0.080	0.182
Small investor -> Affect	-0.012	0.45
Company dummy controls		
Investee company 1 -> Affect	-0.235	0.021**
Investee company 2 -> Affect	0.093	0.202
Investee company 3 -> Affect	0.010	0.46
Company dummy moderators		
ASA for the company*Investee company 1 -> Affect	-0.149	0.143
ASA for the company*Investee company 2 -> Affect	0.046	0.357
ASA for the company*Investee company 3 -> Affect	-0.002	0.493
Attitude towards the company*Investee company 1 -> Affect	0.051	0.348
Attitude towards the company*Investee company 2 -> Affect	0.036	0.387
Attitude towards the company*Investee company 3 -> Affect	-0.095	0.261

***, **, * refers to significance at the 0.01, 0.05, 0.1 level respectively in 1-tailed specification.

Notes: Table 6 presents the path coefficients and p-values for the main variables, control variables, dummy variables, and dummy moderators included in the partial least squares path model.

Group related and company-people related ASA's have higher significance than the idea/ideal related ASA variable in the indirect paths. As for the idea/ideal related ASA, we included only two dimensions, SRI related ideas and nationality related ideas, which have been studied heavily in the literature. Increasing the dimensions of this variable, hence covering more ideas/ideals, may result in higher significances.

Moreover, idea/ideal related ASA does not have significant direct paths to the main dependent variable whereas the other two antecedents have significant direct paths. Hence, the idea/ideal related ASA is fully mediated by the mediator variable, ASA, whereas the other two antecedents are not. Increasing the dimension of the idea/ideal related ASA might also influence the significance of direct path from idea/ideal related ASA to the affect-based extra investment motivation. The signs of the coefficients are all as we expected, confirming our hypotheses. An increase in any of the antecedents increases the affective self-affinity towards the investee company, which will further increase the affect-based extra investment motivation.

Most of the company dummy controls and interaction effects are insignificant, except for company 1 dummy. Thus, there seem to be no difference in the findings between different companies. As for the controls, male investors demonstrate less affect-based extra investment motivation compared to female investors (consistent with De Acedo Lizarraga, 2007). The same effect follows for married investors. Likewise, investors with higher education (university or higher) and with higher reported financial literacy, show less affect-based motivations in investment decision (consistent with Forgas, 1995).

Although the four companies have similar return/risk profiles according to the cluster analysis, and do not have a performance advantage compared to the corresponding industry we further test for good performance by including a good performance dummy in the path model. Table 7 presents the results for the structural model with performance dummy. Results indicate that the good performance dummy fails to be significant along with the dummy moderators. Moreover, significance levels and the coefficients of the main variables are almost the same as the previous results. Therefore, we are confident that the results we present are not subject to performance related bias.

Table 7: Summary of the Structural Model with Performance Dummy

Variables	Path coeff.	p-value
Positive attitude towards the company -> Affect	0.259	0.011**
Affective self-affinity (ASA) -> Affect	0.197	0.027**
Group related ASA -> ASA	0.366	0***
Idea/ideal related ASA -> ASA	0.128	0.084*
Company-people related ASA -> ASA	0.252	0.001***
Group related ASA -> Affect	0.072	0.046**
Idea/ideal related ASA -> Affect	0.025	0.143
Company-people related ASA -> Affect	0.05	0.055*
Controls		
Age -> Affect	0.113	0.128
Male investor -> Affect	-0.069	0.212
Married -> Affect	-0.175	0.016**
University education -> Affect	-0.13	0.051*
Daily tracker -> Affect	-0.053	0.252
Good financial literacy -> Affect	-0.158	0.006***
High risk taker -> Affect	-0.129	0.063*
Small investor -> Affect	-0.052	0.303
Good performance -> Affect	0.069	0.196
Performance dummy moderators		
Positive attitude towards the company*Good performance -> affect	-0.088	0.257
ASA *Good performance -> affect	0.02	0.42

***, **, * refers to significance at the 0.01, 0.05, 0.1 level respectively in 1-tailed specification.

Notes: Table 7 presents the path coefficients and p-values for the variables including a performance dummy control variable in the partial least squares path model. .

3.5 Conclusion

The current study has several contributions to the behavioral finance literature. It combines the theoretical background of the marketing, social psychology and finance to explain the influence of affective and attitudinal evaluations of companies on the investment decision in the company's stock. More specifically, it examines the antecedents of affective self-affinity (ASA) - namely, group related ASA, company-people related ASA, and idea/ideal related ASA - and how they are related to the ASA for the company and affect-based extra investment motivations empirically.

The results of the study suggest that as the ASA increases for a specific person, for a specific group, and/or a specific idea/ideal increase, the ASA for the company, which employs that particular person, supports that particular group, or supports that particular idea/ideal also increases. The ideas discussed in this study are socially responsible investing (SRI) related ideas and nationality related ideas. In other words, as individuals' ASA for SRI related ideas increases, their ASA for a company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. In a similar manner, as individuals' ASA for nationality related ideas increases, their ASA for the company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. Furthermore, any increase in ASA results in an increase in the affective investment motivation to the particular company's stock. Likewise, positive attitude towards the investee company may further explain the extra affective investment motivation. Hence, companies may use people, groups, and/or different ideas/ideals such as SRI related ideas and nationality

related ideas to create a bond between the company and the investor. This may, in turn, create extra motivation for investment into those companies' stocks.

Our results have implications for both researchers and practitioners. For researchers in the behavioral finance field, it is necessary to incorporate marketing, sociology, psychology, etc. to understand the dynamics of investors since past research has suggested that investors are influenced by other externalities and do not necessarily always behave rationally in their investing decisions. We have introduced ASA from the marketing field with a foundation of SIT to assist in attempting to further the field in explaining investing decisions. As SIT suggests that individuals identify themselves with groups, people, ideas/ideals and companies, our research suggests that investors do identify themselves with certain aspects of a firm and will invest accordingly.

The implications for practitioners suggest that investors are motivated by externalities over and beyond basic numerical data. As such, externalities such as SRI or nationality can influence investors. Top managers can utilize this knowledge to influence current and future investors by strategically focusing on positioning their firm favorably in the eyes of the potential investor to develop ASA. From a marketing point of view, communicating such aspects to the public is beneficial for the company because it attracts the particular investor profile that is sensitive about those aspects. From a finance point of view, however, ASA may work against the fundamentals and hence mitigate the financial efficiency especially when affective and cognitive cues are diverging. The literature suggests that in such instances, the affective side tends to dominate the final decision (Nesse & Klaas, 1994; Rolls, 1999). Yet, there is a conflicting experimental study suggesting that as the number of cognitive cues

increases it outweighs the affective cues which results in a decision that does not work against the efficiency of the financial markets (Su et al., 2010).

There are certain limitations in this study. Due to the restrictions on the data concerning the contact information of the stock investors in Turkey our sample size is limited, yet we feel we were able to accumulate enough data for the methodology used. As suggested by Falk and Miller (1992) and Shamir, Zakay, Brainin, and Popper (2000), five observations per parameter is the minimum requirement to be able to use PLS modelling. In our model, the largest structural model includes four latent variables, which require a minimum of twenty observations. Our dataset meets this requirement, yet, it is important to replicate the study to make more generalizable conclusions. We are aware of more conservative recommendations, such as 10 observations per parameter though (Chin & Newsted, 1999; Hair et al., 2011). The size of our sample could be an issue in evaluating the significance of the structural paths. As Chin and Newsted (1999) argue by using Monte Carlo simulations that low structural path coefficients are difficult to detect in studies with small sample sizes (such as 20). Therefore, this works against us in detecting the significant paths, meaning the ones that we detect may probably get higher significance when the sample size gets higher.

In addition, the data concerning the affective evaluations of the companies are self-reported which may create some biases. First of all, we do not have the information regarding the timing of the particular investment decision so we cannot control for it being relatively recent. However, we know that the participants hold the stocks at the time they take the questionnaire. Given that the average holding period for Turkish

stock investors in Turkey has averaged to be 79.2 days and has never been greater than 103 days between 2011 and 2015¹⁶, we may be confident, to some extent, that the decision was made relatively recent (especially when it is compared to similar studies which refers to 1.5 year time period as recent (Aspara & Tikkanen, 2011a). Still, it would be better to control for the timing of the investment to alleviate the possibility of “recalling wrong” as much as possible.

Even if we had the timing of the investment and accepted the responses with recent investment decisions, individuals may still not correctly recall the motivations underlying the investment decision. This may lead to retrospection related biases in which respondents exaggerate their positive evaluations about the company by committing to the past investment decision (Bem, 1972). However, we may also consider that even if they cannot recall correctly their affective evaluation about the company and motivations in investing the stock of the company, they may engage in self-impression management, which could result in over rationalizing accounts of the respondents due to the natural tendency to rationalize the behavior. That is, our findings concerning the affect-based motivations in stock investment may even be more conservative than the actual state.

The measures of antecedents of ASA, although based on past research, are used empirically for the first time in our study. By nature, PLS-PM is successful in exploring the possible relationships, which have not been studied before. Although

¹⁶[http://www.tuyid.org/files/BIST Trends Report XV.pdf](http://www.tuyid.org/files/BIST_Trends_Report_XV.pdf)

the validity and reliability indicators of the new measures are strong, replicating our study with different measures will be a necessary next step.

In the current study, we collected the responses regarding an investment decision of the investor because we are interested in whether there exists an extra motivation which is affect-based in addition to the financial motivations when an individual makes an investment decision. However, collecting the individuals' evaluations regarding the firms that were considered for investment but were not chosen in the final decision would be beneficial in understanding the relationship between the degrees of affect (whether high or low) and the final investment decision (whether to invest or not to invest). This would provide further insights about the affect mechanism and how it manifests itself in the final decision. This is left for further research.

Note also that, in the current study we did not address the effects of negative attitude/negative affective evaluations towards the company on the investment decision (whether to invest or not to invest) and motivation. The resulting effect of negative attitudes/affective evaluations on the investment decision may be simply the negative of that of positive attitudes/affective evaluations. However, it is not necessarily the case. The hypotheses of the current study are based on the literature of positive affective/attitudinal evaluations, identification, affect and emotions (Zajonc, 1980; Damasio, 1994, 2003; Slovic et al., 2002. See Aspara et al. (2008) for a detailed discussion), and consistency between those evaluations and behavior (Abelson et al., 1968; Festinger, 1957; McGuire, 1969). The opposite side of the story, meaning the effect of negative attitude/affective evaluations towards a company on the

investment/divestment motivation, requires new hypotheses that are based on the corresponding literature. Hence, this is a topic for a separate study, which would be grounded on the related theory and needs to be tested empirically.

CHAPTER 4

TRADITIONAL APPROACH

This is the second section of the thesis, which studies stock market investment patterns from a traditional perspective in an event study setting. We consider Arab Spring events as a source of political instability and investigate its financial repercussions, implications for the stock markets in the region in particular. On a non-event day, one expects zero abnormal returns consistent with the efficient market hypothesis. We present significant effects of the political instability on the country stock indices of Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia by documenting significant abnormal returns on the event days.

This chapter starts with a brief introduction and presents our motivation. Then, we provide the literature background for our study and then present our research method and results. Finally, we conclude with a discussion on findings.

4.1 Introduction

Politicians operating within the boundaries set by the regime of the country enact and enforce the rules that govern how firms operate. Markets price firms based on their beliefs about the firms as well as the economic environment. Uncertainty about the sustainability of the political regime and/or a change in the incumbent decision-makers would affect how markets price all firms in the economy. The mass protests and demonstrations for democracy across the Middle East and North African (MENA) region in 2010 through 2013 so called the “Arab Spring”, resulted in significant uncertainty about the political regimes and incumbent decision-makers. The political unrest started when Mohammed Bouazizi set himself on fire in order to protest the autocratic Tunisian government on December 17, 2010. Mass protests and other suicides followed not only in Tunisia but also in the neighboring countries of Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Syria, Tunisia, and Yemen. This paper investigates how markets price the sustainability of the political regime and/or a change in the incumbent decision-makers using the events of the Arab Spring.

The events and developments generated waves of social, political and economic changes beyond the countries’ borders, which experienced these events. Most of the countries in the region have gone through street protests and demonstrations, both large and minor in scale, such as the ones in Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Syria, Tunisia, Turkey and Yemen. Some of those protests resulted in thousands of deaths and injuries, especially the ones in Egypt, Libya, Syria, and Yemen. Some of them even experienced regime changes

such as the resignation of Hosni Mubarak and then the removal of Morsi in Egypt, the removal of Qaddafi in Libya, and fleeing of Zine al-Abidine Ben Ali from Tunisia. Hence, the period is rich with events that are likely to affect the economies in the region.

In this study, we focus on the financial repercussions of these developments by studying the stock market response of the countries in the region. During the period between December 2010 and December 2013, we analyze the return reactions of the nine stock market indices, which include Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia. In particular, we employ event study methodology to analyze the impact of the news listed in the Al-Jazeera and The Guardian “Arab Spring timelines”. First, we conduct an exploratory study about the abnormal returns and concentrate on the extreme reactions by the markets, and provide a breakdown of these extreme reactions with respect to the origin of the events. By doing that, we present that most of the countries in our sample show extreme reactions to non-domestic events, which we refer to as “spill-over effect” in our context. Then, we test the significance of the average effects of Arab Spring events on the country indices in four levels; country-wise average abnormal returns, country-wise domestic abnormal returns, country-wise non-domestic abnormal returns, the regional average abnormal returns.

Our results indicate that there are events creating large abnormal returns on the event days ranging from -10.5 percent (Egypt index reaction to its own events on January 27, 2011) to -1 percent (Jordanian index reaction to the events from Bahrain and Libya in February 16, 2011). On average, the extreme reactions of each index to all

events during this three year period are negative which ranges from around -0.1 percent (average of extreme abnormal returns of Saudi Arabia) to around -1.5 percent (average of extreme abnormal returns on Kuwait), though there are some events creating positive abnormal returns on the event days. We expect to observe positive abnormal returns as well as negative ones since we did not differentiate between the natures of the events, but we rather consider all of the events on the Arab Spring timelines. Hence, for instance, Morsi's being elected as the president and his resignation from the power are both considered as an event in our sample. However, we document negative abnormal returns for all of the nine countries on the average, which underlines the frequency of negative events in our sample and indicates the negative effects of political uncertainty in the region.

The average of the total extreme reactions by the country indices to the Arab Spring events underlines the magnitude of the effect. We document day zero total abnormal returns ranging from around -2.5 percent (by Saudi Arabia to 24 events) to around -46 percent (by Egypt to 56 events). These aggregate reactions consider both positive and negative abnormal returns. As the total day zero abnormal returns imply, the negative extreme reactions dominates. Tunisia and Kuwait are the two countries affected the most by the events which is revealed by the average day zero abnormal returns of about -1.2 percent and -1.5 percent respectively. Finally, total day zero abnormal returns of the nine country indices, generated by 201 extreme events during our sample period, is almost -153 percent. This is the loss of the MENA markets due to these extreme events in our sample.

We further document abnormal returns by the country indices to the events happening in the other countries, which we refer as “spillover effect” in our context. On the average, Tunisian stock market reacts the most to the events happening in Algeria with an average abnormal return of -4.17 percent, which demonstrates the dramatic effects of some foreign events on a stock market in the region. The spillover effect from Bahrain to Egypt manifests itself in day zero extreme abnormal returns of -2.4 percent (average reaction of Egypt to two events from Bahrain). Concentrating in the 201 extreme events in our sample, Egypt is the country the reacting the most to the events in our sample period with a total day zero abnormal return of almost -46 percent (reaction to 56 events). On the other hand, the event source generating the most reaction in the nine stock markets is Syria, which amounts to a total day zero abnormal returns of -35.5 percent (reaction to 43 events).

The spillover effects are also underlined by the extreme return reactions of the nine countries to events from multiple countries. The day zero abnormal returns generated from multiple events are all about -1 percent on the average. They aggregately amount to almost -73 percent (reaction to 65 events by nine countries) total day zero abnormal returns in the region. Hence, we document extreme negative abnormal returns in the stock market of the countries in the region along with significant spillover effects.

However, these results are based on the 201 extreme return reactions by the nine countries in our sample. When we consider the overall effect of the Arab Spring events over our sample period on the stock indices in our sample, we did not find any significant stock market reactions. We test the average abnormal returns of each country during the 3-year period and find insignificant abnormal returns. Moreover,

we test the effect of domestic and non-domestic events separately for each country and find insignificant results. Likewise, we test the overall average reaction of all stock indices over our sample period and find insignificant results. Hence, we cannot conclude that Arab Spring events generated significant abnormal returns in the stock market indices of the countries in our sample.

Our work is related to the literature examining the effects of political instability on the financial markets. We contribute to this literature by measuring the impact of Arab Spring events on the stock markets of the countries in the region. In particular, we document the magnitude of this effect using abnormal return analysis. In addition, we provide evidence for spillover effects in the region by documenting the significant return reactions of stock market indices to the events emanating from other countries. By providing information regarding the spillover effects between the stock markets, our results may help traders and institutional asset managers who invest in the region, to improve their diversification and risk management strategies.

4.2 Literature Review

The economic consequences of political instability have been the topic of many studies. One strand of this vast literature examines the effects of political uncertainty on the real economy. An important channel through which political uncertainty can impede investment is through the real options channel. In particular, Bernanke (1983) and Bloom et al. (2007) document that higher uncertainty increases the value of waiting and thus leads agents to postpone their investments. In order to document the magnitude of the negative effect of political risk on investment, Bekaert, Harvey,

Lundblad, and Siegel (2014) comes up with a political risk measure. They find that a 1 percent reduction in political risk spread is associated with a 10 percent increase in net-inflows of foreign direct investment. In line with this conjecture, Barro (1991) uses the number of revolutions, coups and political assassinations as a measure of political instability in 98 countries and documents that investment is inversely related to political uncertainty. Similarly, considering the increased political uncertainty associated with election years, Julio and Yook (2012) analyze elections around the world and find that corporate investment expenditures decrease by an average of 4.8 percent in election years relative to non-election years.

Another important branch of the literature highlights the effects of political uncertainty on firms' access to funding. For example, Francis et al. (2014) and Pastor and Veronesi (2013) find that political uncertainty leads to higher risk premia and hence raises the cost of financing for U.S. firms over the period of 1990-2010. In addition, by using estimated credit limits as a measure of credit access, Herrala and Turk-Ariss (2016) show that political tensions reduce the availability of credit to firms in the MENA countries during 2007-2010 period. These studies together suggest that political uncertainty affects not only the cost of financing, but also the availability of credit to non-financial corporations.

With regards to the effect of political instability on different financial markets, Abadie and Gardeazabal (2003) use ETA's 1998-1999 truce as a natural experiment and find that stocks of Basque firms performed better than those of non-Basque firms when the truce between ETA and the Spanish government became credible in 1998. Relatedly, investigating the options on the stock market indices of 20 countries for changing

periods up to 2012, Kelly et al. (2016) shows that option prices during the periods of major political events tend to be higher relative to those trading on non-event days suggesting that political risk is priced in the options markets, too. Concerning the credit markets, Mauro et al. (2006) estimate the contribution of news on wars and violence to determine the emerging market sovereign bond spreads using a panel regression including 18 emerging countries. They find that doubling the number of these news leads to 11.4 percent jump in the spreads in the period of 1870-1913. Focusing specifically on terrorism as a source of political uncertainty, Chen and Siems (2004) examine the effect of terrorist attacks on the US and the global stock markets. They consider the US and global markets' response to major events including Iraq's invasion of Kuwait and September 11, 2001 terrorist attacks. The authors find significant negative abnormal returns both in the US and the global stock markets in response to the terrorist events they analyze between 1915 and 2001. Confirming this result, studying the stock, bond and commodity markets between 1994 and 2005, Chesney et al. (2011) also find that majority of the 77 terrorist events they investigate has significant negative effects on at least one of the European, American or global stock market indices. Another study about terror attacks and stock market reaction is by Eldor and Melnick (2004). Using 639 events for the period of 1990-2003, they examine the impact of terror attacks in Israel on local stock and foreign exchange markets and find that after September 27, 2000, terrorism has a substantially large negative effect on the Israeli stock market amounting to 30 percent loss compared to a simulated stock market index.

In this thesis, we study the stock market reaction to the political events that took place during the period of political unrest in the Arab world (a.k.a. Arab Spring) by

focusing on the major stock market indices of the MENA region. A relevant study is by Chau, Deesomsak, and Wang (2014) who investigate whether Arab Spring has affected the volatility in major MENA stock markets. Using various GARCH specifications, they compare the resulting effects of civil uprisings across conventional and Islamic stock markets of six MENA countries and find an increase in the volatility of Islamic stock market indices during the Arab Spring period. We differ from that paper as we utilize the event study methodology using returns instead of volatility. Another relevant paper to our analysis is by Lehkonen and Heimonen (2015). The authors study 49 emerging stock markets over the period of 2000-2012 to analyze the interaction between stock market returns, democracy and political risks, which also includes the Arab Spring period. Using the ICRG (International Country Risk Guide) index as a measure of political risk, they find that lower political risk is associated with higher returns. Although their data includes the Arab Spring period, their research focus is on the non- monotonic relationship between democracy and the market performance. In addition, they employ an index for measuring political risk whereas we conduct an event study using daily events filtered from various news sources, which allows us to directly measure the effect of each event separately.

Our study specifically focuses on the Arab Spring period and seeks to capture the magnitude of the stock market reaction to the Arab Spring events. We examine each event in the country of its origin as well as its effects on other countries' indices. This allows us to observe potential spillover effects from one country to another in the region. We are particularly interested in return spillovers, which originate from political events occurring in the region. There are some studies that test for regional financial integration in response to political unrest. Among them, Mnasri and Nechi

(2016) investigate the impact of terrorist attacks on the stock market volatility of 12 MENA countries. By doing an event study for the period 2000-2015, they find evidence of regional financial integration. Focusing on the Arab Spring period, Mousavi and Ouenniche (2014) examine the impact of four Arab Spring events on 53 stock markets using GARCH models and find that return and volatility of MENA stock markets are significantly affected by these uprisings. Since our sample covers 172 events, our paper provides a more comprehensive assessment of the spillover effects of the Arab Spring events in the MENA region.

4.3 Sampling and Data

In our analysis, we use nine countries' stock index returns in the Arab Spring region. These are Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia. As for the country indices, we use BHSEASI, EGX30, JOSMGNFF, SECTMIND, BLOM, MOSEMDX, SASEIDX, DWXX, and finally TUSISE indices respectively. Algeria, Libya and Sudan are excluded from the analysis since their index data is not covered by the Bloomberg terminal. Yemen is excluded from the analysis because there is no stock market in the country.

Daily price data for the country indices of Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia for the period December 17, 2009 – December 25, 2013 is downloaded by the Bloomberg terminal. The daily returns are calculated as it is shown in Equation 1:

Equation 1
$$\text{Daily return} = \frac{\text{Closing Price in day (t)} - \text{Closing Price in day (t-1)}}{\text{Closing Price in day (t-1)}}$$

Table 8 describes the stock indices under consideration of this study. Table shows that during the sample period most of the MENA indices experienced a negative return on the average. Although we cannot observe a sharp decline in all of them, Egypt and Syria demonstrate quite significant declines in average returns at the beginning of the Arab Spring period. It is followed by Kuwait and Morocco, yet with a smaller decline in magnitude. Bahrain, Jordan, Lebanon, and Tunisia shows relatively smaller declines but they maintain the negative average returns for 2-3 years. Concerning the volatility, Egypt and Syria are the ones with the highest standard deviation of returns, which are significantly higher than the values of previous year. To sum up, the devastating effects of the conflicts during this period is signaled in the raw data.

Table 8: Descriptive Statistics for the Stock Indices of the Sample Countries

	Pre-Arab Spring		Arab Spring Sample Period				
	2009	2010	2011	2012	2013	2014	2015
Bahrain Index							
mean	-1.70%	-0.10%	-1.83%	-0.58%	1.36%	1.15%	-1.31%
stdev	3.52%	3.37%	2.30%	1.25%	2.45%	2.82%	1.90%
Egypt Index							
mean	3.22%	1.36%	-5.63%	4.08%	2.06%	2.46%	-1.73%
stdev	12.31%	6.35%	8.69%	11.75%	7.26%	5.71%	7.58%
Jordan Index							
mean	-0.66%	-0.51%	-1.42%	-0.13%	0.50%	0.42%	-0.07%
stdev	3.34%	2.77%	2.11%	2.33%	3.41%	2.26%	2.91%
Kuwait Index							
mean	-0.12%	2.04%	-1.41%	0.27%	0.73%	-0.22%	-1.10%
stdev	8.32%	5.39%	3.46%	2.49%	3.27%	3.11%	3.45%
Lebanon Index							
mean	2.65%	-0.47%	-1.86%	-0.03%	-0.12%	0.16%	0.01%
stdev	7.65%	2.48%	1.60%	2.38%	1.85%	2.07%	1.91%
Morocco Index							
mean	-0.41%	1.72%	-1.08%	-1.35%	-0.17%	0.51%	-0.61%
stdev	5.89%	2.89%	3.49%	2.93%	3.36%	3.01%	2.96%
Saudi Arabia Index							
mean	2.27%	0.75%	-0.15%	0.62%	1.93%	0.00%	-1.29%
stdev	7.26%	4.45%	4.93%	5.50%	2.01%	6.46%	7.42%
Syria Index							
mean	NA	3.36%	-5.31%	-1.00%	4.47%	0.16%	-0.28%
stdev	NA	4.13%	6.50%	1.45%	9.48%	1.68%	1.23%
Tunisia Index							
mean	3.39%	1.58%	-0.50%	-0.21%	-0.35%	1.29%	-0.04%
stdev	3.38%	4.84%	5.82%	3.22%	2.18%	2.86%	3.04%
MSCI Emerging Markets Index							
mean	5.04%	1.44%	-1.65%	1.34%	-0.37%	-0.32%	-1.42%
stdev	8.23%	6.09%	7.06%	5.75%	3.45%	3.89%	5.14%

Notes: The Table indicates mean and standard deviations of monthly returns of the country indices in our sample for the seven seven-year period of 2009 - 2015. Last row indicates the mean and standard deviation of monthly returns of MSCI Emerging Markets Index as a benchmark.

The event sample covers the events from Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Sudan, Syria, Tunisia, and Yemen. The events data are collected from The Guardian¹⁷ and Al-Jazeera¹⁸ Arab Spring timelines. We included only the protests, the political moves and the regime changes events in the timelines. The first event in the sample is a protest in Tunisia on December 17, 2010 when Mohammed Bouazizi sets himself on fire to death. This is when the unrest in the region physically started. This is a significant incidence as it is followed by other suicides in the region; such as Algeria, Egypt, and Morocco; against the implementations of the “autocratic governments”. Therefore, this event has been an inspiration for the neighbor countries. The last event in the sample is a political move in Egypt on December 25, 2013 when Egypt's interim government declares the Muslim Brotherhood a terrorist organization. Muslim brotherhood is the organization fighting against the military-backed interim government that has overthrown the selected President Mohammed Morsi. This event is significant as it intensifies the fight between the two groups since it criminalizes any act, support, or aid to the Muslim Brotherhood group.

After filtering for the events, the event sample covers 172 events in the region; 6 broke out in Algeria, 27 in Bahrain, 25 in Egypt, 9 in Jordan, 2 in Kuwait, 1 in Lebanon, 9 in Libya, 5 in Morocco, 14 in Saudi Arabia, 3 in Sudan, 40 in Syria, 17 in Tunisia, and finally 8 in Yemen. Even though Algeria, Libya, Sudan and Yemen are excluded from the abnormal return analysis, the events originated from those countries remained in the events sample because we are interested in stock market

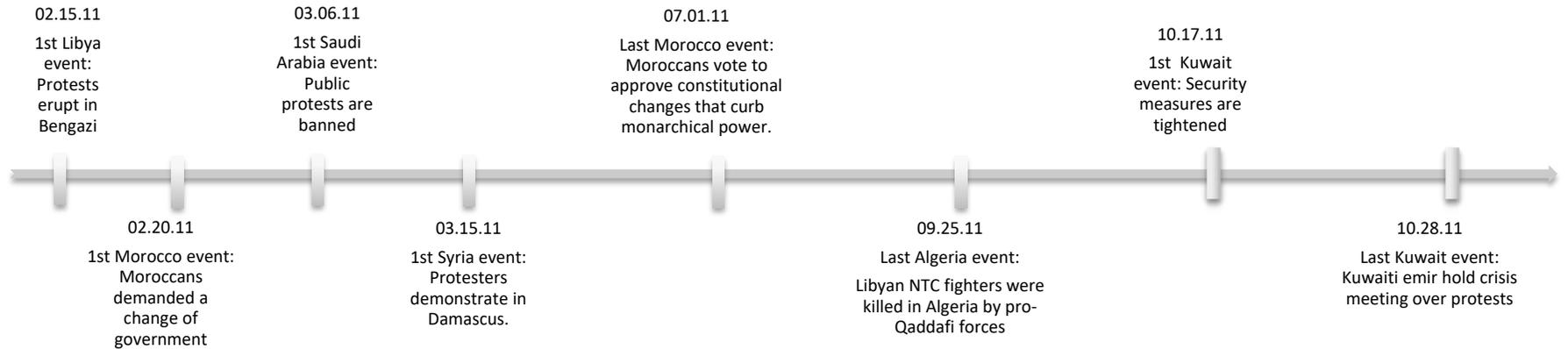
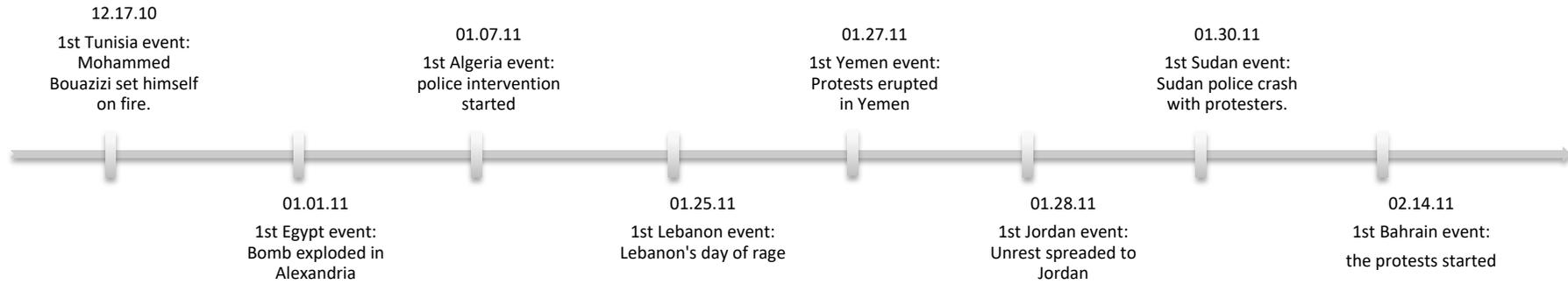
¹⁷ <https://www.theguardian.com/world/interactive/2011/mar/22/middle-east-protest-interactive-timeline>

¹⁸ <http://www.aljazeera.com/indepth/interactive/2013/12/timeline-arab-spring-20131217114018534352.html>

reaction not only to domestic events but also to non-domestic and regional events.

When we account for the coinciding events in the sample, we end up with 162 separate event dates to analyze.

Figure 9 demonstrates the first and last events of the countries in our sample. It points out how events from different countries as well as from the same country may coincide with each other. We check for the coinciding events, and treat each separate event date as the event. So, if there are two coinciding events on one day, then the abnormal return is calculated for these two events on that specific date. Hence, we have the abnormal returns for each separate date of event, rather than each event. If there is only one event on a specific date, then the calculated abnormal return belongs to that specific event. Since we are not interested in the abnormal returns for each event, this problem is, in fact, not a problem. The only possible problem may arise from the classification of events with respect to their country of origin to see the spillover effect. We will address how we handle this possible confusion in the coming sections. Hence, when we account for the coinciding events, the separate dates to analyze shrink from 175 to 143.



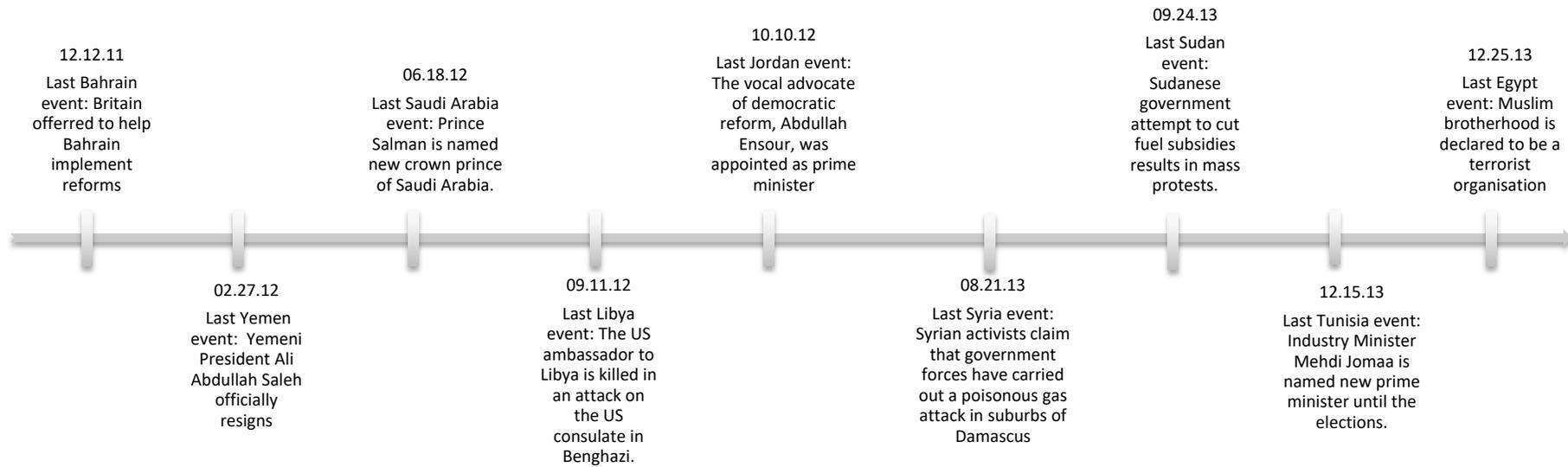


Figure 9: The Timeline of Arab Spring Events

Notes: The timeline plots the first and last events of Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Saudi Arabia, Sudan, Syria, Tunisia, and Yemen.

Lastly, before the methodology, Table 9 demonstrates the social-economic conditions, and the incumbent information of the countries under considerations. Panel A shows the social and economic indicators, while Panel B presents the incumbent related information before and during our sample period. Panel A indicates that as the GDP growth rates for the world average increase from pre-Arab Spring period to Arab Spring period, most of the countries in our sample experience a decrease. The most dramatic decline happens in Libya, which resulted in GDP shrinkage of 28.5 percent in year 2013. Most of the countries in our sample are highly corrupted countries with low freedom of press and democracy indicators compared to the world average. The most remarkable difference between the pre-Arab Spring period and our sample period which covers three years of Arab Spring events is in the total number of terrorist attacks indicator. The table shows that the number of terrorist attacks dramatically increases for most of the countries in our sample. Hence, it is reasonable to study the resulting implications of this highly fragile period.

Panel B demonstrates the incumbent decision makers, how they come into the office, and how the ruling power changes after the Arab Spring events. Syria is the country which experienced the most dramatic change with the civil war ongoing in the country. It is followed by the regime changes in Egypt, Libya, Tunisia, and Yemen. There are countries which did not have a regime change but rather alter not the head but the lower-rank incumbents and decision makers in democratic ways. These countries are referred to as experiencing a semi-regime change. And finally, there are countries undertaking serious reforms in reply to the protests and uprisings. These countries are referred to as experiencing no regime change. In our sample, we have one country having a civil war, four countries that had a regime change and three

countries that undertook a series of reforms during our sample period. Hence, the MENA region has been experiencing an extraordinary period of time, which has political, social and financial repercussions. This study aims to investigate that extraordinary period in terms of financial repercussions, and study the resulting implications on the stock markets of the MENA countries in particular.

Table 9: Country Snapshot

Panel A: Social and Economic Indicators of the Countries

	GDP per capita		Average GDP Growth		Freedom of Press		Corruption Perceptions Index		Democracy Index		Total Number of Terrorist Attacks	
	2009	2010-2013*	2005-2009	2010-2013*	2009	2013	2009	2013	2008	2013	2005-2009	2010-2013
Algeria	12,673	13,112	3.00%	3.18%	62	61	28	36	3.32	3.83	595	173
Bahrain	40,646	40,190	6.10%	3.87%	71	86	51	48	3.38	2.87	2	81
Egypt	9,799	10,073	6.10%	2.81%	60	62	28	32	3.89	3.27	10	384
Jordan	10,611	10,305	7.40%	2.59%	63	63	50	45	3.93	3.76	5	5
Kuwait	80,151	75,314	3.80%	3.76%	55	59	41	43	3.39	3.78	2	1
Lebanon	15,633	15,239	6.60%	3.26%	55	53	25	28	5.62	5.05	114	151
Libya	28,034	20,099	5.30%	-28.53%	94	59	25	15	2.00	4.82	2	355
Morocco	6,337	6,790	4.90%	4.15%	66	66	33	37	3.88	4.07	6	1

Table 9 Panel A (cont'd)

Saudi Arabia	43,285	47,379	5.80%	5.69%	83	84	43	46	1.90	1.82	8	14
Sudan	3,219	3,656	8.00%	1.60%	78	80	15	11	2.81	2.54	111	150
Syria			5.60%		83	88	26	17	2.18	1.86	2	505
Tunisia	10,325	10,123	4.50%	2.15%	85	52	42	41	2.96	5.76	3	33
Yemen	4,352	3,992	4.00%	0.55%	79	79	21	18	2.95	2.79	64	966
World Average (Total)	12,613	13,673	2.50%	3.95%	47.37	47.83	40.30	42.60	5.55	5.53	17,511	30,281

*For Libya, 2010-2011 average is calculated due to lack of data.

Notes: The table shows the GDP per capita, Average GDP growth, Indicators for Freedom of Press, Corruption, and Democracy, and finally, the number of terrorist attacks before and during our sample period of 2010-2013.

GDP per capita: PPP adjusted, constant 2011 international dollars. Source: World Development Indicators.

Average GDP Growth: 2005-2009 average, 2005-2007 average for Syria. Source: World Development Indicators.

Freedom of Press: 2009 data. Scores divided as 0-30 (free), 31-60 (partly free) and 61-100 (not free). Source: Freedom House.

Corruption Perceptions Index: 2009 data. Scores range between 0 (perceived to be highly corrupt) and 10 (perceived to have low levels of corruption). Source: Transparency International.

Democracy Index: 2008 data. Scores divided as 8-10 (full democracies), 6-7.9 (flawed democracies), 4-5.9 (hybrid regimes) and below 4 (authoritarian regimes). Source: Economist Intelligence Unit.

Number of Terrorist Attacks: All events between 2005-2009. Source: Global Terrorism Database.

Panel B: The Incumbent Information of the Countries

	Incumbent in 2009	Incumbent Elected or Not	Number of Years Incumbent in Office	Political Outcome of Arab Spring Events	Current Incumbents	Result
Algeria	President: Abdelaziz Bouteflika (National Liberation Front)	Yes**	1999-Present (Re-elected in 2004, 2009, and 2014)	No regime change.	President: Abdelaziz Bouteflika (National Liberation Front)(1999-present)	Bouteflika maintained his power, with promised reforms like lifting the state of emergency. After several PM changes, finally, Abdelmalek Sellal is appointed as the PM. President is remained unchanged.
	PM: Ahmed Ouyahia (National Rally for Democracy)	Yes	2008-2012		PM: Abdelmalek Sellal, appointed by Bouteflika (National Liberation Front) (2014-present)	
Bahrain	King: Hamad bin Isa Al Khalifa	No	2002-Present	No regime change.	King: Hamad bin Isa Al Khalifa (2002-present)	The family of Al Khalifa maintained their rule. Civil uprising suppressed with the help of Saudi Arabia and Gulf Council troops. Pearl Revolution was unsuccessful. King and PM remained unchanged.
	PM: Khalifa bin Salman Al Khalifa (Uncle of the King)	No	1971-Present		PM: Khalifa bin Salman Al Khalifa (Uncle of the King) (1971-present)	
Egypt	President: Hosni Mubarak (National Democratic Party)	Yes	1981-2011	Regime change.	President: Abdel Fattah el-Sisi (2014-present)	Ahmed Nazif resigned. Hosni Mubarak resigned and Mohamed Morsi elected as the new President. Then Military coup took over and Abdel Fattah el-Sisi elected as the new President with the PM Sherif Ismail. Sisi announced a new path including a new constitution replacing the one backed by Muslim-brotherhood.
	PM: Ahmed Nazif	Yes	2004-2011		PM: Sherif Ismail (2015-present)	
Jordan	King: Abdullah II	No	1999-Present	No regime change.	King: Abdullah II (1999-present)	King responded quickly, made reforms, and protected his position. After several changes of PM's (most of them resigned willingly), finally, Hani Al-Mulki is appointed by the King.
	PM: Samir Rifai (Independent)	Yes	2009-2011		PM: Hani Al-Mulki (2016-present)	

Table 9 Panel B (cont'd)

Kuwait	Emir: Sabah Al-Sabah	No	2006-Present	Semi-regime change.	Emir: Sabah Al-Sabah (2006-present)	Family of Emir maintained their rule. Emir Al-Sabah dissolved the parliament. Nasser Al-Sabah resigned. Jabber Al-Mubarak Al-Hamad Al-Sabah is appointed as the new PM.
	PM: Nasser Al-Sabah (Nephew of Emir)	No	2006-2011		PM: Sheikh Jaber Al-Mubarak Al-Hamad Al-Sabah (2011-present)	
Lebanon	President: Michel Suleiman (Independent)	Yes	2008-2014	Semi-regime change.	President: Michel Aoun (Free Patriotic Movement included in March 8 Alliance)(2016-present)	Government collapsed and Najib Mikati elected as the new PM. After Michel Suleiman stepped down, and upon a two years of deadlock, Michel Aoun is elected as the new President who appointed Hariri as PM for the second time. President is from March 8 Alliance (Supports Syria), Christian dominated party, while the prime minister is from March 14 Alliance (Anti-Syria), Sunni Muslim dominated party.
	PM: Saad Hariri	Yes	2009-2011		PM: Saad Hariri (2016-present) (Leader of Future Movement which is a Sunni movement, included in March 14 Alliance)	
Libya	Brotherly Leader: Muammar al-Gaddafi	No	1969-2011	Regime change.	President: Fayez Mustafa al_Sarraj	Gaddafi is killed by NTC militants and the rule is transferred to The cabinet of the Government of National Accord, with PM Fayez Mustafa al-Sarraj since 2016. Libya ended up with parallel executive bodies, which have their own prime ministers. However, UN supports GNA block.
	President: Mohamed Abu al-Qasim al-Zwai (Islamic Socialist)	No:	2010-2011		PM: Fayez Mustafa al-Sarraj (Government of National Accord) recognized by UN.	
	PM: Baghdadi Ali Mahmudi (Gaddafi's inner circle, Islamic Socialist)	No	2006-2011		PM: Khalifa al Ghawil (National Salvation Government)	

Table 9 Panel B (cont'd)

	King: Mohammed VI	No	1999-Present		King: Mohammed VI	Monarchy managed to avoid full upheaval. King Mohammed VI was already a reformist even before the Arab Spring protests, and introduced several reforms and liberalizations. However, on 2011, those reforms gained speed. A new constitution passed and gave the prime minister and parliament more executive authority. Abdelilah Benkirane (opposition party) became the new PM after an early election. King Mohammed protected his position.
Morocco	PM: Abbas El Fassi (Istiqlal Party)	Yes	2007-2011	Semi-regime change.	PM: Abdelilah Benkirane (2011-present) (Justice and Development Party leader)	
	King: Abdullah bin Abdulaziz	No	2005-2015	No regime change.	King: Salman Bin Abdulaziz (2015-present)	Saud Family maintained their power. Women's rights improved. Political and economic improvements are held. Salman Bin Abdulaziz succeeded as King upon his death.
Saudi Arabia	King: Abdullah bin Abdulaziz	No	2005-2015	No regime change.	King: Salman Bin Abdulaziz (2015-present)	
	President: Omar Al-Bashir (National Congress Party)	Yes***	1993-Present	No regime change.	President: Omar Al-Bashir (National Congress Party) (1993-present) PM: Bakri Hasan Saleh (2017-present)(National Congress Party)	After 28 years, a new PM is appointed with limited powers, while most power remained in the hands of the President. President Al-Bashir announced that he would not seek to run in the presidential election in 2015. (However, he did and won.)
Sudan	President: Omar Al-Bashir (National Congress Party)	Yes***	1993-Present	No regime change.	President: Omar Al-Bashir (National Congress Party) (1993-present) PM: Bakri Hasan Saleh (2017-present)(National Congress Party)	
	President: Bashar al-Assad (Syrian Ba'ath Party)	Yes	2000-Present		President: Bashar al-Assad (2000-present)(Syrian Ba'ath Party)	Muhammad Naji al-Otari resigned along with the entire cabinet. After several changes, Imad Khamis is the current PM of the country. Assad maintained his rule but the country has been in a civil war since 2011.
Syria	PM: Muhammad Naji al-Otari (Syrian Ba'ath Party)	Yes	2003-2011	Civil War.	PM: Imad Khamis (2016-present) (Syrian Ba'ath Party)	

Table 9 Panel B (cont'd)

Tunisia	President: Zine El Abidine Ben Ali (Democratic Constitutional Rally)	Yes****	1987-2011	Regime change.	President: Beji Caid Essebsi (2014-present) (Call of Tunisia)	The ruling party of Tunisia (DCR) since independence in 1956, dissolved and lost its rule with the Revolution. Zine El Abidine Ben Ali ousted and Mohamed Ghannouchi resigned. The new constitution was accepted in 2014. After the Tunisian Revolution, Beji Caid Essebsi became the first freely and directly elected president. The incumbent PM is Youssef Chahed.
	PM: Mohamed Ghannouchi	Yes	1999-2011		PM: Youssef Chahed (2016-present)(Call of Tunisia)	
Yemen	President: Ali Abdullah Saleh (General People's Congress)	Yes	1990-2012	Regime change.	President: Abd Rabbuh Mansur Hadi. (2012-present) (General People's Congress)	Ex-President Saleh was wounded and fled to Saudi Arabia. Hadi elected in 2012 and then Saleh, returned to Yemen and resigned officially, ending his 33 year rule. (counting the presidency of North Yemen from 1978 to 1990) Saleh ceded power to his deputy Abd Rabbuh Mansur Hadi. Hadi appointed Mohammed Basindawa as the PM. After several changes Ahmed Obeid bin Daghr became the new PM.
	PM: Ali Mohammed Mujawar (General People's Congress)	Yes	2007-2011		PM: Ahmet Obeid Bin Daghr (2016-present) (General People's Congress)	

**But with disputed elections.

***After ousting the elected government in a military coup 1989. Since then, re-elected 3 times in elections that have been under scrutiny for corruption.

**** He assumed the Presidency on 7 November 1987 in a bloodless coup d'état, and then re-elected 5 times.

The table shows the incumbents of the countries before and during the sample period. The information concerning their political stance, number of years in the office, and the implications of Arab Spring events are also presented.

4.4. Research Method and Results

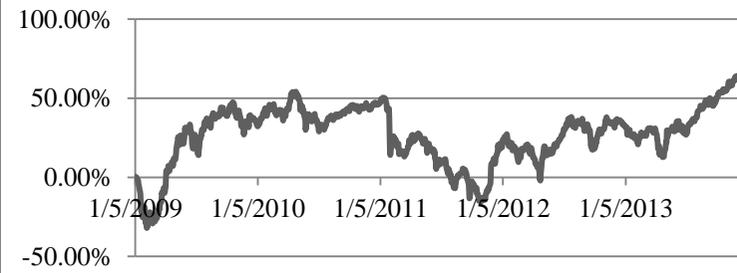
This study investigates the stock market responses of the countries in the region to the Arab Spring events in an event study setting. Figure 10 shows the cumulative returns of the nine countries in our sample. These are cumulative returns of the raw data. The graphs indicate a quite heterogeneous path by different markets. The declining returns manifest themselves in some of the countries in the raw data either as a decreasing trend (Bahrain and Jordan) or as negative cumulative abnormal returns (Bahrain, Jordan, Syria, and Morocco) or as a decline after an increasing trend (Egypt, Kuwait, Lebanon, and Tunisia). Syria seems to experience the sharpest decline at the beginning of our sample period and it remains continues for almost a year. This is expected, as Syria has been in a civil war and suffered the most by these events. For the rest, we can observe a decreasing trend, or more or less a cyclical move in the cumulative returns, which corresponds to a decline in part of our sample period.

It is difficult to conclude that the negative implications are clearly observable on the raw data. Yet, we can get a hint by the declining trends. In order to provide a more reliable and complete analysis of the effects of the Arab Spring events on the stock indices of the nine countries, we conduct an event study.

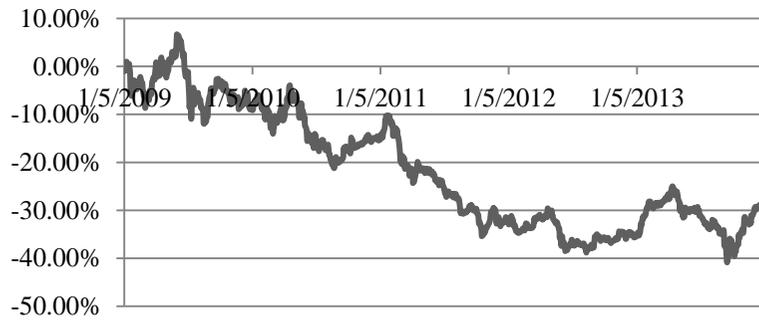
Bahrain CR



Egypt CR



Jordan CR



Kuwait CR



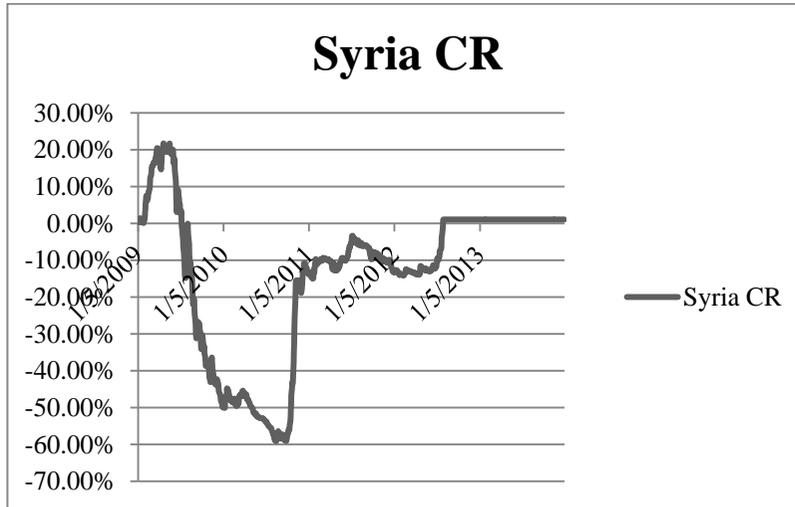
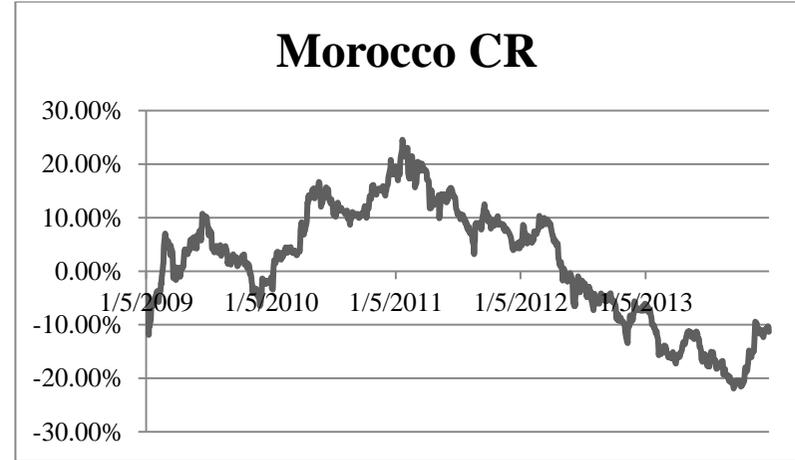
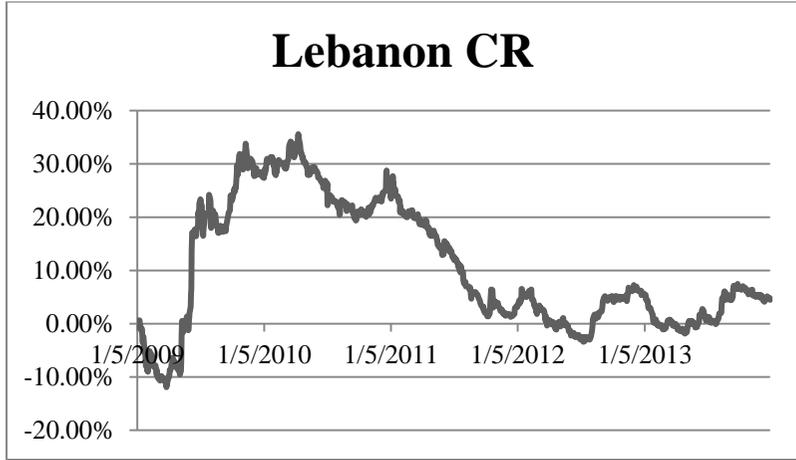




Figure 10: Cumulative Return (CR) Graphs

111

Notes: The graphs plot the cumulative returns of Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, and Tunisia starting from the beginning of 2009 until the end of 2013

Brown and Warner (1985) t-test where the standard deviation is calculated from the cross sectional mean of abnormal returns during the estimation window.

In the general procedure we follow, the only difference from Brown and Warner (1985) is that the estimation window is not rolling forward for each event but it is fixed at the first event. This is because Arab Spring is a milestone including a series of events, which has regional effects, and once it is triggered in one country in the region, it is difficult to isolate its effects from the rest. That is why, the estimation window, which is considered to be the period not contaminated by the events under consideration, is set before the first event of the Arab Spring events and it is fixed at that point.

4.4.2 Results

Table 40 in Appendix D reports the direction of the stock market reaction by the affected countries to the corresponding event along with the source country of the event. For space considerations, out of 1162 reactions by nine countries we report only the significant ones. 201 abnormal returns are significant among which 131 are negative and 70 are positive. This is inevitable considering the frequency of negative events in our sample period. The table indicates that Arab Spring Country Indices reacted significantly to the events originated not only from their own countries but also from the other countries in the region. This implies that the effects of the Arab Spring events are not only local but also regional, causing spillover effects.

In order to provide a sense of events and reactions of the markets to them, Table 10 shows the most dramatic 10 reactions along with the explanations of the events. For space considerations, we only present a sample of the 143 separate event dates analyzed in the current study.¹⁹ The highest two market responses are from Egypt to its own events with an abnormal return of around 10.5 and 6 percent. The first event, which results in the highest reaction by the market, is the return of the famous opponent of the President Hosni Mubarak, Al-Baradai to Egypt to support the anti-government protests. This event is as significant as it is considered by the market since Al-Baradai is an internationally recognized diplomat, international civil servant and scholar, who is an advocate of tolerance, freedom, and humanity. Hence, his open declaration in support of the protests against Mubarak is a significant signal to the market.

The most dramatic reactions are dominated by Egypt but the sources of events causing those reactions are quite heterogeneous. Egypt, Syria, Algeria and Bahrain originated events are causing significant reactions in the stock markets in the region. The possible spillover effects are also underlined by the high significant reactions to foreign events. For instance, Saudi Arabia and Kuwait responds with high abnormal returns to events emanating from other countries. In a similar manner, Egypt, Tunisia, and Syria responds to events originated from Syria, Algeria, and Bahrain respectively. These high abnormal returns in response to the non-domestic events highlight the possible spillover effects.

¹⁹ The whole events sample with the explanations is reported by Table 33 in the Appendix D.

Table 10: The Most Dramatic Ten Reactions by the Stock Markets

Date	Country	Event source	AR	Events explanation
1/27/2011	Egypt	Egypt	-10.54%	Al Baradei returns to Egypt to join anti-government protests.
1/26/2011	Egypt	Egypt	-6.16%	Heavy demonstrations (The Guardian's negative news about police crash)
2/27/2011	Saudi Arabia	multiple	-5.02%	Tunisia's Prime Minister Ghannouchi resigns. Middle East's "Day of Rage" in Egypt and Jordan
8/9/2011	Egypt	Syria	-4.76%	The Syrian regime is facing a chorus of global reproach as envoys from Turkey, India, Brazil and South Africa head to Damascus to press President Bashar al-Assad to end the violent crackdown on a five-month-old uprising.
1/13/2011	Tunisia	Algeria	-4.17%	Mohsen Bouterfif burns himself to death after failing to find a job and house (a suicide that echoed the young Tunisian Mohamed Bouazizi, whose death sparked off the trouble in mid-December.)
4/11/2011	Syria	Bahrain	-4.16%	Bahrain's most prominent human rights activist has been summoned for questioning by a military prosecutor, after being accused of tampering with photographs of a man who died in custody last week.
1/30/2011	Saudi Arabia	multiple	-4.13%	Al Baradei returns to Egypt to join anti-government protests and warned President Hosni Mubarak today that his regime is on its last legs. The Egyptian dissident Mohamed ElBaradei Mubarak appears on TV refusing to step down. Protests erupt in Yemen and the unrest spreads to Jordan. Sudan police crash with protesters.
11/21/2011	Egypt	Syria	-4.06%	Turkish president declaration concerning Syrian crisis and addressing the inevitable regime change
8/18/2013	Egypt	Egypt	-3.89%	Police clear Fateh mosque in Cairo of anti-coup protesters who were trapped inside, following a daylong siege.
2/20/2011	Kuwait	multiple	-3.81%	Nearly 1000 police officers are dispatched to the Pearl Roundabout to clear out protestors in Bahrain. At least one person has been killed and dozens injured in Bahrain after soldiers fired teargas and shot into the air as hundreds of protesters marched towards Pearl roundabout. Moroccans take to the streets to demand a change of government and constitutional reforms. & Rebels take Benghazi.

Notes: Table presents the most dramatic ten reactions by the nine countries under consideration, along with the corresponding event's explanation.

To examine the breakdown of the extreme responses by each country and to visualize the cross-country spillover effects, we report the mean abnormal returns of the country indices in Table 11. Mean abnormal returns of the affected countries are calculated by averaging the extreme abnormal returns of affected countries for the events from each country separately. On average, the mean reactions are negative which is not surprising given the frequent occurrences of negative events over our sample period. The total day zero abnormal returns (TAR (0)) refers to the sum of the extreme day zero abnormal returns by the affected or source countries. The scaled averages at the last column and row calculate the averages of the mean abnormal returns scaled by the corresponding number of events.

The table suggests that the mean of the extreme abnormal returns are mostly negative. Countries react not only to their own events but also to non-domestic events. Kuwait and Tunisia are the two countries affected the most by the events in the region, revealing scaled average abnormal returns of -1.47 percent and -1.17 percent per event respectively. On the other hand, Egypt reacts the most on an aggregate terms, with a total day zero abnormal return of -45.6 percent (to 53 events). The source country creating the highest reaction in the region is Syria with total day zero abnormal returns of -35.51 percent (to 43 events) following the -72.87 percent TAR (0) generated by multiple foreign events in the region. Tunisia appears to show the most dramatic non-domestic event response with -4.17 percent abnormal returns in response to one event from Algeria. This reaction is quite remarkable since the event that took place in Algeria is a similar suicide to the one in Tunisia. Hence, the tension in Tunisian stock markets due to the suicide of young Tunisian Mohammad Bouzizi, which was the starting point of Arab Spring, is inflated by this second incidence. This

is a possible indicator of spillover effects given that only few countries in our sample show such a huge response to its domestic events. Spillover effects are also highlighted with an average total day zero abnormal returns of -72.87 percent by nine countries, which is generated by the 65 extreme events with multiple foreign sources. Hence, the breakdown of the average extreme abnormal returns allows us to observe the responses both to the domestic events and to the non-domestic events.

Table 11: Extreme Abnormal Returns Matrix

		SOURCE COUNTRY														Scaled		
		Algeria	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Libya	Morocco	Saudi				Tunisia	Yemen	multievent	TAR(0)	Average
										Arabia	Sudan	Syria						
Bahrain	AR		-0.84%	-1.28%						-0.15%		-1.26%			-0.20%	-7.00%	-0.58%	
	n		4	1						2		1			4	12		
Egypt	AR		-2.40%	-1.34%	3.37%			1.37%	2.96%	-0.05%		-0.88%	-0.64%		-0.54%	-41.52%	-0.74%	
	n		2	17	1			2	1	2		17	3		11	56		
Jordan	AR		-1.39%		-0.88%					1.14%		-1.77%			-0.76%	-7.70%	-0.77%	
	n		1		3					1		1			4	10		
Kuwait	AR		-0.99%	-1.38%				-2.07%		1.83%		-1.26%	-1.29%		-1.97%	-26.25%	-1.46%	
	n		3	2				1		1		1	1		9	18		
Lebanon	AR		1.40%	0.54%							-1.43%			-1.21%	-1.68%	-6.87%	-0.76%	
	n		1	2							1			1	4	9		
Morocco	AR		-1.70%	-0.11%	1.35%				-3.10%		-2.19%	-0.23%	1.22%	-1.23%	-0.97%	-10.43%	-0.65%	
	n		1	4	1				1		1	2	1	1	4	16		
Saudi Arabia	AR		-1.19%	-0.80%						4.33%		-1.70%	1.19%	1.08%	-0.97%	1.47%	0.06%	
	n		2	3						4		1	1	1	12	24		
Syria	AR		-1.13%	1.48%	-1.73%					-0.12%		-0.60%	1.33%		-1.02%	-24.60%	-0.62%	
	n		7	2	1					3		18	1		8	40		
Tunisia	AR	-4.17%	-1.14%	-2.09%								-1.68%	-0.93%	2.55%	-0.95%	-18.74%	-1.17%	
	n	1	1	2								2	5	1	4	16		

Table 11 (cont'd)

CAR(0)	AR	-4.17%	-24.22%	-29.87%	0.35%	0.67%	-0.13%	19.53%	-3.62%	-35.51%	-4.15%	1.20%	-61.71%	-141.63%	-32.57%
	n	1	22	33	6	3	2	13	2	43	12	4	60	201	
Scaled	AR	-4.17%	-1.10%	-0.91%	0.06%	0.22%	-0.07%	1.50%	-1.81%	-0.83%	-0.35%	0.30%	-1.03%	-22.07%	
Average															

Notes: Table shows the means of the significant day zero abnormal returns of the 10 countries with respect to the source of the events along with the corresponding number of *events*²⁰. Multi-event column indicates the average day zero abnormal returns by the affected countries to the multiple events coinciding on the same day. If a country has at least one domestic event coinciding with non-domestic events, it is included in the corresponding country's abnormal return, rather than multiple event abnormal return. The scaled average column and row presents the country-wise averages scaled by the corresponding number of events

²⁰ There may be coinciding events, whose effects are realized on the same day. Alternatively, there may be events happening on non-trading days whose effects are realized on the next trading day, which again may be coincide with another event happening on that day. Therefore, n corresponds not necessarily to the number of events, but to the separate dates of realizations of those events

Table 11 demonstrates the breakdown of signed abnormal returns, considering both positive and negative extreme reactions. Since we did not differentiate between the nature of events in our sample, we are not able to decide whether it is a good signal or a bad signal for the market. Therefore, we cannot differentiate between the responses to good news and bad news. That is why, when we sum positive and negative abnormal returns up, they cancel each out which causes the mean abnormal returns to shrink.

Table 12 presents the mean of the extreme abnormal returns by the affected countries to the events from each country separately. Absolute abnormal returns underline the deviation from zero abnormal returns, which is expected on a non-event day. In this case, the resulting effects of Arab Spring events are more remarkable. Saudi Arabia, Egypt, and Tunisia are the three countries responding the most with 2.59, 2.51, and 2.18 percent mean absolute abnormal returns per event respectively. The mean absolute abnormal returns by the affected countries are ranging from 1.08 percent (response of Saudi Arabia index to one event from Yemen) to 4.33 percent (mean response of Saudi Arabia index to 4 domestic events). In aggregate terms, Egypt reacts the most to the events in the region with -145.71 percent total day zero absolute abnormal returns. This huge deviation from zero abnormal returns underlines that there are drastic events affecting the stock markets during that period, like regime change in Egypt. Egypt shows the highest non-domestic event response with 3.37 percent absolute abnormal returns to one event from Jordan.

Spillover effects are further highlighted by 134.42 percent total response generated by 65 multi-source foreign events in the region. Algeria, Morocco, and Egypt are the

three countries generated the highest absolute abnormal returns in the region with 4.17, 3.03, and 2.47 percent per event respectively. In aggregate terms, however, Syria and Egypt created the highest total day zero absolute abnormal returns in the region with 86.10 percent and 81.65 percent in magnitude. Therefore, regime change in Egypt and the civil war in Syria have affected the region dramatically in the three-year period. Multiple foreign events caused 2.02 percent absolute abnormal returns per event, 134.42 percent total absolute abnormal returns (to 65 events) in the region. In conclusion, when we consider the breakdown of the 201 extreme reactions in the region, we observe a similar breakdown in absolute abnormal returns to that of signed abnormal returns, this time the magnitudes are more in magnitude.

Table 12: Extreme Absolute Abnormal Returns Matrix

		SOURCE COUNTRY														Scaled		
		Algeria	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Libya	Morocco	Saudi Arabia	Sudan	Syria	Tunisia	Yemen	multievent	TAR(0)	Average	
AFFECTED COUNTRY	Bahrain	AR	1.48%	1.28%					1.48%		1.26%			1.45%	17.26%	1.44%		
		n	4	1					2		1			4	12			
	Egypt	AR	2.40%	3.20%	3.37%			1.37%	2.96%	1.31%		2.34%	1.38%		2.44%	141.58%	2.53%	
		n	2	17	1			2	1	2		17	3		11	56		
	Jordan	AR	1.39%			1.61%				1.14%		1.77%			1.31%	14.36%	1.44%	
		n	1			3				1		1			4	10		
	Kuwait	AR	1.91%	1.38%				2.07%		1.83%		1.26%	1.29%		1.97%	32.68%	1.82%	
		n	3	2				1		1		1	1		9	18		
	Lebanon	AR	1.40%	1.76%							1.43%			1.21%	1.68%	14.27%	1.59%	
		n	1	2							1			1	4	9		
	Morocco	AR	1.70%	1.46%	1.35%				3.10%			2.19%	1.43%	1.22%	1.23%	1.72%	26.35%	1.65%
		n	1	4	1				1		1	2	1	1	4	16		
	Saudi Arabia	AR	1.19%	2.26%						4.33%		1.70%	1.19%	1.08%	2.53%	60.80%	2.53%	
		n	2	3						4		1	1	1	12	24		
	Syria	AR	2.02%	1.48%	1.73%					2.21%		1.90%	1.33%		2.12%	77.83%	1.95%	
		n	7	2	1					3		18	1		8	40		
	Tunisia	AR	4.17%	1.14%	2.09%							1.68%	2.57%	2.55%	1.67%	34.91%	2.18%	
		n	1	1	2							2	5	1	4	16		

Table 12 (cont'd)

CAR(0)	AR	4.17%	38.60%	81.65%	11.29%		4.81%	6.06%	32.49%	3.62%	86.10%	22.01%	6.08%	123.18%	420.05%	76.88%
	n	1	22	33	6		3	2	13	2	43	12	4	60	201	
Scaled	AR	4.17%	1.75%	2.47%	1.88%		1.60%	3.03%	2.50%	1.81%	2.00%	1.83%	1.52%	2.05%	72.38%	
Average																

Notes: Table shows the mean of the significant day zero absolute abnormal returns of the 10 countries with respect to the source of the events along with the corresponding number of events²¹. Multi-event column indicates the average day zero absolute abnormal returns by the affected countries to the multiple events coinciding on the same day. If a country has at least one domestic event coinciding with non-domestic events, it is included in the corresponding country's abnormal return, rather than multiple event abnormal return. The scaled average column and row presents the country-wise averages scaled by the corresponding number of events.

²¹ There may be coinciding events whose effects are realized on the same day. Alternatively, there may be events happening on non-trading days whose effects are realized on the next trading day, which again may be coincide with another event happening on that day. Therefore, n corresponds not necessarily to the number of events, but to the separate dates of realizations of those events

Next, Table 13 concentrates only on the negative abnormal returns. To do that, we calculate the averages of the extreme negative abnormal returns of affected countries to the events from each country separately. Table 13 highlights that the magnitude of the effect of negative extreme reactions is much higher than what appears in Table 11. The total abnormal returns generated by drastic events in Bahrain, Egypt, and Syria are almost doubled in magnitude when we focus on the negative responses: Bahrain, Egypt, and Syria generated huge negative total abnormal returns of -31.41, -55.76, and -60.80 percent compared to the total signed abnormal returns of -24.22, -29.87, -35.52 percent respectively. Moreover, the damaging effect of Libya, which is veiled in Table 11, becomes apparent when we focus on the negative abnormal returns. Libya causes -2.07 percent negative abnormal returns in the region on the average.

In aggregate terms, Kuwait, Syria, and Egypt react the most with -32.71, -51.22, and -95.65 percent total negative abnormal returns. This is quite similar to what appears in the total signed returns table, which indicates these three countries as the most affected countries in aggregate terms. However, this time Saudi Arabia comes into picture with -33.52 percent total negative abnormal returns. This huge effect is veiled in the signed returns since Saudi Arabia experienced a considerable number of positive abnormal returns as well. Therefore, for some countries, which recover with positive abnormal returns during this period, the damaging effects of Arab Spring events vanish in cumulative terms. Unfortunately, for countries such as Egypt and Syria where the markets cannot recover, the negative abnormal returns manifest themselves in the signed returns as well.

Table 13: Extreme Negative Abnormal Returns Matrix

		SOURCE COUNTRY													multievent	TAR(0)	Scaled Average					
		Algeria	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Libya	Morocco	Saudi Arabia	Sudan	Syria	Tunisia	Yemen								
AFFECTED COUNTRY	Bahrain	AR	-1.55%	-1.28%						-1.63%		-1.26%			-1.65%	-12.13%	-1.52%					
	n		3	1						1		1			2	8						
	Egypt	AR	-2.40%	-3.86%							-1.35%		-2.74%	-1.52%		-2.35%	-91.61%	-2.86%				
	n		2	10							1		10	2		7	32					
	Jordan	AR	-1.39%			-1.87%									-1.77%		-1.38%	-11.03%	-1.58%			
	n		1			2									1		3	7				
	Kuwait	AR	-2.18%	-1.38%							-2.07%				-1.26%	-1.29%		-1.97%	-29.46%	-1.84%		
	n		2	2							1				1	1		9	16			
	Lebanon	AR			-1.22%										-1.43%		-1.21%	-1.68%	-10.57%	-1.51%		
	n				1										1		1	4	7			
	Morocco	AR	-1.70%	-1.57%							-3.10%				-2.19%	-1.67%		-1.23%	-1.79%	-18.39%	-1.84%	
	n		1	2							1				1	1		1	3	10		
	Saudi Arabia	AR	-1.19%	-2.29%												-1.70%			-3.00%	-29.67%	-2.47%	
	n		2	2															7	12		
	Syria	AR	-2.20%													-3.50%		-1.73%	-2.09%	-51.22%	-1.97%	
	n		5													1			1	13	26	
Tunisia	AR	-4.17%	-1.14%	-2.09%														-1.68%	-2.19%	-1.75%	-26.83%	-2.06%
n		1	1	2															2	4	3	13

Table 13 (cont'd)

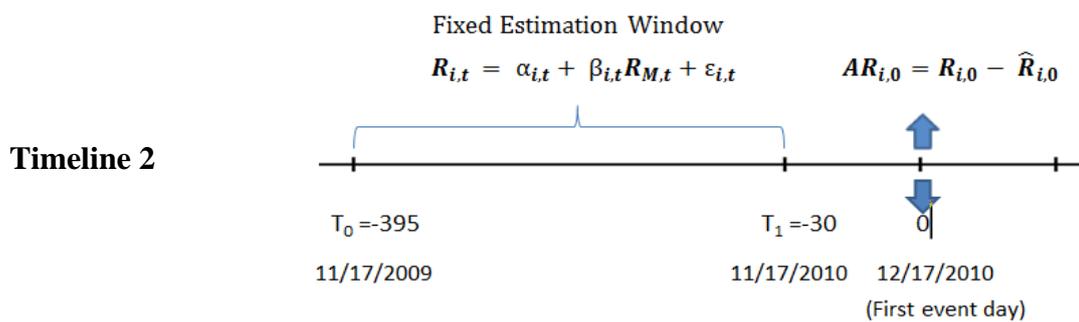
CAR(0)	AR	-4.17%	-31.41%	-55.76%	-5.47%		-2.07%	-3.10%	-6.48%	-3.62%	-60.80%	-13.08%	-2.44%	-92.51%	-280.90%	-58.72%
	n	1	17	20	3		1	1	3	2	30	7	2	44	131	
Scaled	AR	-4.17%	-1.85%	-2.79%	-1.82%		-2.07%	-3.10%	-2.16%	-1.81%	-2.03%	-1.87%	-1.22%	-2.10%	-44.82%	
	Average															

Notes: Table shows the mean of the significant negative day zero abnormal returns of the 10 countries with respect to the source of the events along with the corresponding number of events²². Multi-event column indicates the average day zero negative abnormal returns by the affected countries to the multiple events coinciding on the same day. If a country has at least one domestic event coinciding with non-domestic events, it is included in the corresponding country's abnormal return, rather than multiple event abnormal return. The scaled average column and row presents the country-wise averages scaled by the corresponding number of events.

²² There may be coinciding events whose effects are realized on the same day. Alternatively, there may be events happening on non-trading days whose effects are realized on the next trading day, which again may be coincide with another event happening on that day. Therefore, n corresponds not necessarily to the number of events, but to the separate dates of realizations of those events.

One concern is that the results we find may be due to the general trends in the stock markets of the countries under analysis. Although Brown and Warner (1980, 1985) has shown that simple mean adjusted returns yield quite similar results with that of more sophisticated models²³ that consider market trends, we employ a robustness check. In order to eliminate such confounding effects, we incorporate the market model in the Brown and Warner (1985) event study methodology using MSCI World Index as the benchmark index.

Timeline 2 shows the abnormal return calculation where the Beta's, $\beta_{i,t}$, for each country are estimated by regressing country index returns, $R_{i,t}$, on the benchmark index, $R_{M,t}$, within the estimation window. Using the Beta's, we calculate the estimated day zero returns for the country indices, $\hat{R}_{i,0}$, for all event dates starting from the first event. Finally, we obtain the day zero abnormal returns, $AR_{i,0}$, as the difference between the realized returns, $R_{i,0}$, and estimated returns, $\hat{R}_{i,0}$, for each event.



²³ Brown & Warner (1980 and 1985) argue that the main indicator of the result is the variance of abnormal returns. As it does not differ much between mean adjusted returns and more sophisticated specifications, such as market adjusted returns, the result from these different methods does not differ much.

The results are robust to the market model specification, which produces similar extreme abnormal returns to the events. In fact, the results are getting more extreme when we use the market model. Moreover, the positive abnormal returns in mean-adjusted return specification turn out to be negative when we use market adjusted abnormal returns. The abnormal return comparison with the two specifications is presented with the graphs under Appendix D. The figures show the similar patterns in the abnormal returns. For Bahrain and Lebanon, for instance, the two lines completely overlap. For the rest, they are parallel to each other. Most of the time, market adjusted abnormal returns are more negative, which strengthens our conclusions.

These breakdowns of abnormal returns underline the importance of local news effects as well as spillover effects from other countries in the region. Up to now, we have presented the breakdown of the 201 extreme return reactions by the nine countries in our sample. We observe that some of the individual events created extreme day zero abnormal returns in the country indices. However, in order to conclude that these events created significant return reactions in the stock market indices of the countries in the region, we test the significance of average abnormal returns of the countries over time. In fact, talking about the significance of an individual event for one security (or one country, in our case) is not suitable in event studies. As suggested by MacKinlay (1997: 21) “the abnormal return observations must be aggregated in order to draw overall inferences for the event of interest.”

We tested the overall significance of Arab Spring events in four different levels and in two specifications. They are individual country average AR (AAR), domestic event AAR, non-domestic event AAR, and overall AAR in mean adjusted returns and

market model specifications. Moreover, as suggested by MacKinlay (1997), the abnormal returns become independent as the estimation window is lengthened.

Therefore, we use a three-year estimation window instead of a one-year.

First, we average out the mean-adjusted returns of each country calculated for all of the events over our sample period and test their significances. Table 14 shows the resulting AAR's, and the corresponding t-statistics. None of the country AAR's are significant. Therefore, we cannot conclude that the countries show a significant reaction in response to the Arab Spring events during our sample period.

Table 14: Country Average Abnormal Returns (Mean Adjusted)

Country	N	Country AAR	t_stat
Bahrain	120	-0.04%	-0.0515
Egypt	104	-0.39%	-0.5083
Jordan	124	0.00%	-0.0030
Kuwait	121	-0.18%	-0.2302
Lebanon	125	-0.10%	-0.1253
Morocco	128	-0.10%	-0.1306
Saudi Arabia	115	0.10%	0.1232
Syria	107	-0.29%	-0.3738
Tunisia	121	-0.26%	-0.3346

The table shows the country-wise average abnormal returns over the sample period using mean-adjusted returns specification. N shows the number of separate event dates for each country.

We, then, classify the events as either domestic or non-domestic for each country, and then test the significance of average domestic event abnormal returns and average non-domestic event abnormal returns. The results are demonstrated in the following table. None of the countries shows significant reactions to their domestic events, or events emanating from other countries in the region on the average.

Table 15: Domestic and Non-domestic events Average Abnormal Returns (Mean Adjusted)

Country	Domestic event AAR			Non-domestic event AAR		
	n	AAR	t-stat	n	AAR	t-stat
Bahrain	26	-0.16%	-0.2104	94	-0.01%	-0.0075
Egypt	24	-0.99%	-1.2699	80	-0.22%	-0.2798
Jordan	9	-0.18%	-0.2372	115	0.01%	0.0153
Kuwait	2	0.34%	0.4367	119	-0.19%	-0.2414
Lebanon	1	-0.06%	-0.0805	124	-0.10%	-0.1257
Morocco	5	-0.65%	-0.8385	123	-0.08%	-0.1019
Saudi Arabia	14	1.27%	1.6306	101	-0.07%	-0.0858
Syria	34	-0.42%	-0.5419	73	-0.23%	-0.2955
Tunisia	17	-0.28%	-0.3567	104	-0.26%	-0.3309
Total	132			933		

The table shows the country-wise average abnormal returns in response to domestic/non-domestic events over the sample period using mean-adjusted returns specification. N shows the number of separate event dates for each country.

Finally, we test the significance of overall reaction in the region in response to the Arab Spring events over our sample period. We average out the abnormal returns calculated for all of the countries in the region, and test its significance. The average abnormal returns calculated over the sample period is -0.14%, but it is not significant. Therefore, we cannot conclude that Arab Spring events generated significant abnormal returns in the stock market indices in the region.

We repeated all of the aforementioned abnormal return calculations with market model specification as well. However, the results have not changed. We did not observe any significant return response by any of the countries. The resulting AAR's along with their t-stats are presented below.

Table 16: Country Average Abnormal Returns (Market model)

Country	N	Country AAR	t_stat
Bahrain	120	0.07%	-0.0541
Egypt	104	-0.26%	-0.5047
Jordan	124	-0.29%	0.0040
Kuwait	121	-0.08%	-0.2348
Lebanon	125	-0.17%	-0.1516
Morocco	128	1.01%	-0.1517
Saudi Arabia	115	1.19%	0.1669
Syria	107	-0.16%	-0.3900
Tunisia	121	0.04%	-0.3455

The table shows the country-wise average abnormal returns over the sample period using market model specification. N shows the number of separate event dates for each country.

Table 17: Domestic and Non-domestic events Average Abnormal Returns (Market model)

Country	Domestic event AAR			Non-domestic event AAR		
	n	AAR	t-stat	n	AAR	t-stat
Bahrain	26	-0.17%	-0.2166	94	-0.01%	-0.0091
Egypt	24	-0.98%	-1.2798	80	-0.21%	-0.2721
Jordan	9	-0.18%	-0.2305	115	0.02%	0.0225
Kuwait	2	0.45%	0.5868	119	-0.19%	-0.2486
Lebanon	1	-0.06%	-0.0734	124	-0.12%	-0.1522
Morocco	5	-0.65%	-0.8469	123	-0.09%	-0.1234
Saudi Arabia	14	1.34%	1.7566	101	-0.04%	-0.0534
Syria	34	-0.34%	-0.4457	73	-0.28%	-0.3648
Tunisia	17	-0.28%	-0.3637	104	-0.26%	-0.3425
Total	132			933		

The table shows the country-wise average abnormal returns in response to domestic/non-domestic events over the sample period using market model specification. N shows the number of separate event dates for each country.

4.5 Conclusion

In conclusion, we document the negative effects of political uncertainty on the country stock indices of nine MENA countries. We consider Arab Spring period as a natural case for studying political uncertainty as there are countries experiencing either regime changes, which is implied by the changes in the incumbent decision

makers, or semi-regime changes, which is implied by serious reforms. Therefore, this period is rich of events that trigger political uncertainty in the region. We study the effects of 172 Arab Spring events on the nine countries in the MENA region for the period of 2010-2013. By using Brown and Warner (1985) event study method, we first explanatorily study the abnormal returns, and presented the breakdowns of the extreme abnormal returns with respect to the origin of the events. We show that most of the extreme reactions are negative. The abnormal return analysis reveals that there are drastic events affecting the countries in the region during this period. Besides, we document spillover effects in the region, which is implied by extreme return response by countries to the non-domestic events happening in the region.

Our results are robust to different specifications of abnormal return. Both mean-adjusted and market-adjusted returns provide similar results both in magnitude and in significance. In fact, the results are getting stronger with the market model. Hence, we assert that during Arab Spring period, there are events creating relatively large abnormal returns in the stock markets in the region.

However, when we test the significance of average reactions by the stock markets, we cannot find any significant effect. When we test the average abnormal returns over our sample period of each country separately, we have found insignificant effects. Although at the individual level we have extreme return reactions, we do not observe significant abnormal returns at the overall level. Therefore, we cannot conclude that the Arab Spring events over our sample period create significant reactions in the country indices in the region.

CHAPTER 5

CONCLUSION AND DISCUSSION

In this thesis, we try to discuss the stock market investment patterns from two different perspectives in two different settings.

First, we study the individual stock investment decision from a behavioral perspective. We built our arguments on the affect-based decision-making literature and combine marketing, social psychology and finance to show the influence of affective and attitudinal evaluations of companies on the investment decision in the company's stock. In particular, we hypothesize that the antecedents of affective self-affinity (ASA) - namely, group related ASA, company-people related ASA, and idea/ideal related ASA – triggers ASA in the individual investors, which increases the affect-based investment motivations over and beyond financial factors.

Second, we test our hypotheses in a survey with real individual investor participants. The results of the study suggest that as the ASA increases for a specific person, for a specific group, and/or a specific idea/ideal increase, the ASA for the company, which

employs that particular person, supports that particular group, or supports that particular idea/ideal also increases. The ideas discussed in this study are socially responsible investing (SRI) related ideas and nationality related ideas. In other words, as individuals' ASA for SRI related ideas increases, their ASA for a company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. In a similar manner, as individuals' ASA for nationality related ideas increases, their ASA for the company supporting that idea or engaging in activities, which feeds or signals that idea, will also increase. Furthermore, any increase in ASA results in an increase in the affective investment motivation to the particular company's stock. Likewise, positive attitude towards the investee company may further explain the extra affective investment motivation. Hence, companies may use people, groups, and/or different ideas/ideals such as SRI related ideas and nationality related ideas to create a bond between the company and the investor. This may, in turn, create extra motivation for investment into those companies' stocks.

Third, we continue with the traditional approach to stock market investment patterns. We study the effects of political uncertainty on the stock markets of nine MENA during the period of 2010-2013. We consider Arab Spring period as a natural case to study political uncertainty. In an event study setting, we study the return reactions of the stock markets in response to 172 events happening in our sample period. Mean adjusted abnormal returns suggest that there are serious events affecting the country stock indices in the region by generating extreme abnormal returns. Egypt and Syria are two prominent markets affecting/being affected by the region the most. It is not surprise since these two countries experienced serious uprisings, and protests. Eventually, Egypt had a regime change while Syria went through a civil war. Results

further suggest that countries are affected not only by domestic events but also by non-domestic events happening in the region. We refer this effect as spill over in our context.

However, the extreme abnormal returns do not manifest themselves in the average abnormal returns. When we test the average abnormal returns over our sample period of each country separately, we have found insignificant effects. Although at the individual level we have significant reactions, we do not observe significant abnormal returns at the overall level. Therefore, we cannot conclude that the Arab Spring events over our sample period create significant reactions in the country indices in the region.

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APPENDICES

A: SMART PLS FINAL RESULTS OF THE STRUCTURAL MODEL

Table 18: Path Coefficients

149

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA -> affect	0.202	0.186	0.101	1.998	0.023
age -> affect	0.059	0.055	0.093	0.639	0.261
company1 dummy -> affect	-0.235	-0.239	0.115	2.039	0.021
company1*ASA -> affect	-0.149	-0.129	0.140	1.069	0.143
company1*posatt -> affect	0.051	0.030	0.132	0.390	0.348
company2 dummy -> affect	0.093	0.100	0.111	0.836	0.202
company2*ASA -> affect	0.046	0.062	0.125	0.368	0.357
company2*posatt -> affect	0.036	-0.002	0.125	0.287	0.387
company3 dummy -> affect	0.010	0.022	0.100	0.099	0.460
company3*ASA -> affect	-0.002	-0.019	0.140	0.018	0.493
company3*posatt -> affect	-0.095	0.010	0.148	0.639	0.261
daily tracker -> affect	-0.011	-0.006	0.082	0.133	0.447
good financial lit -> affect	-0.163	-0.162	0.072	2.280	0.011
groupASA -> ASA	0.366	0.362	0.090	4.045	0.000
high risk taker -> affect	-0.080	-0.080	0.088	0.908	0.182
idea-idealsASA -> ASA	0.128	0.137	0.095	1.347	0.089
male investor -> affect	-0.133	-0.137	0.083	1.607	0.054
married -> affect	-0.145	-0.140	0.088	1.649	0.050

Table 14 (cont'd)

peopleASA -> ASA	0.252	0.252	0.086	2.913	0.002
posatt -> affect	0.216	0.214	0.118	1.827	0.034
small investor -> affect	-0.012	-0.011	0.092	0.126	0.450
univ education -> affect	-0.141	-0.139	0.086	1.627	0.052

Table 19: Confidence Intervals- Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA -> affect	0.202	0.186	-0.016	0.054	0.387
age -> affect	0.059	0.055	-0.004	-0.084	0.219
company1 dummy -> affect	-0.235	-0.239	-0.005	-0.423	-0.044
company1*ASA -> affect	-0.149	-0.129	0.020	-0.396	0.067
company1*posatt -> affect	0.051	0.030	-0.021	-0.132	0.305
company2 dummy -> affect	0.093	0.100	0.007	-0.095	0.262
company2*ASA -> affect	0.046	0.062	0.015	-0.175	0.237
company2*posatt -> affect	0.036	-0.002	-0.038	-0.134	0.263
company3 dummy -> affect	0.010	0.022	0.012	-0.173	0.158
company3*ASA -> affect	-0.002	-0.019	-0.016	-0.208	0.264
company3*posatt -> affect	-0.095	0.010	0.104	-0.380	0.091
daily tracker -> affect	-0.011	-0.006	0.005	-0.160	0.112
good financial lit -> affect	-0.163	-0.162	0.002	-0.283	-0.048
groupASA -> ASA	0.366	0.362	-0.003	0.222	0.524
high risk taker -> affect	-0.080	-0.080	-0.001	-0.225	0.055
idea-idealsASA -> ASA	0.128	0.137	0.009	-0.048	0.262
male investor -> affect	-0.133	-0.137	-0.004	-0.260	0.012
married -> affect	-0.145	-0.140	0.006	-0.290	-0.006
peopleASA -> ASA	0.252	0.252	0.001	0.107	0.394
posatt -> affect	0.216	0.214	-0.002	0.007	0.402
small investor -> affect	-0.012	-0.011	0.001	-0.172	0.134
univ education -> affect	-0.141	-0.139	0.001	-0.273	0.013

Table 20: Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
groupASA -> affect	0.074	0.067	0.041	1.784	0.037
idea-idealsASA -> affect	0.026	0.025	0.024	1.058	0.145
peopleASA -> affect	0.051	0.047	0.031	1.614	0.053

Table 21: Confidence Intervals-Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
groupASA -> affect	0.074	0.067	-0.007	0.024	0.172
idea-idealsASA -> affect	0.026	0.025	-0.001	0.000	0.084
peopleASA -> affect	0.051	0.047	-0.004	0.012	0.124

Table 22: Total Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA -> affect	0.202	0.186	0.101	1.998	0.023
age -> affect	0.059	0.055	0.093	0.639	0.261
company1 dummy -> affect	-0.235	-0.239	0.115	2.039	0.021
company1*ASA -> affect	-0.149	-0.129	0.140	1.069	0.143
company1*posatt -> affect	0.051	0.030	0.132	0.390	0.348
company2 dummy -> affect	0.093	0.100	0.111	0.836	0.202
company2*ASA -> affect	0.046	0.062	0.125	0.368	0.357
company2*posatt -> affect	0.036	-0.002	0.125	0.287	0.387
company3 dummy -> affect	0.010	0.022	0.100	0.099	0.460
company3*ASA -> affect	-0.002	-0.019	0.140	0.018	0.493
company3*posatt -> affect	-0.095	0.010	0.148	0.639	0.261
daily tracker -> affect	-0.011	-0.006	0.082	0.133	0.447
good financial lit -> affect	-0.163	-0.162	0.072	2.280	0.011
groupASA -> ASA	0.366	0.362	0.090	4.045	0.000
groupASA -> affect	0.074	0.067	0.041	1.784	0.037
high risk taker -> affect	-0.080	-0.080	0.088	0.908	0.182
idea-idealsASA -> ASA	0.128	0.137	0.095	1.347	0.089
idea-idealsASA -> affect	0.026	0.025	0.024	1.058	0.145
male investor -> affect	-0.133	-0.137	0.083	1.607	0.054
married -> affect	-0.145	-0.140	0.088	1.649	0.050
peopleASA -> ASA	0.252	0.252	0.086	2.913	0.002
peopleASA -> affect	0.051	0.047	0.031	1.614	0.053
posatt -> affect	0.216	0.214	0.118	1.827	0.034

Table 18 (cont'd)

small investor -> affect	-0.012	-0.011	0.092	0.126	0.450
univ education -> affect	-0.141	-0.139	0.086	1.627	0.052

Table 23: Confidence Intervals-Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA -> affect	0.202	0.186	-0.016	0.054	0.387
age -> affect	0.059	0.055	-0.004	-0.084	0.219
company1 dummy -> affect	-0.235	-0.239	-0.005	-0.423	-0.044
company1*ASA -> affect	-0.149	-0.129	0.020	-0.396	0.067
company1*posatt -> affect	0.051	0.030	-0.021	-0.132	0.305
company2 dummy -> affect	0.093	0.100	0.007	-0.095	0.262
company2*ASA -> affect	0.046	0.062	0.015	-0.175	0.237
company2*posatt -> affect	0.036	-0.002	-0.038	-0.134	0.263
company3 dummy -> affect	0.010	0.022	0.012	-0.173	0.158
company3*ASA -> affect	-0.002	-0.019	-0.016	-0.208	0.264
company3*posatt -> affect	-0.095	0.010	0.104	-0.380	0.091
daily tracker -> affect	-0.011	-0.006	0.005	-0.160	0.112
good financial lit -> affect	-0.163	-0.162	0.002	-0.283	-0.048
groupASA -> ASA	0.366	0.362	-0.003	0.222	0.524
groupASA -> affect	0.074	0.067	-0.007	0.024	0.172
high risk taker -> affect	-0.080	-0.080	-0.001	-0.225	0.055
idea-idealsASA -> ASA	0.128	0.137	0.009	-0.048	0.262
idea-idealsASA -> affect	0.026	0.025	-0.001	0.000	0.084
male investor -> affect	-0.133	-0.137	-0.004	-0.260	0.012
married -> affect	-0.145	-0.140	0.006	-0.290	-0.006
peopleASA -> ASA	0.252	0.252	0.001	0.107	0.394
peopleASA -> affect	0.051	0.047	-0.004	0.012	0.124
posatt -> affect	0.216	0.214	-0.002	0.007	0.402

Table 19 (cont'd)

small investor -> affect	-0.012	-0.011	0.001	-0.172	0.134
univ education -> affect	-0.141	-0.139	0.001	-0.273	0.013

Table 24: Outer Loadings

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA <- ASA	1.000	1.000	0.000		
ASA * company1 dummy <- company1*ASA	1.000	1.000	0.000		
ASA * company2 dummy <- company2*ASA	1.000	1.000	0.000		
ASA * company3 dummy <- company3*ASA	1.000	1.000	0.000		
SRI related ideas_LVS -> idea-idealsASA	0.843	0.828	0.109	7.736	0.000
affect1 <- affect	0.953	0.953	0.019	49.119	0.000
affect2 <- affect	0.960	0.961	0.013	75.100	0.000
age <- age	1.000	1.000	0.000		
company 3 dummy <- company3 dummy	1.000	1.000	0.000		
company 3 dummy * posatt1 <- company3*posatt	-0.310	0.711	0.367	0.845	0.199
company 3 dummy * posatt2 <- company3*posatt	0.550	0.730	0.332	1.657	0.049
company1 dummy <- company1 dummy	1.000	1.000	0.000		
company1 dummy * posatt1 <- company1*posatt	0.953	0.813	0.241	3.960	0.000
company1 dummy * posatt2 <- company1*posatt	0.757	0.746	0.278	2.724	0.003
company2 dummy <- company2 dummy	1.000	1.000	0.000		
company2 dummy * posatt1 <- company2*posatt	0.930	0.730	0.271	3.430	0.000
company2 dummy * posatt2 <- company2*posatt	0.547	0.724	0.281	1.947	0.026
daily_tracker <- daily tracker	1.000	1.000	0.000		
education <- univ education	1.000	1.000	0.000		
finlit <- good financial lit	1.000	1.000	0.000		
gender <- male investor	1.000	1.000	0.000		

Table 20 (cont'd)

groupASA <- groupASA	1.000	1.000	0.000		
high risk taker <- high risk taker	1.000	1.000	0.000		
investorsize <- small investor	1.000	1.000	0.000		
marital status <- married	1.000	1.000	0.000		
nationality related ideas_LVS -> idea-idealsASA	0.755	0.736	0.135	5.590	0.000
peopleASA <- peopleASA	1.000	1.000	0.000		
posatt1 <- posatt	0.913	0.913	0.027	34.287	0.000
posatt2 <- posatt	0.892	0.887	0.046	19.462	0.000

Table 25: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA <- ASA	1.000	1.000	0.000	1.000	1.000
ASA * company1 dummy <- company1*ASA	1.000	1.000	0.000	1.000	1.000
ASA * company2 dummy <- company2*ASA	1.000	1.000	0.000	1.000	1.000
ASA * company3 dummy <- company3*ASA	1.000	1.000	0.000	1.000	1.000
SRI related ideas_LVS -> idea-idealsASA	0.843	0.828	-0.016	0.632	0.977
affect1 <- affect	0.953	0.953	-0.001	0.911	0.977
affect2 <- affect	0.960	0.961	0.000	0.935	0.978
age <- age	1.000	1.000	0.000	1.000	1.000
company 3 dummy <- company3 dummy	1.000	1.000	0.000	1.000	1.000
company 3 dummy * posatt1 <- company3*posatt	-0.310	0.711	1.021	-0.549	-0.406
company 3 dummy * posatt2 <- company3*posatt	0.550	0.730	0.180	-0.547	0.855
company1 dummy <- company1 dummy	1.000	1.000	0.000	1.000	1.000
company1 dummy * posatt1 <- company1*posatt	0.953	0.813	-0.140	0.907	1.041
company1 dummy * posatt2 <- company1*posatt	0.757	0.746	-0.012	-0.373	0.932
company2 dummy <- company2 dummy	1.000	1.000	0.000	1.000	1.000
company2 dummy * posatt1 <- company2*posatt	0.930	0.730	-0.201	0.886	1.082
company2 dummy * posatt2 <- company2*posatt	0.547	0.724	0.177	-0.972	0.754
daily_tracker <- daily tracker	1.000	1.000	0.000	1.000	1.000
education <- univ education	1.000	1.000	0.000	1.000	1.000
finlit <- good financial lit	1.000	1.000	0.000	1.000	1.000
gender <- male investor	1.000	1.000	0.000	1.000	1.000
groupASA <- groupASA	1.000	1.000	0.000	1.000	1.000
high risk taker <- high risk taker	1.000	1.000	0.000	1.000	1.000

Table 21 (cont'd)

investorsize <- small investor	1.000	1.000	0.000	1.000	1.000
marital status <- married	1.000	1.000	0.000	1.000	1.000
nationality related ideas_LVS -> idea-idealsASA	0.755	0.736	-0.019	0.502	0.923
peopleASA <- peopleASA	1.000	1.000	0.000	1.000	1.000
posatt1 <- posatt	0.913	0.913	0.000	0.858	0.944
posatt2 <- posatt	0.892	0.887	-0.006	0.812	0.935

Table 26: Outer Weights

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA <- ASA	1.000	1.000	0.000		
ASA * company1 dummy <- company1*ASA	1.000	1.000	0.000		
ASA * company2 dummy <- company2*ASA	1.000	1.000	0.000		
ASA * company3 dummy <- company3*ASA	1.000	1.000	0.000		
SRI related ideas_LVS -> idea-idealsASA	0.684	0.676	0.155	4.421	0.000
affect1 <- affect	0.502	0.506	0.019	25.951	0.000
affect2 <- affect	0.543	0.540	0.026	20.821	0.000
age <- age	1.000	1.000	0.000		
company 3 dummy <- company3 dummy	1.000	1.000	0.000		
company 3 dummy * posatt1 <- company3*posatt	-1.075	0.419	0.654	1.644	0.050
company 3 dummy * posatt2 <- company3*posatt	1.224	0.458	0.643	1.904	0.029
company1 dummy <- company1 dummy	1.000	1.000	0.000		
company1 dummy * posatt1 <- company1*posatt	0.803	0.593	0.469	1.714	0.043
company1 dummy * posatt2 <- company1*posatt	0.284	0.399	0.477	0.595	0.276
company2 dummy <- company2 dummy	1.000	1.000	0.000		
company2 dummy * posatt1 <- company2*posatt	1.036	0.491	0.519	1.995	0.023
company2 dummy * posatt2 <- company2*posatt	-0.060	0.472	0.523	0.114	0.455
daily_tracker <- daily tracker	1.000	1.000	0.000		
education <- univ education	1.000	1.000	0.000		
finlit <- good financial lit	1.000	1.000	0.000		
gender <- male investor	1.000	1.000	0.000		
groupASA <- groupASA	1.000	1.000	0.000		

Table 22 (cont'd)

high risk taker <- high risk taker	1.000	1.000	0.000		
investorsize <- small investor	1.000	1.000	0.000		
marital status <- married	1.000	1.000	0.000		
nationality related ideas_LVS -> idea-idealsASA	0.560	0.547	0.178	3.155	0.001

Table 22 (cont'd)

peopleASA <- peopleASA	1.000	1.000	0.000		
posatt1 <- posatt	0.581	0.585	0.074	7.867	0.000
posatt2 <- posatt	0.526	0.520	0.078	6.710	0.000

Table 27: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA <- ASA	1.000	1.000	0.000	1.000	1.000
ASA * company1 dummy <- company1*ASA	1.000	1.000	0.000	1.000	1.000
ASA * company2 dummy <- company2*ASA	1.000	1.000	0.000	1.000	1.000
ASA * company3 dummy <- company3*ASA	1.000	1.000	0.000	1.000	1.000
SRI related ideas_LVS -> idea-idealsASA	0.684	0.676	-0.008	0.399	0.903
affect1 <- affect	0.502	0.506	0.003	0.459	0.527
affect2 <- affect	0.543	0.540	-0.003	0.510	0.602
age <- age	1.000	1.000	0.000	1.000	1.000
company 3 dummy <- company3 dummy	1.000	1.000	0.000	1.000	1.000
company 3 dummy * posatt1 <- company3*posatt	-1.075	0.419	1.495	-1.464	-1.208
company 3 dummy * posatt2 <- company3*posatt	1.224	0.458	-0.766	1.176	1.564
company1 dummy <- company1 dummy	1.000	1.000	0.000	1.000	1.000
company1 dummy * posatt1 <- company1*posatt	0.803	0.593	-0.210	0.453	1.338
company1 dummy * posatt2 <- company1*posatt	0.284	0.399	0.115	-1.125	0.660
company2 dummy <- company2 dummy	1.000	1.000	0.000	1.000	1.000
company2 dummy * posatt1 <- company2*posatt	1.036	0.491	-0.545	0.770	1.515
company2 dummy * posatt2 <- company2*posatt	-0.060	0.472	0.532	-1.358	0.345
daily_tracker <- daily tracker	1.000	1.000	0.000	1.000	1.000
education <- univ education	1.000	1.000	0.000	1.000	1.000
finlit <- good financial lit	1.000	1.000	0.000	1.000	1.000
gender <- male investor	1.000	1.000	0.000	1.000	1.000
groupASA <- groupASA	1.000	1.000	0.000	1.000	1.000
high risk taker <- high risk taker	1.000	1.000	0.000	1.000	1.000

Table 23 (cont'd)

investorsize <- small investor	1.000	1.000	0.000	1.000	1.000
marital status <- married	1.000	1.000	0.000	1.000	1.000
nationality related ideas_LVS -> idea-idealsASA	0.560	0.547	-0.014	0.226	0.811
peopleASA <- peopleASA	1.000	1.000	0.000	1.000	1.000
posatt1 <- posatt	0.581	0.585	0.004	0.468	0.704
posatt2 <- posatt	0.526	0.520	-0.006	0.410	0.642

B: SMART PLS QUALITY CRITERIA FOR THE STRUCTURAL MODEL

Table 28: R-Square

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA	0.398	0.413	0.069	5.781	0.000
affect	0.384	0.470	0.063	6.075	0.000

Table 29: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA	0.398	0.413	0.015	0.274	0.497
affect	0.384	0.470	0.087	0.270	0.398

Table 30: R-Square Adjusted

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA	0.384	0.399	0.070	5.451	0.000
affect	0.280	0.381	0.074	3.796	0.000

Table 31: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA	0.384	0.399	0.015	0.257	0.485
affect	0.280	0.381	0.101	0.147	0.297

Table 32: Average Variance Extracted (AVE)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA	1.000	1.000	0.000		
affect	0.916	0.915	0.030	30.974	0.000
age	1.000	1.000	0.000		
company1 dummy	1.000	1.000	0.000		
company1*ASA	1.000	1.000	0.000		
company1*posatt	0.771	0.697	0.157	4.901	0.000
company2 dummy	1.000	1.000	0.000		
company2*ASA	1.000	1.000	0.000		
company2*posatt	0.671	0.694	0.176	3.808	0.000
company3 dummy	1.000	1.000	0.000		
company3*ASA	1.000	1.000	0.000		
company3*posatt	0.197	0.630	0.207	0.949	0.171
daily tracker	1.000	1.000	0.000		
good financial lit	1.000	1.000	0.000		
groupASA	1.000	1.000	0.000		
high risk taker	1.000	1.000	0.000		
idea-idealsASA					
male investor	1.000	1.000	0.000		
married	1.000	1.000	0.000		
peopleASA	1.000	1.000	0.000		
posatt	0.815	0.811	0.030	26.958	0.000
small investor	1.000	1.000	0.000		
univ education	1.000	1.000	0.000		

Table 33: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA	1.000	1.000	0.000	1.000	1.000
affect	0.916	0.915	-0.001	0.856	0.955
age	1.000	1.000	0.000	1.000	1.000
company1 dummy	1.000	1.000	0.000	1.000	1.000
company1*ASA	1.000	1.000	0.000	1.000	1.000
company1*posatt	0.771	0.697	-0.074	0.431	0.848
company2 dummy	1.000	1.000	0.000	1.000	1.000
company2*ASA	1.000	1.000	0.000	1.000	1.000
company2*posatt	0.671	0.694	0.023	0.150	0.801
company3 dummy	1.000	1.000	0.000	1.000	1.000
company3*ASA	1.000	1.000		1.000	1.000
company3*posatt	0.197	0.630	0.434	0.110	0.174
daily tracker	1.000	1.000	0.000	1.000	1.000
good financial lit	1.000	1.000	0.000	1.000	1.000
groupASA	1.000	1.000	0.000	1.000	1.000
high risk taker	1.000	1.000	0.000	1.000	1.000
idea-idealsASA					
male investor	1.000	1.000	0.000	1.000	1.000
married	1.000	1.000		1.000	1.000
peopleASA	1.000	1.000	0.000	1.000	1.000
posatt	0.815	0.811	-0.004	0.769	0.859
small investor	1.000	1.000	0.000	1.000	1.000
univ education	1.000	1.000	0.000	1.000	1.000

Table 34: Composite Reliability

169

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ASA	1.000	1.000	0.000		
affect	0.956	0.956	0.016	58.694	0.000
age	1.000	1.000	0.000		
company1 dummy	1.000	1.000	0.000		
company1*ASA	1.000	1.000	0.000		
company1*posatt	0.869	0.783	0.197	4.413	0.000
company2 dummy	1.000	1.000	0.000		
company2*ASA	1.000	1.000	0.000		
company2*posatt	0.793	0.772	0.222	3.571	0.000
company3 dummy	1.000	1.000	0.000		
company3*ASA	1.000	1.000	0.000		
company3*posatt	0.034	0.697	0.270	0.127	0.450
daily tracker	1.000	1.000	0.000		
good financial lit	1.000	1.000	0.000		
groupASA	1.000	1.000	0.000		
high risk taker	1.000	1.000	0.000		
idea-idealsASA					
male investor	1.000	1.000	0.000		
married	1.000	1.000	0.000		
peopleASA	1.000	1.000	0.000		
posatt	0.898	0.895	0.024	36.744	0.000
small investor	1.000	1.000	0.000		
univ education	1.000	1.000	0.000		

Table 35: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
ASA	1.000	1.000	0.000	1.000	1.000
affect	0.956	0.956	-0.001	0.922	0.977
age	1.000	1.000	0.000	1.000	1.000
company1 dummy	1.000	1.000	0.000	1.000	1.000
company1*ASA	1.000	1.000	0.000	1.000	1.000
company1*posatt	0.869	0.783	-0.086	0.510	0.918
company2 dummy	1.000	1.000	0.000	1.000	1.000
company2*ASA	1.000	1.000	0.000	1.000	1.000
company2*posatt	0.793	0.772	-0.020	0.001	0.889
company3 dummy	1.000	1.000	0.000	1.000	1.000
company3*ASA	1.000	1.000		1.000	1.000
company3*posatt	0.034	0.697	0.663	0.000	0.023
daily tracker	1.000	1.000	0.000	1.000	1.000
good financial lit	1.000	1.000	0.000	1.000	1.000
groupASA	1.000	1.000	0.000	1.000	1.000
high risk taker	1.000	1.000	0.000	1.000	1.000
idea-idealsASA					
male investor	1.000	1.000	0.000	1.000	1.000
married	1.000	1.000		1.000	1.000
peopleASA	1.000	1.000	0.000	1.000	1.000
posatt	0.898	0.895	-0.003	0.871	0.926
small investor	1.000	1.000	0.000	1.000	1.000
univ education	1.000	1.000	0.000	1.000	1.000

Table 36: Cronbach's Alpha

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
affect	0.908	0.907	0.036	25.413	0.000
company1*posatt	0.752	0.747	0.054	13.897	0.000
company2*posatt	0.769	0.764	0.060	12.851	0.000
company3*posatt	0.772	0.768	0.057	13.663	0.000
posatt	0.773	0.770	0.039	19.893	0.000

Table 37: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
affect	0.908	0.907	-0.002	0.832	0.952
company1*posatt	0.752	0.747	-0.005	0.650	0.828
company2*posatt	0.769	0.764	-0.004	0.648	0.844
company3*posatt	0.772	0.768	-0.004	0.659	0.845
posatt	0.773	0.770	-0.003	0.702	0.829

Table 38: Heterotrait – Monotrait (HTMT) Ratio

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
affect -> ASA	0.361	0.356	0.075	4.843	0.000
age -> ASA	0.164	0.163	0.065	2.517	0.006
age -> affect	0.133	0.145	0.087	1.525	0.064
company1 dummy -> ASA	0.041	0.079	0.059	0.691	0.245
company1 dummy -> affect	0.357	0.358	0.083	4.305	0.000
company1 dummy -> age	0.122	0.133	0.082	1.487	0.069
company1*ASA -> ASA	0.013	0.101	0.077	0.167	0.434
company1*ASA -> affect	0.141	0.152	0.084	1.675	0.047
company1*ASA -> age	0.023	0.061	0.047	0.483	0.314
company1*ASA -> company1 dummy	0.026	0.052	0.043	0.620	0.268
company1*posatt -> ASA	0.042	0.100	0.064	0.665	0.253
company1*posatt -> affect	0.078	0.131	0.074	1.048	0.147
company1*posatt -> age	0.022	0.098	0.058	0.380	0.352
company1*posatt -> company1 dummy	0.110	0.116	0.070	1.578	0.057
company1*posatt -> company1*ASA	0.784	0.784	0.046	16.897	0.000
company2 dummy -> ASA	0.067	0.093	0.067	1.006	0.157
company2 dummy -> affect	0.152	0.158	0.085	1.795	0.036
company2 dummy -> age	0.125	0.134	0.084	1.492	0.068
company2 dummy -> company1 dummy	0.409	0.408	0.042	9.704	0.000
company2 dummy -> company1*ASA	0.072	0.079	0.051	1.426	0.077
company2 dummy -> company1*posatt	0.058	0.083	0.049	1.187	0.118
company2*ASA -> ASA	0.165	0.180	0.111	1.476	0.070
company2*ASA -> affect	0.122	0.127	0.066	1.851	0.032

172

Table 34 (cont'd)

company2*ASA -> age	0.154	0.150	0.066	2.322	0.010
company2*ASA -> company1 dummy	0.065	0.070	0.043	1.527	0.063
company2*ASA -> company1*ASA	0.489	0.483	0.074	6.656	0.000
company2*ASA -> company1*posatt	0.287	0.288	0.070	4.079	0.000
company2*ASA -> company2 dummy	0.074	0.102	0.072	1.029	0.152
company2*posatt -> ASA	0.043	0.116	0.073	0.591	0.277
company2*posatt -> affect	0.051	0.110	0.052	0.973	0.165
company2*posatt -> age	0.135	0.142	0.071	1.888	0.030
company2*posatt -> company1 dummy	0.060	0.086	0.049	1.218	0.112
company2*posatt -> company1*ASA	0.316	0.313	0.074	4.257	0.000
company2*posatt -> company1*posatt	0.457	0.454	0.092	4.961	0.000
company2*posatt -> company2 dummy	0.066	0.126	0.089	0.743	0.229
company2*posatt -> company2*ASA	0.672	0.677	0.086	7.810	0.000
company3 dummy -> ASA	0.079	0.094	0.063	1.257	0.104
company3 dummy -> affect	0.111	0.119	0.071	1.562	0.059
company3 dummy -> age	0.085	0.099	0.067	1.263	0.103
company3 dummy -> company1 dummy	0.418	0.418	0.044	9.437	0.000
company3 dummy -> company1*ASA	0.034	0.059	0.044	0.778	0.218
company3 dummy -> company1*posatt	0.167	0.170	0.067	2.501	0.006
company3 dummy -> company2 dummy	0.323	0.323	0.037	8.737	0.000
company3 dummy -> company2*ASA	0.005	0.045	0.036	0.147	0.442
company3 dummy -> company2*posatt	0.040	0.073	0.039	1.007	0.157
company3*ASA -> ASA	0.120	0.145	0.104	1.156	0.124
company3*ASA -> affect	0.020	0.074	0.053	0.385	0.350
company3*ASA -> age	0.078	0.088	0.060	1.302	0.096
company3*ASA -> company1 dummy	0.037	0.064	0.049	0.743	0.229

Table 34 (cont'd)

company3*ASA -> company1*ASA	0.353	0.354	0.089	3.957	0.000
company3*ASA -> company1*posatt	0.328	0.328	0.084	3.912	0.000
company3*ASA -> company2 dummy	0.006	0.052	0.040	0.155	0.438
company3*ASA -> company2*ASA	0.351	0.345	0.072	4.902	0.000
company3*ASA -> company2*posatt	0.233	0.232	0.071	3.263	0.001
company3*ASA -> company3 dummy	0.099	0.123	0.091	1.087	0.139
company3*posatt -> ASA	0.059	0.106	0.058	1.017	0.155
company3*posatt -> affect	0.058	0.101	0.052	1.117	0.132
company3*posatt -> age	0.055	0.098	0.058	0.949	0.171
company3*posatt -> company1 dummy	0.162	0.164	0.060	2.699	0.004
company3*posatt -> company1*ASA	0.312	0.313	0.074	4.200	0.000
company3*posatt -> company1*posatt	0.576	0.577	0.084	6.827	0.000
company3*posatt -> company2 dummy	0.037	0.068	0.036	1.019	0.154
company3*posatt -> company2*ASA	0.184	0.184	0.061	3.013	0.001
company3*posatt -> company2*posatt	0.374	0.374	0.078	4.766	0.000
company3*posatt -> company3 dummy	0.109	0.158	0.074	1.473	0.070
company3*posatt -> company3*ASA	0.757	0.755	0.077	9.851	0.000
daily tracker -> ASA	0.009	0.059	0.045	0.202	0.420
daily tracker -> affect	0.151	0.155	0.086	1.751	0.040
daily tracker -> age	0.003	0.066	0.050	0.052	0.479
daily tracker -> company1 dummy	0.165	0.164	0.069	2.379	0.009
daily tracker -> company1*ASA	0.019	0.055	0.043	0.444	0.329
daily tracker -> company1*posatt	0.092	0.108	0.042	2.167	0.015
daily tracker -> company2 dummy	0.071	0.089	0.058	1.230	0.109
daily tracker -> company2*ASA	0.080	0.079	0.045	1.767	0.039
daily tracker -> company2*posatt	0.109	0.120	0.071	1.532	0.063

Table 34 (cont'd)

daily tracker -> company3 dummy	0.106	0.115	0.078	1.352	0.088
daily tracker -> company3*ASA	0.118	0.125	0.075	1.560	0.059
daily tracker -> company3*posatt	0.314	0.308	0.103	3.048	0.001
good financial lit -> ASA	0.077	0.092	0.059	1.309	0.095
good financial lit -> affect	0.280	0.280	0.088	3.176	0.001
good financial lit -> age	0.046	0.075	0.052	0.884	0.188
good financial lit -> company1 dummy	0.075	0.090	0.060	1.245	0.107
good financial lit -> company1*ASA	0.179	0.177	0.069	2.609	0.005
good financial lit -> company1*posatt	0.182	0.187	0.083	2.192	0.014
good financial lit -> company2 dummy	0.208	0.207	0.032	6.513	0.000
good financial lit -> company2*ASA	0.017	0.040	0.032	0.511	0.305
good financial lit -> company2*posatt	0.084	0.100	0.059	1.423	0.077
good financial lit -> company3 dummy	0.162	0.163	0.092	1.755	0.040
good financial lit -> company3*ASA	0.037	0.080	0.058	0.646	0.259
good financial lit -> company3*posatt	0.056	0.120	0.068	0.829	0.203
good financial lit -> daily tracker	0.259	0.260	0.112	2.302	0.011
groupASA -> ASA	0.579	0.578	0.059	9.759	0.000
groupASA -> affect	0.357	0.354	0.073	4.879	0.000
groupASA -> age	0.177	0.173	0.084	2.119	0.017
groupASA -> company1 dummy	0.069	0.088	0.063	1.104	0.135
groupASA -> company1*ASA	0.099	0.112	0.071	1.386	0.083
groupASA -> company1*posatt	0.056	0.106	0.064	0.874	0.191
groupASA -> company2 dummy	0.101	0.112	0.072	1.414	0.079
groupASA -> company2*ASA	0.171	0.166	0.079	2.180	0.015
groupASA -> company2*posatt	0.038	0.101	0.061	0.619	0.268
groupASA -> company3 dummy	0.065	0.090	0.066	0.985	0.162

Table 34 (cont'd)

groupASA -> company3*ASA	0.070	0.101	0.076	0.928	0.177
groupASA -> company3*posatt	0.096	0.124	0.056	1.725	0.042
groupASA -> daily tracker	0.146	0.145	0.071	2.050	0.020
groupASA -> good financial lit	0.190	0.194	0.072	2.629	0.004
high risk taker -> ASA	0.164	0.169	0.083	1.987	0.024
high risk taker -> affect	0.086	0.111	0.070	1.226	0.110
high risk taker -> age	0.131	0.132	0.072	1.830	0.034
high risk taker -> company1 dummy	0.077	0.095	0.067	1.147	0.126
high risk taker -> company1*ASA	0.088	0.102	0.070	1.243	0.107
high risk taker -> company1*posatt	0.089	0.125	0.061	1.463	0.072
high risk taker -> company2 dummy	0.010	0.070	0.052	0.188	0.425
high risk taker -> company2*ASA	0.086	0.100	0.070	1.217	0.112
high risk taker -> company2*posatt	0.173	0.185	0.098	1.764	0.039
high risk taker -> company3 dummy	0.059	0.081	0.059	1.006	0.157
high risk taker -> company3*ASA	0.042	0.070	0.052	0.811	0.209
high risk taker -> company3*posatt	0.060	0.094	0.053	1.148	0.125
high risk taker -> daily tracker	0.115	0.123	0.071	1.624	0.052
high risk taker -> good financial lit	0.102	0.110	0.066	1.545	0.061
high risk taker -> groupASA	0.082	0.098	0.067	1.232	0.109
male investor -> ASA	0.078	0.091	0.061	1.285	0.100
male investor -> affect	0.136	0.150	0.079	1.711	0.044
male investor -> age	0.055	0.082	0.057	0.980	0.164
male investor -> company1 dummy	0.154	0.159	0.085	1.806	0.036
male investor -> company1*ASA	0.139	0.138	0.075	1.856	0.032
male investor -> company1*posatt	0.065	0.110	0.064	1.016	0.155
male investor -> company2 dummy	0.048	0.076	0.056	0.857	0.196

Table 34 (cont'd)

male investor -> company2*ASA	0.083	0.097	0.070	1.192	0.117
male investor -> company2*posatt	0.158	0.168	0.083	1.890	0.029
male investor -> company3 dummy	0.177	0.179	0.071	2.501	0.006
male investor -> company3*ASA	0.020	0.057	0.043	0.461	0.322
male investor -> company3*posatt	0.141	0.144	0.069	2.044	0.021
male investor -> daily tracker	0.097	0.111	0.076	1.278	0.101
male investor -> good financial lit	0.101	0.117	0.079	1.286	0.099
male investor -> groupASA	0.048	0.075	0.054	0.885	0.188
male investor -> high risk taker	0.179	0.178	0.077	2.305	0.011
married -> ASA	0.240	0.239	0.086	2.804	0.003
married -> affect	0.066	0.095	0.062	1.061	0.144
married -> age	0.340	0.340	0.064	5.275	0.000
married -> company1 dummy	0.052	0.081	0.059	0.883	0.189
married -> company1*ASA	0.106	0.111	0.068	1.560	0.060
married -> company1*posatt	0.071	0.106	0.052	1.371	0.085
married -> company2 dummy	0.155	0.159	0.086	1.795	0.036
married -> company2*ASA	0.192	0.185	0.075	2.550	0.005
married -> company2*posatt	0.107	0.133	0.072	1.472	0.071
married -> company3 dummy	0.153	0.158	0.075	2.033	0.021
married -> company3*ASA	0.030	0.062	0.047	0.633	0.263
married -> company3*posatt	0.039	0.087	0.048	0.808	0.209
married -> daily tracker	0.093	0.111	0.077	1.210	0.113
married -> good financial lit	0.020	0.072	0.051	0.394	0.347
married -> groupASA	0.210	0.207	0.084	2.499	0.006
married -> high risk taker	0.074	0.092	0.064	1.153	0.124
married -> male investor	0.127	0.139	0.083	1.543	0.061

Table 34 (cont'd)

peopleASA -> ASA	0.535	0.533	0.062	8.606	0.000
peopleASA -> affect	0.191	0.191	0.085	2.237	0.013
peopleASA -> age	0.144	0.143	0.077	1.863	0.031
peopleASA -> company1 dummy	0.131	0.135	0.076	1.718	0.043
peopleASA -> company1*ASA	0.064	0.085	0.063	1.020	0.154
peopleASA -> company1*posatt	0.107	0.132	0.075	1.432	0.076
peopleASA -> company2 dummy	0.044	0.079	0.060	0.734	0.231
peopleASA -> company2*ASA	0.068	0.094	0.065	1.043	0.148
peopleASA -> company2*posatt	0.084	0.122	0.079	1.074	0.141
peopleASA -> company3 dummy	0.061	0.087	0.064	0.946	0.172
peopleASA -> company3*ASA	0.009	0.082	0.061	0.151	0.440
peopleASA -> company3*posatt	0.109	0.133	0.071	1.545	0.061
peopleASA -> daily tracker	0.028	0.067	0.049	0.571	0.284
peopleASA -> good financial lit	0.011	0.081	0.060	0.185	0.427
peopleASA -> groupASA	0.621	0.618	0.054	11.491	0.000
peopleASA -> high risk taker	0.284	0.283	0.079	3.616	0.000
peopleASA -> male investor	0.139	0.141	0.075	1.862	0.031
peopleASA -> married	0.226	0.223	0.082	2.760	0.003
posatt -> ASA	0.736	0.736	0.049	15.013	0.000
posatt -> affect	0.409	0.406	0.093	4.418	0.000
posatt -> age	0.066	0.109	0.059	1.119	0.132
posatt -> company1 dummy	0.165	0.170	0.086	1.916	0.028
posatt -> company1*ASA	0.042	0.097	0.062	0.666	0.253
posatt -> company1*posatt	0.078	0.151	0.083	0.938	0.174
posatt -> company2 dummy	0.051	0.093	0.059	0.860	0.195
posatt -> company2*ASA	0.036	0.097	0.060	0.606	0.272

Table 34 (cont'd)

posatt -> company2*posatt	0.143	0.182	0.115	1.239	0.108
posatt -> company3 dummy	0.094	0.136	0.060	1.562	0.059
posatt -> company3*ASA	0.064	0.113	0.061	1.052	0.147
posatt -> company3*posatt	0.024	0.126	0.073	0.328	0.371
posatt -> daily tracker	0.093	0.125	0.077	1.205	0.114
posatt -> good financial lit	0.106	0.142	0.079	1.337	0.091
posatt -> groupASA	0.542	0.541	0.080	6.812	0.000
posatt -> high risk taker	0.310	0.311	0.087	3.571	0.000
posatt -> male investor	0.065	0.104	0.060	1.078	0.141
posatt -> married	0.173	0.176	0.089	1.939	0.026
posatt -> peopleASA	0.461	0.458	0.087	5.294	0.000
small investor -> ASA	0.112	0.125	0.077	1.450	0.074
small investor -> affect	0.123	0.137	0.085	1.440	0.075
small investor -> age	0.010	0.072	0.054	0.177	0.430
small investor -> company1 dummy	0.142	0.146	0.072	1.983	0.024
small investor -> company1*ASA	0.089	0.098	0.062	1.434	0.076
small investor -> company1*posatt	0.170	0.177	0.085	1.987	0.024
small investor -> company2 dummy	0.197	0.197	0.088	2.231	0.013
small investor -> company2*ASA	0.057	0.088	0.065	0.875	0.191
small investor -> company2*posatt	0.065	0.110	0.057	1.141	0.127
small investor -> company3 dummy	0.148	0.151	0.083	1.783	0.037
small investor -> company3*ASA	0.147	0.152	0.086	1.712	0.044
small investor -> company3*posatt	0.291	0.288	0.076	3.832	0.000
small investor -> daily tracker	0.223	0.219	0.075	2.981	0.001
small investor -> good financial lit	0.025	0.084	0.063	0.403	0.344
small investor -> groupASA	0.127	0.138	0.082	1.538	0.062

Table 34 (cont'd)

small investor -> high risk taker	0.099	0.109	0.071	1.398	0.081
small investor -> male investor	0.131	0.134	0.070	1.885	0.030
small investor -> married	0.042	0.077	0.058	0.732	0.232
small investor -> peopleASA	0.098	0.119	0.079	1.247	0.106
small investor -> posatt	0.219	0.227	0.092	2.377	0.009
univ education -> ASA	0.081	0.081	0.045	1.806	0.036
univ education -> affect	0.196	0.196	0.088	2.219	0.013
univ education -> age	0.151	0.156	0.101	1.489	0.068
univ education -> company1 dummy	0.007	0.069	0.051	0.141	0.444
univ education -> company1*ASA	0.050	0.053	0.035	1.430	0.076
univ education -> company1*posatt	0.075	0.116	0.065	1.150	0.125
univ education -> company2 dummy	0.082	0.089	0.049	1.663	0.048
univ education -> company2*ASA	0.019	0.038	0.030	0.628	0.265
univ education -> company2*posatt	0.031	0.081	0.049	0.620	0.268
univ education -> company3 dummy	0.053	0.085	0.066	0.809	0.209
univ education -> company3*ASA	0.023	0.047	0.035	0.663	0.254
univ education -> company3*posatt	0.069	0.114	0.061	1.139	0.127
univ education -> daily tracker	0.044	0.071	0.046	0.966	0.167
univ education -> good financial lit	0.176	0.177	0.112	1.576	0.058
univ education -> groupASA	0.021	0.074	0.053	0.401	0.344
univ education -> high risk taker	0.034	0.078	0.057	0.594	0.276
univ education -> male investor	0.021	0.070	0.050	0.412	0.340
univ education -> married	0.060	0.090	0.066	0.911	0.181
univ education -> peopleASA	0.001	0.074	0.055	0.013	0.495
univ education -> posatt	0.102	0.140	0.063	1.624	0.052
univ education -> small investor	0.069	0.092	0.070	0.992	0.161

Table 39: Confidence Intervals – Bias Corrected

	Original Sample (O)	Sample Mean (M)	Bias	5.0%	95.0%
affect -> ASA	0.361	0.356	-0.005	0.237	0.479
age -> ASA	0.164	0.163	-0.001	0.044	0.262
age -> affect	0.133	0.145	0.012	0.026	0.301
company1 dummy -> ASA	0.041	0.079	0.038	0.000	0.107
company1 dummy -> affect	0.357	0.358	0.000	0.222	0.488
company1 dummy -> age	0.122	0.133	0.011	0.014	0.273
company1*ASA -> ASA	0.013	0.101	0.088	0.000	0.020
company1*ASA -> affect	0.141	0.152	0.011	0.025	0.294
company1*ASA -> age	0.023	0.061	0.039	0.000	0.060
company1*ASA -> company1 dummy	0.026	0.052	0.025	0.000	0.077
company1*posatt -> ASA	0.042	0.100	0.057	0.001	0.079
company1*posatt -> affect	0.078	0.131	0.054	0.015	0.147
company1*posatt -> age	0.022	0.098	0.076	0.002	0.022
company1*posatt -> company1 dummy	0.110	0.116	0.006	0.025	0.254
company1*posatt -> company1*ASA	0.784	0.784	0.000	0.702	0.859
company2 dummy -> ASA	0.067	0.093	0.025	0.004	0.187
company2 dummy -> affect	0.152	0.158	0.005	0.026	0.302
company2 dummy -> age	0.125	0.134	0.008	0.011	0.279
company2 dummy -> company1 dummy	0.409	0.408	-0.001	0.341	0.480
company2 dummy -> company1*ASA	0.072	0.079	0.007	0.007	0.166
company2 dummy -> company1*posatt	0.058	0.083	0.025	0.009	0.125
company2*ASA -> ASA	0.165	0.180	0.016	0.010	0.353
company2*ASA -> affect	0.122	0.127	0.005	0.034	0.242

Table 35 (cont'd)

company2*ASA -> age	0.154	0.150	-0.004	0.044	0.268
company2*ASA -> company1 dummy	0.065	0.070	0.005	0.006	0.140
company2*ASA -> company1*ASA	0.489	0.483	-0.006	0.362	0.602
company2*ASA -> company1*posatt	0.287	0.288	0.000	0.168	0.401
company2*ASA -> company2 dummy	0.074	0.102	0.028	0.005	0.199
company2*posatt -> ASA	0.043	0.116	0.073	0.003	0.064
company2*posatt -> affect	0.051	0.110	0.059	0.016	0.057
company2*posatt -> age	0.135	0.142	0.007	0.038	0.267
company2*posatt -> company1 dummy	0.060	0.086	0.026	0.009	0.131
company2*posatt -> company1*ASA	0.316	0.313	-0.004	0.193	0.439
company2*posatt -> company1*posatt	0.457	0.454	-0.003	0.302	0.603
company2*posatt -> company2 dummy	0.066	0.126	0.060	0.005	0.140
company2*posatt -> company2*ASA	0.672	0.677	0.004	0.509	0.792
company3 dummy -> ASA	0.079	0.094	0.015	0.007	0.193
company3 dummy -> affect	0.111	0.119	0.008	0.022	0.247
company3 dummy -> age	0.085	0.099	0.015	0.006	0.211
company3 dummy -> company1 dummy	0.418	0.418	0.000	0.343	0.492
company3 dummy -> company1*ASA	0.034	0.059	0.024	0.001	0.099
company3 dummy -> company1*posatt	0.167	0.170	0.003	0.070	0.292
company3 dummy -> company2 dummy	0.323	0.323	-0.001	0.268	0.392
company3 dummy -> company2*ASA	0.005	0.045	0.040	0.000	0.008
company3 dummy -> company2*posatt	0.040	0.073	0.034	0.001	0.062
company3*ASA -> ASA	0.120	0.145	0.025	0.009	0.322
company3*ASA -> affect	0.020	0.074	0.053	0.001	0.033
company3*ASA -> age	0.078	0.088	0.010	0.008	0.193
company3*ASA -> company1 dummy	0.037	0.064	0.027	0.001	0.108

Table 35 (cont'd)

company3*ASA -> company1*ASA	0.353	0.354	0.001	0.207	0.500
company3*ASA -> company1*posatt	0.328	0.328	0.000	0.180	0.456
company3*ASA -> company2 dummy	0.006	0.052	0.046	0.000	0.009
company3*ASA -> company2*ASA	0.351	0.345	-0.006	0.227	0.461
company3*ASA -> company2*posatt	0.233	0.232	-0.002	0.121	0.351
company3*ASA -> company3 dummy	0.099	0.123	0.024	0.008	0.282
company3*posatt -> ASA	0.059	0.106	0.047	0.004	0.104
company3*posatt -> affect	0.058	0.101	0.044	0.011	0.091
company3*posatt -> age	0.055	0.098	0.042	0.003	0.110
company3*posatt -> company1 dummy	0.162	0.164	0.002	0.067	0.266
company3*posatt -> company1*ASA	0.312	0.313	0.000	0.182	0.429
company3*posatt -> company1*posatt	0.576	0.577	0.001	0.431	0.707
company3*posatt -> company2 dummy	0.037	0.068	0.031	0.001	0.060
company3*posatt -> company2*ASA	0.184	0.184	0.000	0.078	0.282
company3*posatt -> company2*posatt	0.374	0.374	0.000	0.242	0.500
company3*posatt -> company3 dummy	0.109	0.158	0.049	0.018	0.179
company3*posatt -> company3*ASA	0.757	0.755	-0.001	0.608	0.860
daily tracker -> ASA	0.009	0.059	0.049	0.000	0.016
daily tracker -> affect	0.151	0.155	0.005	0.024	0.304
daily tracker -> age	0.003	0.066	0.063	0.000	0.001
daily tracker -> company1 dummy	0.165	0.164	-0.001	0.047	0.274
daily tracker -> company1*ASA	0.019	0.055	0.036	0.000	0.052
daily tracker -> company1*posatt	0.092	0.108	0.016	0.029	0.150
daily tracker -> company2 dummy	0.071	0.089	0.017	0.003	0.172
daily tracker -> company2*ASA	0.080	0.079	-0.001	0.013	0.165
daily tracker -> company2*posatt	0.109	0.120	0.011	0.027	0.249

Table 35 (cont'd)

daily tracker -> company3 dummy	0.106	0.115	0.010	0.011	0.260
daily tracker -> company3*ASA	0.118	0.125	0.007	0.013	0.256
daily tracker -> company3*posatt	0.314	0.308	-0.005	0.142	0.475
good financial lit -> ASA	0.077	0.092	0.016	0.004	0.175
good financial lit -> affect	0.280	0.280	0.000	0.109	0.415
good financial lit -> age	0.046	0.075	0.028	0.001	0.125
good financial lit -> company1 dummy	0.075	0.090	0.015	0.005	0.179
good financial lit -> company1*ASA	0.179	0.177	-0.002	0.070	0.297
good financial lit -> company1*posatt	0.182	0.187	0.005	0.064	0.336
good financial lit -> company2 dummy	0.208	0.207	-0.001	0.159	0.264
good financial lit -> company2*ASA	0.017	0.040	0.024	0.000	0.046
good financial lit -> company2*posatt	0.084	0.100	0.016	0.017	0.191
good financial lit -> company3 dummy	0.162	0.163	0.001	0.028	0.332
good financial lit -> company3*ASA	0.037	0.080	0.043	0.001	0.104
good financial lit -> company3*posatt	0.056	0.120	0.064	0.002	0.082
good financial lit -> daily tracker	0.259	0.260	0.001	0.068	0.443
groupASA -> ASA	0.579	0.578	-0.001	0.477	0.672
groupASA -> affect	0.357	0.354	-0.003	0.231	0.472
groupASA -> age	0.177	0.173	-0.004	0.038	0.317
groupASA -> company1 dummy	0.069	0.088	0.018	0.004	0.184
groupASA -> company1*ASA	0.099	0.112	0.013	0.008	0.226
groupASA -> company1*posatt	0.056	0.106	0.050	0.003	0.111
groupASA -> company2 dummy	0.101	0.112	0.011	0.008	0.232
groupASA -> company2*ASA	0.171	0.166	-0.006	0.033	0.297
groupASA -> company2*posatt	0.038	0.101	0.063	0.003	0.059
groupASA -> company3 dummy	0.065	0.090	0.025	0.003	0.185

Table 35 (cont'd)

groupASA -> company3*ASA	0.070	0.101	0.030	0.004	0.205
groupASA -> company3*posatt	0.096	0.124	0.028	0.015	0.168
groupASA -> daily tracker	0.146	0.145	-0.001	0.029	0.263
groupASA -> good financial lit	0.190	0.194	0.004	0.054	0.295
high risk taker -> ASA	0.164	0.169	0.005	0.024	0.293
high risk taker -> affect	0.086	0.111	0.025	0.019	0.230
high risk taker -> age	0.131	0.132	0.000	0.021	0.260
high risk taker -> company1 dummy	0.077	0.095	0.018	0.005	0.204
high risk taker -> company1*ASA	0.088	0.102	0.015	0.007	0.221
high risk taker -> company1*posatt	0.089	0.125	0.036	0.010	0.158
high risk taker -> company2 dummy	0.010	0.070	0.060	0.000	0.018
high risk taker -> company2*ASA	0.086	0.100	0.014	0.007	0.222
high risk taker -> company2*posatt	0.173	0.185	0.012	0.047	0.363
high risk taker -> company3 dummy	0.059	0.081	0.022	0.003	0.163
high risk taker -> company3*ASA	0.042	0.070	0.028	0.001	0.120
high risk taker -> company3*posatt	0.060	0.094	0.033	0.003	0.120
high risk taker -> daily tracker	0.115	0.123	0.007	0.014	0.236
high risk taker -> good financial lit	0.102	0.110	0.009	0.012	0.222
high risk taker -> groupASA	0.082	0.098	0.016	0.005	0.203
male investor -> ASA	0.078	0.091	0.013	0.005	0.186
male investor -> affect	0.136	0.150	0.015	0.042	0.292
male investor -> age	0.055	0.082	0.026	0.002	0.147
male investor -> company1 dummy	0.154	0.159	0.005	0.021	0.299
male investor -> company1*ASA	0.139	0.138	-0.001	0.022	0.269
male investor -> company1*posatt	0.065	0.110	0.044	0.007	0.129
male investor -> company2 dummy	0.048	0.076	0.028	0.001	0.139

Table 35 (cont'd)

male investor -> company2*ASA	0.083	0.097	0.014	0.007	0.221
male investor -> company2*posatt	0.158	0.168	0.010	0.039	0.311
male investor -> company3 dummy	0.177	0.179	0.002	0.051	0.287
male investor -> company3*ASA	0.020	0.057	0.037	0.000	0.053
male investor -> company3*posatt	0.141	0.144	0.003	0.042	0.266
male investor -> daily tracker	0.097	0.111	0.014	0.010	0.245
male investor -> good financial lit	0.101	0.117	0.016	0.009	0.253
male investor -> groupASA	0.048	0.075	0.026	0.001	0.133
male investor -> high risk taker	0.179	0.178	0.000	0.040	0.298
married -> ASA	0.240	0.239	-0.001	0.099	0.382
married -> affect	0.066	0.095	0.029	0.011	0.170
married -> age	0.340	0.340	0.000	0.232	0.448
married -> company1 dummy	0.052	0.081	0.028	0.002	0.145
married -> company1*ASA	0.106	0.111	0.005	0.012	0.232
married -> company1*posatt	0.071	0.106	0.036	0.004	0.118
married -> company2 dummy	0.155	0.159	0.004	0.024	0.306
married -> company2*ASA	0.192	0.185	-0.006	0.058	0.309
married -> company2*posatt	0.107	0.133	0.027	0.020	0.224
married -> company3 dummy	0.153	0.158	0.005	0.018	0.274
married -> company3*ASA	0.030	0.062	0.032	0.000	0.081
married -> company3*posatt	0.039	0.087	0.048	0.003	0.054
married -> daily tracker	0.093	0.111	0.018	0.009	0.241
married -> good financial lit	0.020	0.072	0.052	0.000	0.048
married -> groupASA	0.210	0.207	-0.003	0.072	0.347
married -> high risk taker	0.074	0.092	0.018	0.004	0.187
married -> male investor	0.127	0.139	0.011	0.013	0.276

Table 35 (cont'd)

peopleASA -> ASA	0.535	0.533	-0.003	0.425	0.632
peopleASA -> affect	0.191	0.191	0.001	0.058	0.338
peopleASA -> age	0.144	0.143	-0.001	0.026	0.282
peopleASA -> company1 dummy	0.131	0.135	0.003	0.018	0.268
peopleASA -> company1*ASA	0.064	0.085	0.021	0.004	0.175
peopleASA -> company1*posatt	0.107	0.132	0.025	0.023	0.238
peopleASA -> company2 dummy	0.044	0.079	0.035	0.001	0.131
peopleASA -> company2*ASA	0.068	0.094	0.026	0.003	0.171
peopleASA -> company2*posatt	0.084	0.122	0.038	0.010	0.202
peopleASA -> company3 dummy	0.061	0.087	0.026	0.003	0.170
peopleASA -> company3*ASA	0.009	0.082	0.073	0.000	0.012
peopleASA -> company3*posatt	0.109	0.133	0.024	0.020	0.227
peopleASA -> daily tracker	0.028	0.067	0.039	0.000	0.073
peopleASA -> good financial lit	0.011	0.081	0.070	0.000	0.023
peopleASA -> groupASA	0.621	0.618	-0.003	0.527	0.703
peopleASA -> high risk taker	0.284	0.283	-0.001	0.152	0.410
peopleASA -> male investor	0.139	0.141	0.002	0.019	0.265
peopleASA -> married	0.226	0.223	-0.003	0.093	0.364
posatt -> ASA	0.736	0.736	0.000	0.652	0.812
posatt -> affect	0.409	0.406	-0.003	0.249	0.554
posatt -> age	0.066	0.109	0.043	0.005	0.120
posatt -> company1 dummy	0.165	0.170	0.005	0.043	0.320
posatt -> company1*ASA	0.042	0.097	0.055	0.001	0.078
posatt -> company1*posatt	0.078	0.151	0.073	0.014	0.117
posatt -> company2 dummy	0.051	0.093	0.042	0.004	0.098
posatt -> company2*ASA	0.036	0.097	0.061	0.002	0.052

Table 35 (cont'd)

posatt -> company2*posatt	0.143	0.182	0.039	0.034	0.350
posatt -> company3 dummy	0.094	0.136	0.042	0.011	0.150
posatt -> company3*ASA	0.064	0.113	0.049	0.005	0.109
posatt -> company3*posatt	0.024	0.126	0.102	0.007	0.012
posatt -> daily tracker	0.093	0.125	0.031	0.016	0.232
posatt -> good financial lit	0.106	0.142	0.036	0.016	0.226
posatt -> groupASA	0.542	0.541	-0.001	0.402	0.669
posatt -> high risk taker	0.310	0.311	0.001	0.160	0.442
posatt -> male investor	0.065	0.104	0.039	0.007	0.132
posatt -> married	0.173	0.176	0.004	0.043	0.332
posatt -> peopleASA	0.461	0.458	-0.003	0.313	0.598
small investor -> ASA	0.112	0.125	0.014	0.007	0.239
small investor -> affect	0.123	0.137	0.014	0.020	0.283
small investor -> age	0.010	0.072	0.062	0.000	0.014
small investor -> company1 dummy	0.142	0.146	0.004	0.025	0.261
small investor -> company1*ASA	0.089	0.098	0.009	0.009	0.202
small investor -> company1*posatt	0.170	0.177	0.008	0.037	0.313
small investor -> company2 dummy	0.197	0.197	0.000	0.059	0.351
small investor -> company2*ASA	0.057	0.088	0.031	0.002	0.158
small investor -> company2*posatt	0.065	0.110	0.045	0.003	0.108
small investor -> company3 dummy	0.148	0.151	0.003	0.022	0.291
small investor -> company3*ASA	0.147	0.152	0.005	0.016	0.285
small investor -> company3*posatt	0.291	0.288	-0.003	0.162	0.419
small investor -> daily tracker	0.223	0.219	-0.004	0.089	0.332
small investor -> good financial lit	0.025	0.084	0.059		0.064
small investor -> groupASA	0.127	0.138	0.012	0.013	0.272

Table 35 (cont'd)

small investor -> high risk taker	0.099	0.109	0.009	0.009	0.235
small investor -> male investor	0.131	0.134	0.002	0.017	0.249
small investor -> married	0.042	0.077	0.035	0.001	0.123
small investor -> peopleASA	0.098	0.119	0.021	0.006	0.240
small investor -> posatt	0.219	0.227	0.008	0.061	0.362
univ education -> ASA	0.081	0.081	0.000	0.013	0.164
univ education -> affect	0.196	0.196	0.000	0.039	0.337
univ education -> age	0.151	0.156	0.005	0.018	0.352
univ education -> company1 dummy	0.007	0.069	0.062		0.008
univ education -> company1*ASA	0.050	0.053	0.003	0.006	0.118
univ education -> company1*posatt	0.075	0.116	0.041	0.007	0.146
univ education -> company2 dummy	0.082	0.089	0.008	0.006	0.159
univ education -> company2*ASA	0.019	0.038	0.019	0.000	0.056
univ education -> company2*posatt	0.031	0.081	0.050	0.004	0.043
univ education -> company3 dummy	0.053	0.085	0.032	0.001	0.159
univ education -> company3*ASA	0.023	0.047	0.024	0.000	0.062
univ education -> company3*posatt	0.069	0.114	0.045	0.006	0.127
univ education -> daily tracker	0.044	0.071	0.027	0.001	0.112
univ education -> good financial lit	0.176	0.177	0.000	0.023	0.392
univ education -> groupASA	0.021	0.074	0.053	0.000	0.052
univ education -> high risk taker	0.034	0.078	0.044	0.000	0.091
univ education -> male investor	0.021	0.070	0.049	0.000	0.054
univ education -> married	0.060	0.090	0.029	0.003	0.169
univ education -> peopleASA	0.001	0.074	0.073		
univ education -> posatt	0.102	0.140	0.038	0.011	0.167
univ education -> small investor	0.069	0.092	0.023	0.003	0.199

C: THE PATH MODEL

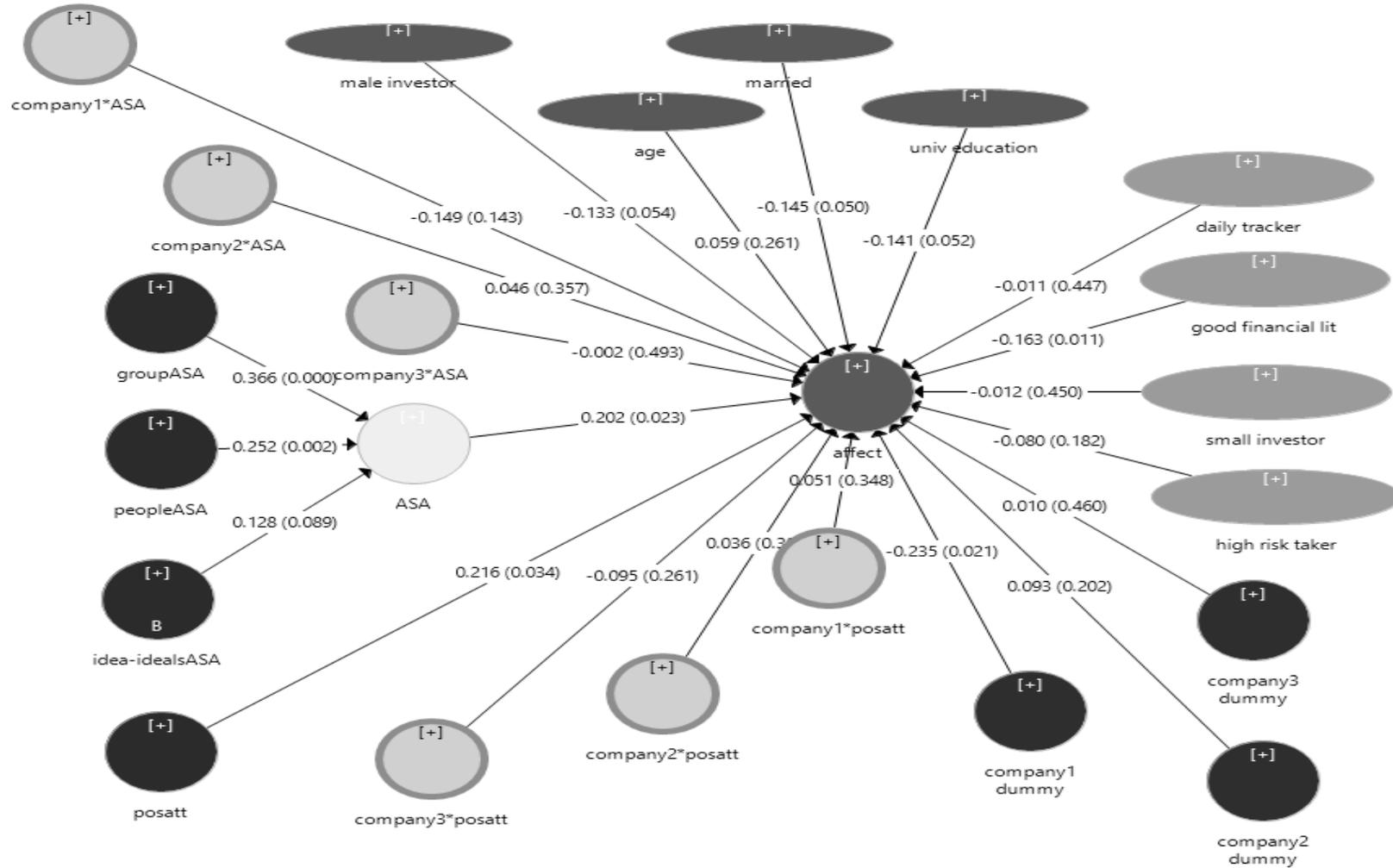


Figure 11: Structural Model - All Paths are Reported Along With the Corresponding P-values

D: TABLES EXPLAINING THE ARAB SPRING AR'S AND EVENTS

Table 40: The Breakdown of the Significant Abnormal Returns by Sign

date	country	event source	AR sign
1/30/2011	Bahrain	multiple	negative AR
3/14/2011	Bahrain	Bahrain	negative AR
3/20/2011	Bahrain	Bahrain	negative AR
9/25/2011	Bahrain	multiple	negative AR
9/27/2011	Bahrain	Saudi Arabia	negative AR
9/29/2011	Bahrain	Bahrain	negative AR
11/21/2011	Bahrain	Syria	negative AR
12/20/2011	Bahrain	Egypt	negative AR
1/25/2011	Bahrain	multiple	positive AR
3/6/2011	Bahrain	Saudi Arabia	positive AR
3/15/2011	Bahrain	Bahrain	positive AR
11/20/2011	Bahrain	multiple	positive AR
1/17/2011	Egypt	Egypt	negative AR
1/18/2011	Egypt	Egypt	negative AR
1/26/2011	Egypt	Egypt	negative AR
1/27/2011	Egypt	Egypt	negative AR
3/24/2011	Egypt	Syria	negative AR
4/11/2011	Egypt	Bahrain	negative AR
4/17/2011	Egypt	Bahrain	negative AR
5/23/2011	Egypt	Syria	negative AR
6/29/2011	Egypt	multiple	negative AR
7/11/2011	Egypt	Syria	negative AR
8/8/2011	Egypt	multiple	negative AR
8/9/2011	Egypt	Syria	negative AR
8/21/2011	Egypt	multiple	negative AR
9/12/2011	Egypt	Syria	negative AR
9/25/2011	Egypt	multiple	negative AR
9/27/2011	Egypt	Saudi Arabia	negative AR
10/4/2011	Egypt	Syria	negative AR
10/5/2011	Egypt	multiple	negative AR
11/13/2011	Egypt	Syria	negative AR
11/14/2011	Egypt	multiple	negative AR
11/20/2011	Egypt	Egypt	negative AR
11/21/2011	Egypt	Syria	negative AR
12/12/2011	Egypt	multiple	negative AR

Table 36 (cont'd)

12/18/2011	Egypt	Egypt	negative AR
5/27/2012	Egypt	Syria	negative AR
6/3/2012	Egypt	Egypt	negative AR
6/18/2012	Egypt	Egypt	negative AR
7/15/2012	Egypt	Syria	negative AR
2/6/2013	Egypt	Tunisia	negative AR
2/19/2013	Egypt	Tunisia	negative AR
8/14/2013	Egypt	Egypt	negative AR
8/18/2013	Egypt	Egypt	negative AR
3/27/2011	Egypt	multiple	positive AR
3/29/2011	Egypt	Syria	positive AR
3/30/2011	Egypt	Syria	positive AR
5/9/2011	Egypt	Syria	positive AR
5/15/2011	Egypt	Libya	positive AR
5/16/2011	Egypt	Saudi Arabia	positive AR
5/22/2011	Egypt	morocco	positive AR
6/5/2011	Egypt	multiple	positive AR
10/9/2011	Egypt	Egypt	positive AR
10/11/2011	Egypt	Syria	positive AR
10/16/2011	Egypt	Syria	positive AR
10/19/2011	Egypt	Syria	positive AR
10/30/2011	Egypt	multiple	positive AR
11/23/2011	Egypt	multiple	positive AR
11/29/2011	Egypt	Egypt	positive AR
1/10/2012	Egypt	Syria	positive AR
5/23/2012	Egypt	Egypt	positive AR
6/24/2012	Egypt	Egypt	positive AR
9/11/2012	Egypt	Libya	positive AR
10/10/2012	Egypt	Jordan	positive AR
6/30/2013	Egypt	Egypt	positive AR
9/23/2013	Egypt	Egypt	positive AR
12/15/2013	Egypt	Tunisia	positive AR
12/25/2013	Egypt	Egypt	positive AR
1/30/2011	Jordan	Jordan	negative AR
2/14/2011	Jordan	Bahrain	negative AR
2/16/2011	Jordan	multiple	negative AR
2/20/2011	Jordan	multiple	negative AR
3/15/2011	Jordan	multiple	negative AR
3/27/2011	Jordan	Jordan	negative AR
8/9/2011	Jordan	Syria	negative AR
3/6/2011	Jordan	Saudi Arabia	positive AR
11/14/2011	Jordan	Jordan	positive AR
11/23/2011	Jordan	multiple	positive AR
1/30/2011	Kuwait	multiple	negative AR
2/1/2011	Kuwait	Egypt	negative AR

Table 36 (cont'd)

2/14/2011	Kuwait	Bahrain	negative AR
2/20/2011	Kuwait	multiple	negative AR
3/1/2011	Kuwait	multiple	negative AR
3/15/2011	Kuwait	multiple	negative AR
3/16/2011	Kuwait	Bahrain	negative AR
3/20/2011	Kuwait	multiple	negative AR
5/15/2011	Kuwait	Libya	negative AR
7/3/2011	Kuwait	multiple	negative AR
8/9/2011	Kuwait	Syria	negative AR
8/21/2011	Kuwait	multiple	negative AR
9/25/2011	Kuwait	multiple	negative AR
11/20/2011	Kuwait	multiple	negative AR
7/19/2012	Kuwait	Tunisia	negative AR
6/30/2013	Kuwait	Egypt	negative AR
3/13/2011	Kuwait	Saudi Arabia	positive AR
9/7/2011	Kuwait	Bahrain	positive AR
1/27/2011	Lebanon	multiple	negative AR
1/31/2011	Lebanon	Sudan	negative AR
2/3/2011	Lebanon	Yemen	negative AR
2/21/2011	Lebanon	multiple	negative AR
10/7/2011	Lebanon	multiple	negative AR
12/12/2011	Lebanon	multiple	negative AR
5/23/2012	Lebanon	Egypt	negative AR
1/26/2011	Lebanon	Egypt	positive AR
12/5/2011	Lebanon	Bahrain	positive AR
1/17/2011	Morocco	Egypt	negative AR
1/28/2011	Morocco	multiple	negative AR
1/31/2011	Morocco	Sudan	negative AR
2/3/2011	Morocco	Yemen	negative AR
2/10/2011	Morocco	Egypt	negative AR
2/18/2011	Morocco	Bahrain	negative AR
2/21/2011	Morocco	morocco	negative AR
3/25/2011	Morocco	multiple	negative AR
4/28/2011	Morocco	Bahrain	negative AR
8/9/2011	Morocco	Syria	negative AR
2/2/2011	Morocco	Egypt	positive AR
2/25/2011	Morocco	multiple	positive AR
4/7/2011	Morocco	Jordan	positive AR
5/23/2012	Morocco	Egypt	positive AR
7/16/2012	Morocco	Syria	positive AR
10/25/2013	Morocco	Tunisia	positive AR
1/30/2011	Saudi Arabia	multiple	negative AR
2/20/2011	Saudi Arabia	multiple	negative AR
2/27/2011	Saudi Arabia	multiple	negative AR
3/14/2011	Saudi Arabia	Bahrain	negative AR

Table 36 (cont'd)

3/15/2011	Saudi Arabia	multiple	negative AR
4/17/2011	Saudi Arabia	Bahrain	negative AR
6/5/2011	Saudi Arabia	multiple	negative AR
8/21/2011	Saudi Arabia	multiple	negative AR
9/12/2011	Saudi Arabia	Syria	negative AR
6/3/2012	Saudi Arabia	Egypt	negative AR
6/24/2012	Saudi Arabia	multiple	negative AR
11/25/2012	Saudi Arabia	Egypt	negative AR
12/19/2010	Saudi Arabia	Tunisia	positive AR
2/2/2011	Saudi Arabia	Egypt	positive AR
2/6/2011	Saudi Arabia	Yemen	positive AR
3/6/2011	Saudi Arabia	Saudi Arabia	positive AR
3/13/2011	Saudi Arabia	Saudi Arabia	positive AR
3/20/2011	Saudi Arabia	Saudi Arabia	positive AR
3/27/2011	Saudi Arabia	multiple	positive AR
7/3/2011	Saudi Arabia	multiple	positive AR
9/4/2011	Saudi Arabia	multiple	positive AR
10/9/2011	Saudi Arabia	multiple	positive AR
10/30/2011	Saudi Arabia	Saudi Arabia	positive AR
11/28/2011	Saudi Arabia	multiple	positive AR
1/31/2011	Syria	multiple	negative AR
2/21/2011	Syria	multiple	negative AR
2/28/2011	Syria	multiple	negative AR
3/7/2011	Syria	Saudi Arabia	negative AR
3/22/2011	Syria	multiple	negative AR
3/24/2011	Syria	Syria	negative AR
3/28/2011	Syria	Syria	negative AR
4/11/2011	Syria	Bahrain	negative AR
4/18/2011	Syria	Bahrain	negative AR
4/25/2011	Syria	Bahrain	negative AR
4/28/2011	Syria	Bahrain	negative AR
5/16/2011	Syria	multiple	negative AR
5/18/2011	Syria	Syria	negative AR
5/23/2011	Syria	Syria	negative AR
6/6/2011	Syria	Syria	negative AR
6/13/2011	Syria	Jordan	negative AR
8/8/2011	Syria	Syria	negative AR
8/9/2011	Syria	Syria	negative AR
9/7/2011	Syria	Bahrain	negative AR
9/12/2011	Syria	Syria	negative AR
10/3/2011	Syria	multiple	negative AR
10/4/2011	Syria	Syria	negative AR
10/10/2011	Syria	Syria	negative AR
10/11/2011	Syria	Syria	negative AR
10/31/2011	Syria	Syria	negative AR

Table 36 (cont'd)

11/21/2011	Syria	Syria	negative AR
3/14/2011	Syria	multiple	positive AR
3/15/2011	Syria	Syria	positive AR
3/16/2011	Syria	Bahrain	positive AR
3/30/2011	Syria	Syria	positive AR
5/9/2011	Syria	Syria	positive AR
5/11/2011	Syria	Bahrain	positive AR
7/4/2011	Syria	Syria	positive AR
9/21/2011	Syria	Syria	positive AR
9/26/2011	Syria	multiple	positive AR
9/27/2011	Syria	Saudi Arabia	positive AR
12/19/2011	Syria	Egypt	positive AR
1/2/2012	Syria	Saudi Arabia	positive AR
9/23/2013	Syria	Egypt	positive AR
9/30/2013	Syria	Tunisia	positive AR
12/28/2010	Tunisia	Tunisia	negative AR
1/13/2011	Tunisia	Algeria	negative AR
2/1/2011	Tunisia	Egypt	negative AR
2/11/2011	Tunisia	Egypt	negative AR
2/16/2011	Tunisia	multiple	negative AR
2/17/2011	Tunisia	Bahrain	negative AR
2/21/2011	Tunisia	multiple	negative AR
2/25/2011	Tunisia	multiple	negative AR
3/29/2011	Tunisia	Syria	negative AR
8/9/2011	Tunisia	Syria	negative AR
10/24/2011	Tunisia	Tunisia	negative AR
2/6/2013	Tunisia	Tunisia	negative AR
7/26/2013	Tunisia	Tunisia	negative AR
2/3/2011	Tunisia	Yemen	positive AR
3/7/2011	Tunisia	Tunisia	positive AR
3/18/2011	Tunisia	multiple	positive AR

Table 41: Events Sample with Explanations

Separate event dates analyzed	Events realized on that date	Explanation
12/17/2010	Tunisia_event_12/17/2010	Tunisia ignites the spark. Mohammed Bouazizi sets himself on fire.
12/28/2010	Tunisia_event_12/28/2010	Tunisian President, Ben Ali, visits Bouazizi in hospital and appears on TV criticizing the protests.
1/1/2011	Egypt_event_01/01/2011	At least 21 dead and more than 70 injured after bomb explodes outside Coptic church in Alexandria
1/7/2011	Algeria_event_01/07/2011	Police intervention with tear gas in the protests about high prices.
1/13/2011	Algeria_event_01/13/2011	Mohsen Bouterfif burns himself to death after failing to find a job and house (copycat suicide that echoed the young Tunisian Mohamed Bouazizi, whose death sparked off the trouble in mid-December.)
1/14/2011	Tunisia_event_01/14/2011	Ben Ali resigns and flees to Saudi Arabia.
1/17/2011	Egypt_event_01/17/2011	A men sets fire to himself near the Egyptian parliament building in Cairo to protest the economic conditions.
1/18/2011	Egypt_event_01/18/2011	Mohamed ElBaradei warns of 'Tunisia-style explosion' in Egypt
1/25/2011	Egypt_Lebanon_event_01/25/2011	First coordinated mass protests in Cairo. Egyptians demand Mubarak to resign. &Lebanon's day of rage. Supporter of the ousted Lebanese prime minister Saad Hariri stage a 'day of rage' over the likely appointment of the Hezbollah-backed Najib Mikati as his successor
1/26/2011	Egypt_event_01/26/2011	Demonstrations (The Guardian's man in Cairo tells of his beating and arrest at the hands of the security forces)
1/27/2011	Egypt_Yemen_event_01/27/2011	Al Baradei returns to Egypt to join anti-government protests. & Protests erupt in Yemen.
1/28/2011	Egypt_Jordan_event_01/28/2011	The Egyptian dissident Mohamed ElBaradei warned President Hosni Mubarak today that his regime is on its last legs. Mubarak appears on TV refusing to step down. & Unrest spreads to Jordan.
1/30/2011	Sudan_event_01/30/2011	Sudan police crash with protesters.
2/1/2011	Egypt_event_02/01/2011	Over one million protesters gather in central Cairo as demonstrations continue. Mubarak appears on TV saying he will stay in office.
2/2/2011	Egypt_event_02/02/2011	Thugs on horses and camels attack anti-government protesters at Tahrir Square.
2/3/2011	Yemen_event_02/03/2011	Nearly 20000 protesters demand change in Yemen calling the President to step down.

Table 37 (cont'd)

2/10/2011	Egypt_event_02/10/2011	Mubarak appears on TV refusing to step down.
2/11/2011	Egypt_event_02/11/2011	Mubarak resigns (at night)
2/12/2011	Algeria_event_02/12/2011	Algerian police have beaten back around 2,000 demonstrators who tried to rally in central Algiers as aftershocks from the Egyptian revolution rumbled throughout the Middle East.
2/14/2011	Bahrain_event_02/14/2011	Thousands of Bahrainis participate in demonstrations across the country.
2/15/2011	Bahrain_Libya_event_02/15/2011	More than 10,000 people were taking part in the funeral procession for Ali Abdulhadi Mushaima(killed by security forces on Monday) when police opened fire without warning as they chanted slogans calling for a new constitution, a democratically elected government and an end to anti-Shia discrimination in the Sunni-ruled island kingdom. &Protests erupt in Benghazi.
2/17/2011	Bahrain_event_02/17/2011	Nearly 1000 police officers are dispatched to the Pearl Roundabout to clear out protestors.
2/18/2011	Bahrain_event_02/18/2011	At least one person has been killed and dozens injured in Bahrain after soldiers fired teargas and shot into the air as hundreds of protesters marched towards Pearl roundabout
2/20/2011	Morocco_Libya_event_02/20/2011	Moroccans take to the streets to demand a change of government and constitutional reforms. & Rebels take Benghazi.
2/25/2011	Egypt_Jordan_event_02/25/2011	Middle East's "Day of Rage."
2/27/2011	Tunisia_event_02/27/2011	Tunisia's Prime Minister Ghannouchi resigns.
3/6/2011	Saudi Arabia_event_03/06/2011	Public protests are banned.
3/11/2011	Saudi Arabia_event_03/11/2011	Day of Rage.
3/14/2011	Bahrain_event_03/14/2011	Saudi troops enter Bahrain.
3/15/2011	Bahrain_Algeria_Syria_event_03/15/2011	Bahrain declares martial law as protesters clash with troops & Algeria's state-operated radio channel announced that court clerks, who had been on strike for the previous month, had been awarded a 110% pay rise. In a bid to ward off the threat of further unrest, the government is creaming off oil revenue to satisfy demands from teachers, magistrates and police. & Protesters demonstrate in Damascus.
3/16/2011	Bahrain_event_03/16/2011	Security forces in Bahrain drive out pro-democracy protesters from the Pearl Roundabout.
3/17/2011	Bahrain_event_03/17/2011	Security forces in Bahrain arrest 6 key opposition members whom they accused of having contacted with foreign agents as a crackdown on a two-month anti-government rebellion continues. Britons are urged to leave Bahrain.
3/18/2011	Bahrain_Saudi Arabia_event_03/18/2011	The Pearl Roundabout is demolished early in the day. & King Abdullah announces huge jobs and housing package.
3/19/2011	Libya_event_03/19/2011	NATO starts bombing Libya.

Table 37 (cont'd)

3/20/2011	Morocco_event_03/20/2011	Tens of thousands of Moroccans join demonstrations in Rabat and the bigger cities across the country demanding political change.
3/24/2011	Syria_event_03/24/2011	Crowds chant 'Syria, freedom!' as they take to streets in defiance of orders following reported killing of 34 citizens by armed forces
3/25/2011	Jordan_Syria_event_03/25/2011	Government loyalists attack pro-reform vigil in Amman. & Hundreds took to the streets in the cities of Homs, Hama, Tel and Latakia and in towns surrounding Deraa, with smaller protests in the major cities of Damascus and Aleppo. There were reports that at least 23 people had been killed
3/26/2011	Syria_event_03/26/2011	The United Nations secretary-general, Ban Ki-moon, urged Assad to show "maximum restraint", while the US said it was deeply concerned by "the Syrian government's attempts to repress and intimidate demonstrators".
3/27/2011	Tunisia_event_03/27/2011	Tunisia unveils a new cabinet of technocrats none of whom served in governments under Ben Ali.
3/28/2011	Syria_event_03/28/2011	Security forces fired shots and used teargas to disperse up to 4,000 protesters in the volatile Syrian city of Deraa on Monday as frustration mounted at the slow pace of promised reforms.
3/29/2011	Syria_event_03/29/2011	Syrian president sacks cabinet in effort to quell protests
3/30/2011	Syria_event_03/30/2011	Assad's first TV appearance. Syrians reacted with anger and disappointment after their president, Bashar al-Assad, failed to deliver any decisive reforms in his first public appearance since the street uprising that has threatened his regime.
4/7/2011	Jordan_event_04/07/2011	A Jordanian man sets himself on fire outside the prime minister's office in Amman.
4/11/2011	Bahrain_event_04/11/2011	Bahrain's most prominent human rights activist has been summoned for questioning by a military prosecutor, after being accused of tampering with photographs of a man who died in custody last week.
4/16/2011	Bahrain_event_04/16/2011	Evidence emerges that plainclothes Saudi forces have involved in violence against the Shia opposition
4/22/2011	Bahrain_event_04/22/2011	Bahraini authorities have conducted a systematic campaign of attacks and arrests against medical workers who treated injured protesters during months of unrest in the Gulf kingdom, according to a US-based medical group.
4/28/2011	Bahrain_event_04/28/2011	Four anti-government protesters in Bahrain were sentenced to death on Thursday by a military court over the killing of two police officers when violence erupted in the capital last month.
5/9/2011	Syria_event_05/09/2011	Europe bans travel and freezes assets of 13 officials of Syrian regime and holds them responsible for violent repression and put an embargo on exports to Syria of arms and equipment that could be used for internal repression

Table 37 (cont'd)

5/11/2011	Bahrain_event_05/11/2011	Bahrain's oil company has fired almost 300 employees for taking part in anti-government protests and general strikes in recent weeks
5/15/2011	Libya_event_05/15/2011	Gaddafi forces withdraw from Misrata
5/16/2011	Saudi Arabia_event_05/16/2011	Saudi diplomat Hassan al-Khatani is killed in Pakistan.
5/18/2011	Syria_event_05/18/2011	The US is planning to target Syrian president Bashar al-Assad for the first time by imposing sanctions against him in response to his brutal crackdown on pro-democracy protests.
5/22/2011	Morocco_event_05/22/2011	Security forces beat protesters defying the ban on demonstrations.
5/23/2011	Syria_event_05/23/2011	The EU imposes sanctions on president Assad and other senior officials raising pressure on his government to end weeks of violence against protestors.
6/3/2011	Bahrain_Yemen_event_06/03/2011	Jean Todt, the president of motor sport's world governing body, has blamed unreliable media reports of unrest in Bahrain – particularly in the British press & President of Yemen, Ali Abdullah Saleh is injured in a failed assassination attempt. A few days later, he leaves for Saudi Arabia to receive treatment.
6/4/2011	Syria_event_06/04/2011	Syrian forces killed at least 100 protestors in two of the bloodiest days since the start of the uprising according to activists. Internet access is cut.
6/6/2011	Bahrain_Morocco_event_06/06/2011	Doctors and nurses who treated injured anti-government protesters during the unrest in Bahrain went on trial in a security court on Monday accused of participating in efforts to overthrow the monarchy. & Thousands come out to demonstrate for change and political freedom across the country.
6/13/2011	Jordan_event_06/13/2011	Government denies reports about attack on King Abdullah.
6/29/2011	Bahrain_Saudi Arabia_event_06/29/2011	Bahrain's king has ordered an independent fact-finding mission to establish whether protesters' human rights were abused during a violent crackdown on anti-government unrest in the Gulf kingdom. & Women are arrested for defying driving ban.
7/1/2011	Morocco_Syria_event_07/01/2011	Moroccans vote to approve constitutional changes that curb monarchical power. & biggest day of protests. Clinton demands urgent reforms as Syrian forces kill protesters
7/2/2011	Bahrain_event_07/02/2011	Reconciliation talks between Bahrain's Sunni-led government and the majority Shia opposition have begun after four months of protests against the regime.
7/7/2011	Yemen_event_07/07/2011	Ali Abdullah Saleh makes his first appearance after the assassination event. He calls for dialogue.
7/11/2011	Syria_event_07/11/2011	Assad supporters storm US and French embassies.

Table 37 (cont'd)

8/8/2011	Bahrain_Saudi Arabia_Syria_event_08/08/2011	Months after its brief exposure to the Arab spring, Bahrain's cat-and-mouse routine of protest and repression continues & Saudi King, King Abdullah, demands an end to the bloodshed in Syria and recalls his country's ambassador from Damascus
8/9/2011	Syria_event_08/09/2011	The Syrian regime is facing a chorus of global reproach as envoys from Turkey, India, Brazil and South Africa head to Damascus to press President Bashar al-Assad to end the violent crackdown on a five-month-old uprising.
8/19/2011	Syria_event_08/19/2011	The US and Europe have dramatically increased the pressure on the Syrian president, Bashar al-Assad, with Barack Obama leading a demand by world leaders for him to surrender power.
8/20/2011	Libya_event_08/20/2011	Rebels launch an offensive to take over Tripoli.
8/29/2011	Algeria_event_08/29/2011	Muammar Gaddafi's family escaped to neighboring Algeria in a convoy of armored limousines (raising questions about NTC control over central Libya)
8/30/2011	Syria_event_08/30/2011	Europe is to impose an oil embargo on Syria, in effect freezing almost all business between Damascus and the EU, Syria's main trading partner.
9/2/2011	Syria_event_09/02/2011	EU governments ban import of Syrian oil and extend sanctions to intensify pressure on Assad.
9/7/2011	Bahrain_event_09/07/2011	More than 100 jailed Bahraini activists – including doctors who treated injured protesters during months of anti-government dissent – are on hunger strike
9/12/2011	Syria_event_09/12/2011	Russia refuses more Syria sanctions
9/21/2011	Syria_event_09/21/2011	Obama urges UN security council sanctions on Assad
9/23/2011	Yemen_event_09/23/2011	Saleh returns to Yemen. Heavy fighting begins in several areas of Sanaa and crowds gather across the country in protest.
9/25/2011	Saudi Arabia_Algeria_event_09/25/2011	King Abdullah announces that women will be given the right to vote and to stand for election within four years. & Eight NTC fighters killed in attack by pro-Gaddafi forces near Ghadames in Algeria. Libyan government seeks Algerian answers over cross-border attack
9/27/2011	Saudi Arabia_event_09/27/2011	Saudi women to stand trial for driving.
9/29/2011	Bahrain_Saudi Arabia_event_09/29/2011	Twenty Bahraini medics who treated activists wounded during anti-government protests were jailed for between five and 15 years in sentences that were immediately denounced by medical bodies and human rights groups around the world. & Saudi woman driver is saved from lashing by King Abdullah.
10/4/2011	Syria_event_10/04/2011	Turkish prime minister condemns the Bashar al-Assad regime and vows not to remain a bystander

Table 37 (cont'd)

10/5/2011	Bahrain_Syria_event_10/05/2011	Prosecutor orders civilian retrials for 20 medical personnel after global condemnation of sentences & Russia and China veto UN resolution against Syrian regime
10/7/2011	Bahrain_Syria_event_10/07/2011	Bahraini security forces have used teargas to break up anti-government protests at the death of a teenage boy who opposition groups claim was killed by police gunfire in the Gulf island kingdom. & Russian president breaks ranks with Bashar al-Assad for the first time since the start of protests in Syria six months ago. Assad should reform or quit over Syria uprising, says Dmitry Medvedev
10/9/2011	Egypt_event_10/09/2011	Dozens die in Egypt, as violence erupts between protesters and the army during Coptic Christians' protests against the destruction of a church.
10/11/2011	Syria_event_10/11/2011	China has for the first time urged the Syrian regime to deliver on its much-promised reforms, in a move that some observers see as a sign of waning patience with its embattled ally.
10/14/2011	Syria_event_10/14/2011	Syria is heading for full-blown civil war, top UN official warns
10/17/2011	Jordan_Kuwait_event_10/17/2011	Jordan's king sacks prime minister Marouf al-Bakhit. & Kuwait's ruler has ordered the authorities to tighten security measures and make arrests if necessary after protesters stormed parliament in anger at claims of high-level corruption.
10/19/2011	Syria_event_10/19/2011	Libya leads world in recognizing Syrian opposition's right to rule
10/20/2011	Libya_event_10/20/2011	Gaddafi is captured and killed by rebel fighters in the city of Sirte.
10/21/2011	Yemen_event_10/21/2011	The UN Security Council votes unanimously to condemn Yemen's bloody crackdown on peaceful protesters.
10/22/2011	Saudi Arabia_event_10/22/2011	Death of heir (Crown Prince Sultan) to Saudi throne raises succession questions.
10/23/2011	Tunisia_Libya_event_10/23/2011	Tunisia votes in the first election of the Arab Spring. & Mustafa Abdel Jalil, the leader of the National Transitional Council (NTC), declares the liberation of Libya.
10/24/2011	Syria_event_10/24/2011	US pulls ambassador Robert Ford out of Syria over security concerns
10/28/2011	Saudi Arabia_Kuwait_event_10/28/2011	Nayef bin Abdel-Aziz is named new crown prince of Saudi Arabia. & Kuwaiti emir to hold crisis meeting over protests
10/30/2011	Syria_event_10/30/2011	Nato has all but ruled out the possibility of establishing a no-fly zone in Syria after the Syrian president, Bashar al-Assad, warned that any western intervention would cause an "earthquake" that would "burn the whole region".
11/12/2011	Syria_event_11/12/2011	Syria suspended from Arab League. Member states agree to exclude Syria and impose sanctions over its failure to end government crackdown on protests

Table 37 (cont'd)

11/14/2011	Jordan_Syria_event_11/14/2011	King of Jordan follows Arab League action by saying Bashar al-Assad would resign if he 'considers the interest of his country'
11/18/2011	Syria_event_11/18/2011	UN security council must act against Syria, say France and Turkey
11/19/2011	Egypt_Libya_event_11/19/2011	Clashes between protesters and security forces erupt on Mohamed Mahmoud Street in downtown Cairo. & Saif al-Islam Gaddafi is arrested near Ubari in Southern Libya.
11/21/2011	Syria_event_11/21/2011	Turkish president says Syrian crisis at a 'dead end' and change is inevitable
11/23/2011	Bahrain_Yemen_event_11/23/2011	As fresh protests erupt, independent commission says troops used excessive force quelling Pearl revolution in which 35 died & Saleh signs a deal to hand over his powers under an agreement brokered by the Gulf Cooperation Council (GCC).
11/27/2011	Syria_event_11/27/2011	Syria defiant as Arab League votes for financial sanctions
11/28/2011	Egypt_Bahrain_event_11/28/2011	The first round of Egypt's first post-Mubarak parliamentary elections takes place. & Bahrain medics face new charges of supplying weapons to protesters
11/30/2011	Syria_event_11/30/2011	Turkey has frozen financial assets and cut strategic links with Damascus to ratchet up pressure on the regime of Bashar al-Assad to end its violence against protesters
12/3/2011	Bahrain_event_12/03/2011	Former Metropolitan police chief John Yates hired by Bahrain to reform force
12/12/2011	Tunisia_Bahrain_event_12/12/2011	Members of the Tunisia's constitutional assembly vote to elect former dissident Moncef Marzouki as president. & Britain has offered to help Bahrain implement reforms that were recommended in a scathing official report into human rights abuses committed during the uprising in the Gulf state in spring.
12/16/2011	Egypt_event_12/16/2011	Security forces attack a sit-in at the Cabinet building in Cairo, triggering violent clashes the following days.
12/29/2011	Saudi Arabia_event_12/29/2011	US confirms major sale of fighter jets to Saudi Arabia.
1/10/2012	Syria_event_01/10/2012	Syrian President Bashar al-Assad makes his first public speech in months, mixing defiance with promises of reform and an insistence that "victory" for his regime is imminent.
2/27/2012	Yemen_event_02/27/2012	Yemeni President Ali Abdullah Saleh officially resigns and transfers his powers to his vice president, Abd Rabbuh Mansur Al-Hadi.
4/26/2012	Jordan_event_04/26/2012	Jordan's prime minister Awn al-Khasawneh resigns. King Abdullah appoints former prime minister Fayeze al-Tarawneh to succeed him.
5/23/2012	Egypt_event_05/23/2012	Egyptians vote in the first round of the presidential elections.

Table 37 (cont'd)

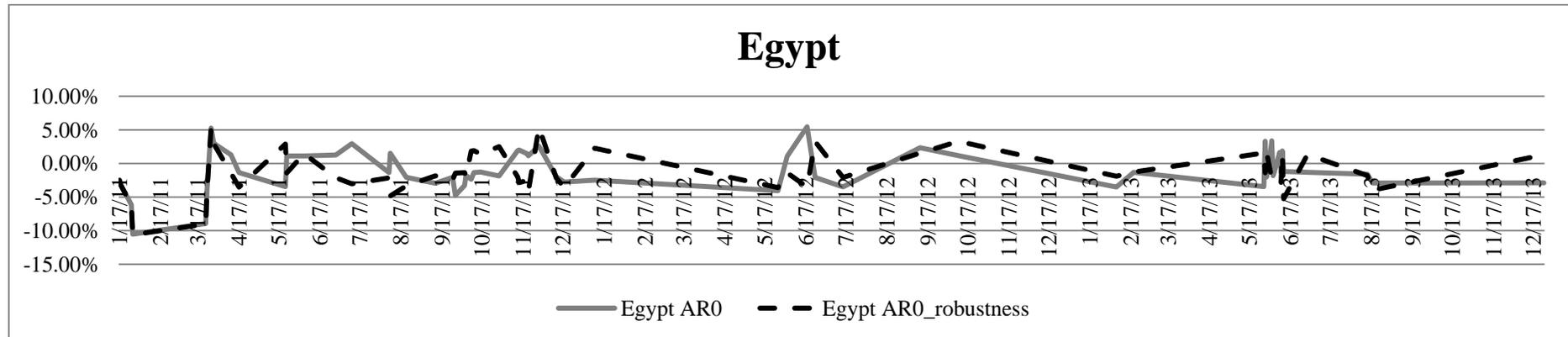
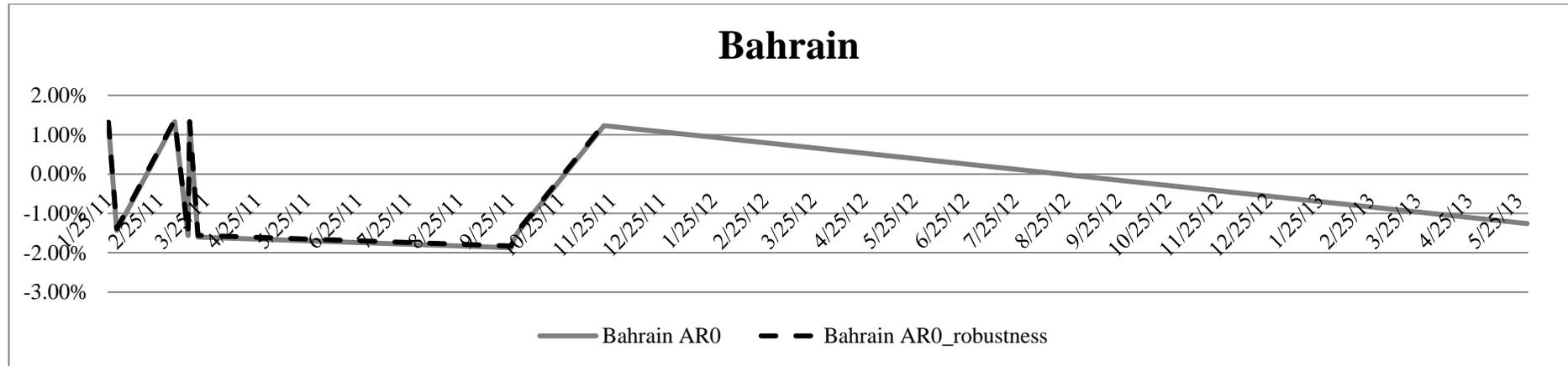
5/25/2012	Syria_event_05/25/2012	Syrian pro-government forces carried out an attack on villages in Homs Province, which led to the death of more than 100 civilians, including many children.
6/2/2012	Egypt_event_06/02/2012	An Egyptian court sentences former President Hosni Mubarak to life in prison.
6/16/2012	Egypt_Saudi Arabia_event_06/16/2012	Egyptians vote in the second round of the presidential elections, choosing between Mohamed Morsi and Ahmed Shafiq. & Saudi Arabia's Crown Prince Nayef bin Abdul-Aziz al-Saud dies.
6/18/2012	Saudi Arabia_event_06/18/2012	Prince Salman is named new crown prince of Saudi Arabia.
6/22/2012	Sudan_event_06/22/2012	Sudanese protests against the government's plan to cut subsidies on fuel escalate, as protesters call for the downfall of the regime.
6/24/2012	Egypt_event_06/24/2012	Mohamed Morsi has won Egypt's presidential runoff.
7/15/2012	Syria_event_07/15/2012	The international Committee of the Red Cross officially declares that the Syrian uprising is a civil war.
7/18/2012	Syria_event_07/18/2012	Assistant to the vice president General Hassan Turkomani, Defense Minister General Rajiha and his deputy, Assef Shawkat, the brother-in-law of President Bashar al-Assad, are killed in a bomb blast in Damascus.
7/19/2012	Tunisia_event_07/19/2012	Tunisia's Ben Ali is sentenced in absentia to life in prison for complicity in the murders of 43 protesters in the 2011 revolution that toppled him.
9/11/2012	Libya_event_09/11/2012	The US ambassador to Libya, Chris Stevens, and three other US staffers are killed in an attack on the US consulate in Benghazi.
10/10/2012	Jordan_event_10/10/2012	The King appoints Abdullah Ensour, a former minister and vocal advocate of democratic reform, as prime minister.
11/22/2012	Egypt_event_11/22/2012	Morsi issues a new constitutional decree, giving himself sweeping powers and banning any challenges to decisions he makes. The move later triggered mass protests in front of the presidential palace.
1/25/2013	Egypt_event_01/25/2013	Mass anti-Morsi protests spread across Egypt on the second anniversary of the 2011 revolution. Violent clashes between protesters and security forces persist for days.
2/6/2013	Tunisia_event_02/06/2013	Tunisian opposition secularist politician Chokri Belaid is shot dead, sparking huge street protests. Prime Minister Jebali calls the killing a political assassination and a strike against the revolution.
2/12/2013	Syria_event_02/12/2013	Syria's death toll since the start of the civil war exceeds 70,000.
2/19/2013	Tunisia_event_02/19/2013	Tunisia's Prime Minister Hamadi Jebali resigns.

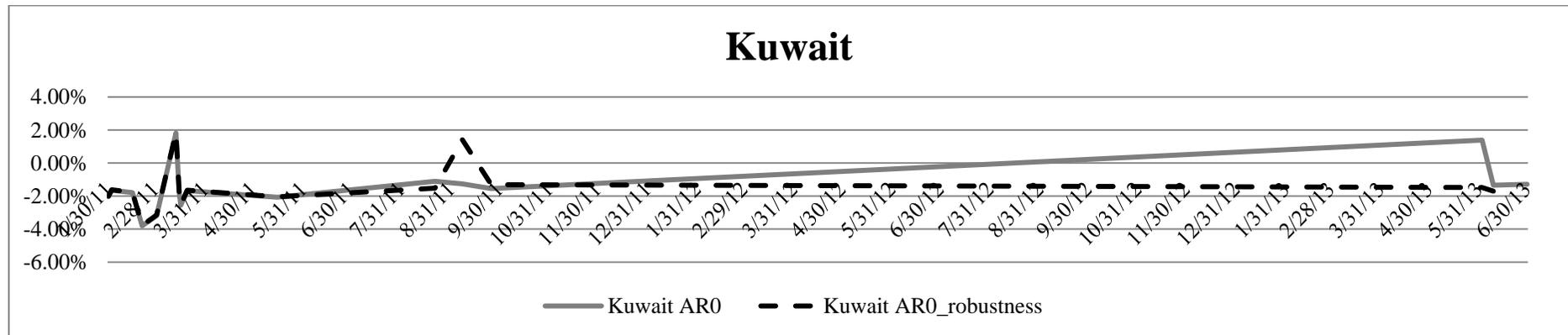
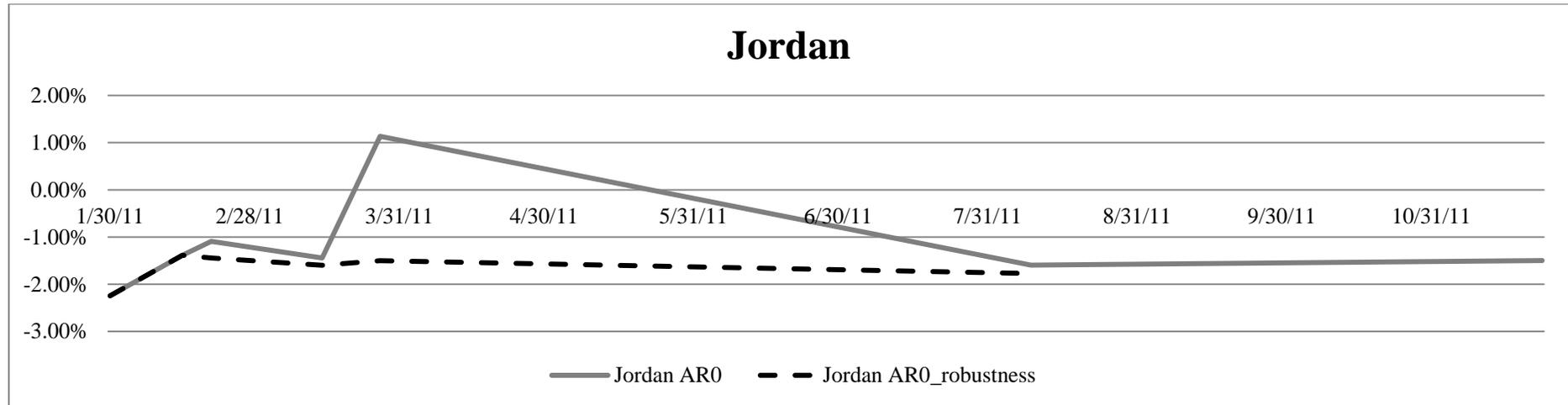
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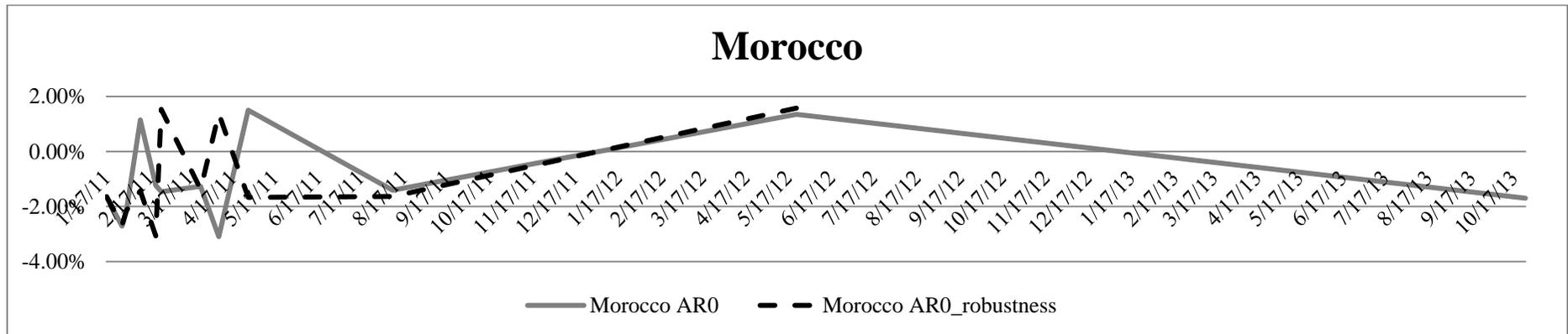
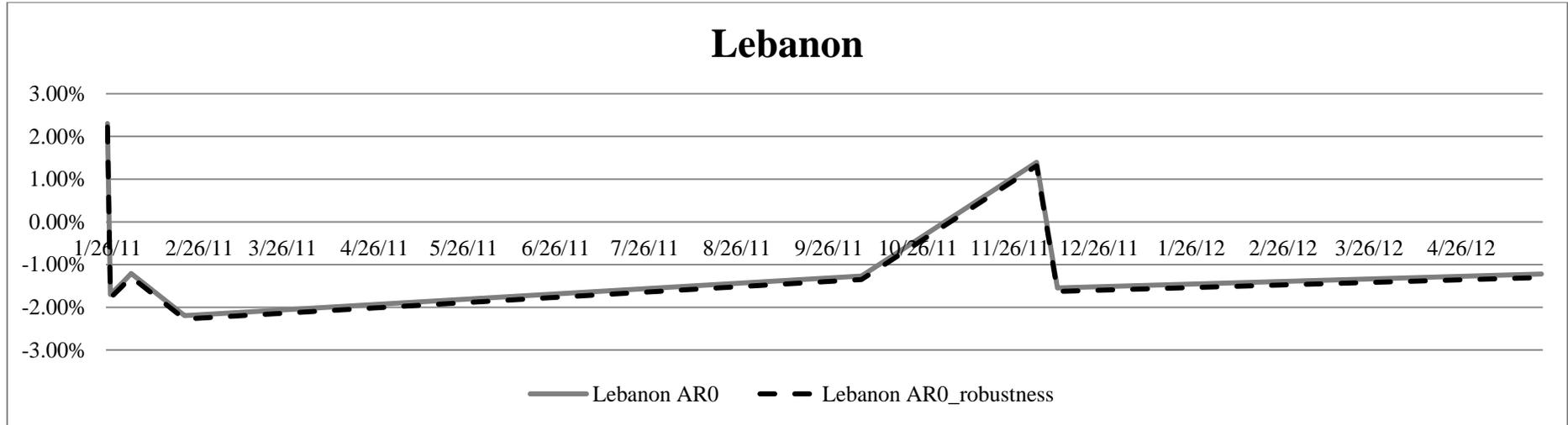
2/23/2013	Tunisia_event_02/23/2013	Ali Laarayedh is appointed Tunisia's new Prime Minister and asked to form a new government.
6/6/2013	Tunisia_event_06/06/2013	A small crowd in Tunisia protested Turkish Prime Minister Recep Tayyip Erdoğan during his visit to the North African country. Prime Minister refused to back down, saying the Artillery Barracks will be built no matter what. The harsh speech caused a severe drop at Turkey's stock exchange.
6/30/2013	Egypt_event_06/30/2013	Millions respond to the call of the Tamarod campaign for an anti-Morsi demonstration.
7/3/2013	Egypt_event_07/03/2013	General Abdel Fattah al-Sisi announces that Morsi has been deposed and installs Supreme Court chief justice Adly Mansour as interim president until new presidential elections are held.
7/16/2013	Egypt_event_07/16/2013	An interim cabinet is sworn in. None of its members belongs to Islamist parties.
7/25/2013	Tunisia_event_07/25/2013	Mohamed Brahmi, a pan-Arab leftist member of the Constituent Assembly, is assassinated on Tunisia's Independence Day.
7/26/2013	Egypt_event_07/26/2013	Millions of citizens pour into Egyptian streets after General Sisi calls on protesters to give him a mandate to stop "potential terrorism" by Morsi supporters.
8/6/2013	Tunisia_event_08/06/2013	Tunisia's Constituent Assembly is suspended.
8/14/2013	Egypt_event_08/14/2013	Riot police drive Morsi supporters from two sit-ins in Cairo. Hundreds of people are killed in the operation and the ensuing street battles. The interim government declares a month-long state of emergency as Vice President Mohamed ElBaradei resigns in protest over the assaults.
8/17/2013	Egypt_event_08/17/2013	Police clear Fateh mosque in Cairo of anti-coup protesters who were trapped inside, following a daylong siege.
8/21/2013	Syria_event_08/21/2013	Syrian activists claim that government forces have carried out a poisonous gas attack in suburbs of Damascus, leaving hundreds of people dead.
9/23/2013	Egypt_event_09/23/2013	A court bans all Muslim Brotherhood activities, and orders the government to seize the Brotherhood's funds and administer its frozen assets.
9/24/2013	Sudan_event_09/24/2013	Another attempt of the Sudanese government to cut fuel subsidies results in mass protests.
9/28/2013	Tunisia_event_09/28/2013	Tunisia's Ennahda-led government agrees to resign after talks with the opposition.
10/25/2013	Tunisia_event_10/25/2013	Ennahda Party and the opposition begin a national dialogue in an attempt to end months of unrest.
12/15/2013	Tunisia_event_12/15/2013	Industry Minister Mehdi Jomaa is named new prime minister in a caretaker technocrat cabinet to govern until elections are held.

Table 37 (cont'd)

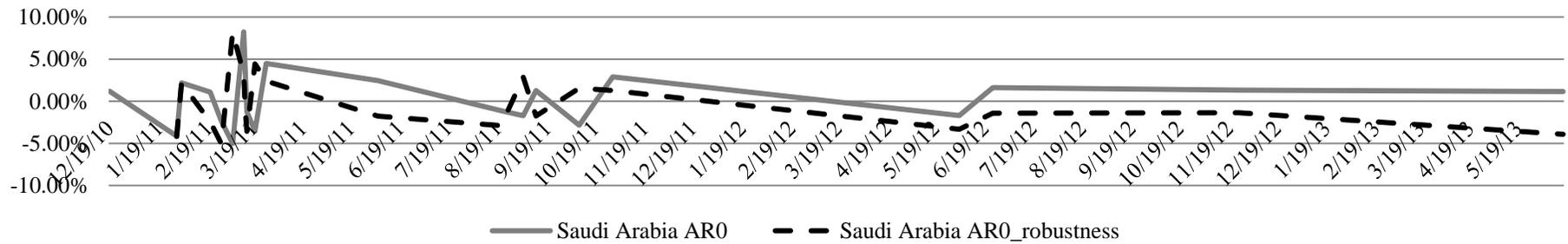
12/18/2013	Egypt_event_12/18/2013	Former President Mohamed Morsi faces charges of terrorism in the court case against him.
12/25/2013	Egypt_event_12/25/2013	Egypt's interim government declares the Muslim Brotherhood a terrorist organization.



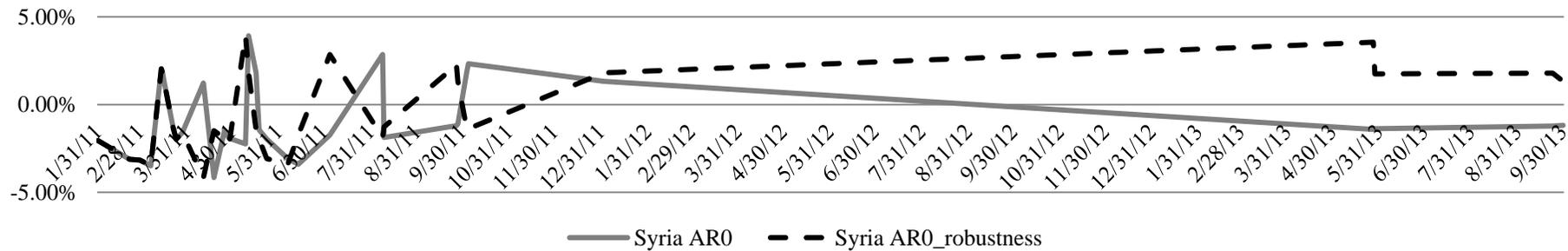




Saudi Arabia



Syria



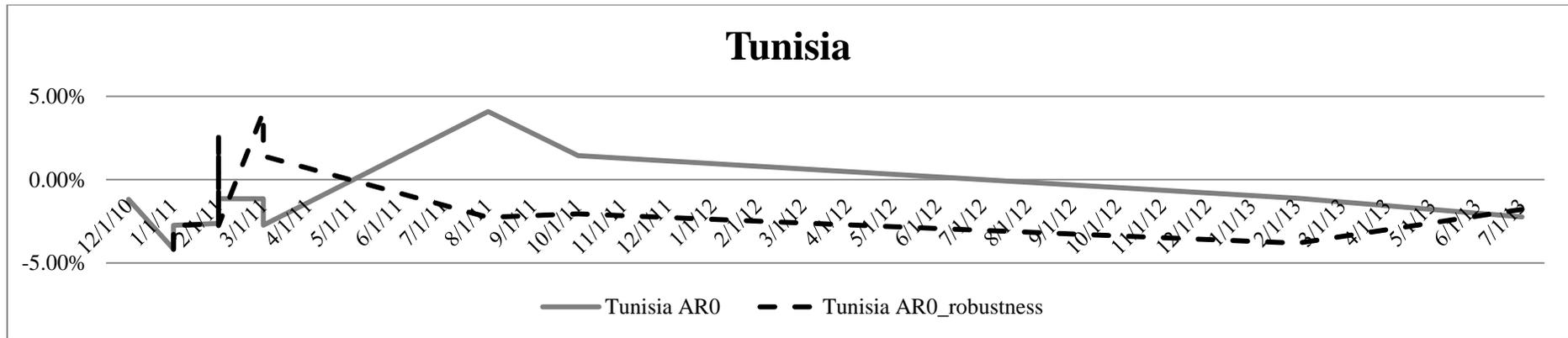


Figure 12: Comparison of Mean-Adjusted and Market-Adjusted Abnormal Returns

Following graphs compares the mean adjusted abnormal returns with the market adjusted abnormal returns for each country in our sample.