DETERMINANTS OF INSURANCE COMPANIES' STOCK RETURN IN GCC COUNTRIES

By

HAMDAN AHMED ALI AL-SHAMI

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ABSTRACT

This study examines the determinants of insurance companies' stock returns in GCC stock markets using two models based on panel data over the period of 2001-2010. In the first model, monthly data for each of the GCC market were used to analyses the effect of macroeconomic variables (inflation, interest rate, money supply, oil prices and unemployment rate) on insurance index' stock returns with stock market return as the control variable. In the second model, using annual data, firm specific variables (earning per share, dividend yield, leverage, loss ratio, reinsurance dependence, solvency margin, affiliated investment and stability of underwriting operation), macroeconomic variables (inflation, money supply, oil prices and unemployment rate) and stock market return are all modelled together into determining their effects on insurance companies' stock returns. This study applied panel data estimation which includes pooled estimation, fixed effect panel estimation and random effect panel estimation to derive the most appropriate estimation.The results from the first model indicate four out of five macroeconomic indicators, namely inflation, money supply, oil prices and unemployment rate, are significant in affecting the insurance index returns in the GCC stock markets. The analyses using the second model reveal that only earning per share, dividend yield, leverage and solvency margin effect insurance companies' stock returns significantly. This study contributes to the literature in terms of revealing the effect of a comprehensive set of economics, firm specific and insurance company specific factors on GCC's Insurance companies' stock returns based on robust analyses. The research findings highlight crucial factors to be given due attention by managers, actuaries shareholders, portfolio managers and policy makers dealing with insurance companies in GCC markets.

Keywords: GCC market, insurance sector, stock returns, asset pricing theory, panel data, insurance company specific factors

ABSTRAK

Kajian ini meneliti penentu pulangan saham syarikat insurans dalam pasaran saham *GCC* dengan menggunakan dua model yang bersandarkan data panel dari tahun 2001-2010. Dalam model yang pertama, data bulanan dari setiap pasaran *GCC* digunakan untuk menganalisis kesan pemboleh ubah makroekonomi (inflasi, kadar faedah, penawaran wang, harga minyak dan kadar pengangguran) terhadap indeks insurans pulangan saham dengan pulangan pasaran saham bertindak sebagai pemboleh ubah kawalan. Model kedua yang mengupayakan data tahunan pula memodelkan bersekali pemboleh ubah khusus firma (perolehan sesaham, hasil dividen, leveraj, nisbah kerugian, kebergantungan insurans semula, margin mampu bayar, pelaburan bergabung, dan kestabilan operasi penajajaminan), pemboleh ubah makroekonomi (inflasi, penawaran wang, harga minyak dan kadar pengangguran) dan pulangan pasaran saham untuk menentukan kesan ketiga-tiga aspek ini terhadap pulangan saham syarikat insurans. Kajian ini mengaplikasikan anggaran data panel yang melibatkan anggaran terkumpul, anggaran panel kesan tetap dan anggaran panel kesan rawak untuk mendapatkan anggaran yang paling bersesuaian. Dapatan daripada model pertama memperlihatkan empat daripada lima petunjuk makroekonomi, khususnya inflasi, penawaran wang, harga minyak dan kadar pengangguran, bersifat signifikan dalam mempengaruhi pulangan indeks insurans dalam pasaran saham *GCC*. Analisis yang menggunakan model kedua memaparkan bahawa hanya perolehan sesaham, hasil dividen, leveraj dan margin mampu bayar mempengaruhi pulangan saham syarikat insurans secara signifikan. Kajian ini menyumbang kepada kosa ilmu dari segi pendedahan kesan set ekonomi yang komprehensif, faktor khusus firma dan faktor khusus syarikat insurans terhadap pulangan saham syarikat insurans *GCC* berdasarkan analisis yang teguh. Hasil kajian mengetengahkan faktor-faktor penting yang perlu dipertimbangkan oleh pengurus, pemegang saham aktuari, pengurus portfolio dan penggubal dasar dalam pengurusan syarikat insurans di pasaran *GCC*.

Kata kunci: pasaran *GCC*, sektor insurans, pulangan saham, teori harga asset, data panel, faktor khusus syarikat insurans

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AFF.IN	Affiliated investment
AMEX	American Stock Exchange
API	American Petroleum Institute
APT	Arbitrage Pricing Theory
APY	Annual Percentage Yield
BRIC	Grouping acronym that refers to the countries of Brazil, Russia, India and China
BV	Book value
C.V	Coefficient Variation
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Indices
CPS:	Cash per Share
CRR	Capital Adequacy Ratio
D	Durbin-Watson value
DFA	Dynamic Financial Analysis
Dl	Durbin-Watson lowers value
DR	Discount Rates
DSE	Dhaka Stock Exchange
DU	Durbin-Watson upper value
DV	Dependent Variable
DY	Dividend Yield

E/P	Earnings/Price
EMH	Efficient Market Hypothesis
EPS	Earnings per Share
FEM	Fixed Effect Model
FF:	Fama and French
FIML	Full Information Maximum Likelihood
FL	Financial leverage
FL	Factor Loading Model
FOREX	Foreign Exchange Market
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GLS	Generalized Least Squares
GX	Government Expenditure
I.S.R	Insurance Sector Index Return
ID	Domestic Interest Rate
IM	Imports
INFR	Inflation Rate
INTR	Interest Rate
IP	Industrial Production
IRIS	Insurance Regulatory Information System
ISE	Istanbul Stock Exchange
IV	Independent Variable
IW	World Interest Rate

KLSE	Kuala Lumpur Stock Exchange
KSA	Kingdom of Saudi Arabia
LEV	Leverage
LGB	Government bond yield
LR	loss ratio
LTR	Long-Term Interest Rates
MS	Money Supply
MVM	Macroeconomic Variable Model
NAIC	The National Association of Insurance Commissioners
NASDAQ	National Association of Securities Dealers Automated Quotations
NDX	Index that tracks the largest 100 non-financial companies listed on the
NLSLS	Non-Linear Stage Least Squares NLSLS
NYMEX	New York Mercantile Exchange
NYS	New York State Insurance
NYSE	New York Stock Exchange
OL	Operating Leverage
OLS	Ordinary least squares
OP	Oil Prices
OPEC	Organization of the Petroleum Exporting Countries
PLS	Panel Least Squares
QFCA	Qatar Financial Centre Authority
REM	Random Effects Model
R^2:	Coefficient of Determination

REID	Reinsurance Dependence
RF	Risk-Free Rate
ROA	Return on Assets
RPI	Retail Price Indices
S &P500	Standard & Poor's 500
S.R	Stock return
SAMBA	Free Software Re-Implementation of the Smb/Cifs Networking Protocol
SES	Stock Exchange of Singapore’s All-S Sector Indices
SM	Solvency Margin
Std. Dev	Standard Deviation
SUO	Stability of Underwriting Operation
SUR	Seemingly Unrelated Regression
TA	Total Foreign Tourist Arrivals
TB	Treasury Bill Rate
UAE	United Arab of Emirates
UNMR	Unemployment rate
VAR	Vector Autoregressive
VIF	Variance Inflation Factor
WTI	West Texas Intermediate
β:	Coefficient of Variation
σ^2	Statistical Variance

CHAPTER ONE

BACKGROUND OF STUDY

1.0 INTRODUCTION

A number of studies have been executed to identify the determinants of stock returns in a number of countries and regions. While some of the factors have been found to positively influence returns, others were found to have negative effects. Still, it is not absolutely clear whether a specific factor has a negative or positive impact as the results have been conflicting. A few studies have been done on stock markets in Africa (Olowoniyi & Ojenike, 2012), in Asian stock markets (Tarazi & Gallato, 2012; Haque & Sarwar, 2012; Caglayan & Lajeri-Chaherli, 2009; Al-Mutairi & Al-Omar, 2007) and in the West (Artmann, Finter & Kempf, 2012). Most of the studies on this subject have been carried out in the developed nations and studies on emerging markets are growing fast. A few studies are also available specifically on GCC markets (Onour, 2008; Sbeiti & Haddadd, 2011).

Interestingly, studies have covered a number of factors ranging from macroeconomic to microeconomic factors using a number of models and statistical procedures. Most of these studies have focused on macroeconomic determinants of stock returns. These factors include inflation (Tarazi & Gallato, 2012), interest rates (Chau, 2012; Caglayan & Lajeri-

Chaherli, 2009), exchange rates (Haque & Sarwar, 2012), GDP (Girard, Nolan & Pondillo, 2010), unemployment rate (Chau, 2012), money supply, budget deficit, government expenditure (Haque & Sarwar, 2012; Al-Mutairi & Al-Omar, 2007), and domestic credit (Sbeiti & Haddad, 2011).

Various firm specific factors have also been studied and found to influence stock market returns. Such factors include growth (Olowoniyi & Ojenike, 2012), size (Olowoniyi & Ojenike, 2012; Girard *et al*., 2010), tangibility (Olowoniyi & Ojenike, 2012), liquidity (Vo & Batten, 2011; Baele, Bekaert & Inghelbrecht, 2010), announcements, debt to equity ratio, and market capitalisation (Caglayan & Lajeri-Chaherli, 2009).

Other factors studied include variance premium (Baele, *et al*., 2010), value characteristics and momentum (Artmann, *et al*., 2012), statistically determined factors (Cauchie, Hoesli & Isakov, 2004), trend factor (Han & Zhou, 2013), and unobserved speculative factors (Onour, 2008). These factors are new factors that could explain stock market returns apart from the traditional factors that have been empirically tested before.

Empirical results have been conflicting. Positive effects on stock returns have been found for expected growth and size (Olowoniyi & Ojenike, 2012), liquidity (Vo & Batten, 2011), money supply and government expenditure (Al-Mutairi & Al-Omar, 2007), GDP (Haque & Sarwar, 2012), and exchange rates (Haque & Sawar, 2012).

Further negative effects have been found for tangibility (Olowoniyi & Ojenike, 2012), inflation and interest rate (Al-Mutairi & Al-Omar, 2007, Haque & Sawar, 2012), market capitalisation and money supply (Haque & Sawar, 2012), and budget deficit (Haque & Sawar, 2012). As can be observed, the debate is not settled on which factors influence stock market returns and the direction of such influence are also not clearly resolved. Moreover, new factors are being examined and therefore there is need for more research especially for the GCC stock markets.

1.1 GCC ECONOMY OVERVIEW

The GCC (Gulf Cooperation Council) is primarily a custom union comprising of six members, four of which are major oil-exporting countries. These countries are considered as decision makers in OPEC (Hammoudeh & Alisa, 2004).

In addition, the GCC countries are categorized as both major producers and exporters of petroleum and they play a crucial role at the international level in a general position and in a particular position as OPEC members as they are characterized as hailing from an oil-based region with the a huge proven oil reserves in the world (489 billion barrels). OPEC accounts for a whopping 71% of the total crude oil reserves.

Up until the end of 2008, GCC's six countries region has experienced a significant prosperous economy which tripled in growth to $1.1 trillion from the period of 2002-2008. The region had an approximate 73% of the total gas and oil export earnings, 63% of which are government's revenues and the remaining of which is its GDP. At that time, the GCC region accounted for 52.1% of the total OPEC oil reserves as well as 49.5% of the total OPEC crude oil production. Owing to the strong global demand for energy, the yearly average oil price for the OPEC basket rose by 36.8%, a staggering \$94.50 a barrel from \$69.10 a barrel in 2007. By 11th of July, 2008, crude oil price reached its peak amounting to \$142.27 a barrel in New York. However, at the advent of the global financial crises in the late 2008, prices began declining.

In 2009, the average price of OPEC Basket crude oil, BRENT (British Oil) and WTI (U.S. Oil) stood at US\$42.98/b, US\$44.46/b and US\$43.00/b respectively in the first quarter, compared to \$92.50/b, \$96.67/b and \$96.67/b, respectively for the same period in the previous year. As a result, the region sustained its economic reform program, the main aim of which is the attraction of domestic, regional and foreign private sector investments into sectors such as oil and gas, power generation, telecommunications, and real-estate.[1]

It is interesting to note that stock markets in GCC are comparatively new. The beginning of individual GCC stock markets happened at different times but in the early 1990s is when the pioneering markets were created. For instance, in Saudi Arabia, share trading can be dated back to 1935, although it was not until 1984 when trading became organized and came under the supervision of a trading body. In addition, in Bahrain, the stock exchange was initially established in 1987, but its organization and regulation actually

[1]http://www.gulfbase.com/Site/Interface/TheGCC/gccoverview.html

began in 1989. Moreover, Oman's Muscat stock market was recognized in 1989, and the United Arab of Emirates market was established in 1988 (Hammoudeh & Aleisa, 2004).

The attempts of each of the GCC countries to diversify its economy, to privatize its public sectors, to utilize technological advances in trading technology and to enhance legal and financial institutional infrastructures led to the actual development of the markets in the 1990s resulting in attraction and involvement of some foreign individuals and institutional investors (Hammoudeh & Aleisa, 2004). It is without a doubt that these six members of the GCC represent attractive emerging markets (Hammoudeh & Choi, 2006).

Three of the six countries namely Bahrain, Kuwait and Qatar allow foreign stock ownership while KSA only allows it through investment in mutual funds. Contrary to other emerging markets, fads or speculative attacks do not arise from the fast flow of capital in and out of GCC markets due to the fact that restrictions on foreign ownership generally confine flows of ‘hot money’ in and out of GCC countries (Hammoudeh & Choi, 2006). Hammoudeh and Choi (2006) assert that the turnover, with the exception of Kuwait and Saudi Arabia, is quite low in majority of the GCC markets due to the small number of publicly traded companies per market and the small percentage of owners hailing from the indigenous population.

1.2 OVERVIEW OF GCC INSURANCE MARKET [2]

The GCC insurance industry is currently going over its transitional phases. It is characterized by the critical value of markets and their evolution from a protected industry to a competitive one. The economies in the Middle Eastern region are maturing and along with it, is the emergence of the outcome of government policies which will both likely lead to aggressive expansion. Despite the positive scenario, insurers in the region need to keep abreast of the changes and leverage the opportunities to sustain their competitive advantage.

The GCC markets comprise of a small and young population, with the exception of Saudi Arabia, encapsulating a high portion of expatriates. They possess high per capita income and significant government spending. However, the insurance sector in majority of the countries in the region is small and more or less underdeveloped compared with the developed regions of the globe. Therefore, insurance penetration and density is still in its initial stages. Nevertheless, this does not downgrade its growth potential as it has attracted various domestic and foreign players resulting in over capacity in some countries. As a result, growth in the region is marked with significant fragmentation and poor retention levels and thus, low profitability.

Moreover, the insurance industry in the GCC was hit hard by the financial crises particularly the years before 2007 when the oil prices swayed by the receding global

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[2] GCC Insurance Industry , August 21, 2011

activity and tightening credit markets. Despite the sector's resilience, and modest growth in most markets, its power is not as strong as before. The region is currently in its recovery mode, facilitating for diversified economic growth, applying supportive government regulations and developing favorable demographics. The region is expecting greater degrees of growth particularly during the period 2011- 2015.

The GCC countries' potential for reinsurance industry is critical and most of the insurance companies depend on reinsurance leading to shortage of underwriting skills and the regional insurers' recourse to reinsure most if not all, of the policies written.
Their dependence is clear from the high cession rates in the region. For instance, in 2009, the aggregate cession rate[3] in the non-life segment accounted for 46% which is approximately USD 4.8 billion in volumes. This rate is greater than the current rates in the emerging markets similar to the GCC countries in terms of wealth and is greater than the developed market average of about 8%.

1.3 PROBLEM STATEMENT

The GCC financial markets have generally shown a significant growth during the period from 2002 to 2007. Market capitalization in these markets reached their highest peak in 2007 which was reported to be approximately about US$1.07 trillion. In addition, the KSA Stock Market is considered to be the biggest market which was reported to reach its peak at over US$515 billion in 2007, followed by the UAE reporting over US$224 billion in

[3] The portions of the obligations in an insurance company's policy portfolio that are transferred to a reinsurer.

2007 based on market capitalization. On the contrary, the smallest market was Oman stock market with a market capitalization of US$23 billion in 2007[4]. The GCC stock market capitalization dropped by 38% in October 2008 from $320 billion in September 2008 owing to the international financial crises

The stock markets of GCC countries in 2012 were mostly moving sideways, however the stock markets of KSA and the UAE showed their strength. Most of the growth came at the start of the year and although the sustainability of global economic growth decreased as a result of the escalation of the Eurozone crisis and growing fears, the year ended again on a positive note. In 2012 the GCC stock return indices were 0.9% in Kuwait, -3.8% in Bahrain,-2.1% in Qatar, -6.5% in Oman, 27.4% in United Arab Emirates and 6% Saudi Arabia (LHV Persian Gulf Fund, Annual Report 2012).

Towards the end of 2008, all GCC stock markets experienced a significant drop in most of their indicators owing to the international financial crisis. As a result, total market capitalization decreased to US$560 billion; a mere 47% of its value in 2007 (Standard and Poor's Global Stock Markets Fact book, 2008 and Securities and Commodities Authority, United Arab Emirates, 2009).

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[4] http://www.gulfbase.com/Site/Interface/TheGCC/gccoverview.html

GCC stock markets comprising Kuwait, Bahrain, Qatar, Oman, UAE, and Saudi Arabia have attracted only modest concern from the researchers despite significant improvement, fast growth and liberalization (Marashdeh & Shrestha, 2010).

As a result, only negligible information exists on the factors that influence the stock returns in GCC stock markets. This is evidenced by Rahman, Sidek and Tafri's (2009) study which stated that various studies dedicated to the determinants of stock prices and stock returns have been undertaken on stock market in developed countries (e.g. USA, UK, Canada) as well as emerging countries (e.g. Chen, 2007). The latter study investigated the relationship between macro-economic and microeconomic explanatory variables and Chinese hotel stock returns. Chen (2007) suggests that more studies should be undertaken on the topic through the utilization of data from other countries and markets. However review of literature is still showing limited of studies are about GCC stock markets.

Studies concerning the stock markets of GCC countries are desirable owing to various other reasons. Firstly, the GCC countries are the major suppliers of oil in the global energy markets. Their economies depend on oil on a frequent basis and the oil prices generally take their cues from the West Texas Intermediate (WTI), a primary crude oil stream traded on the New York Mercantile Exchange (NYMEX) (Ravichandran & Alkhathlan, 2010). Owing to their several commonalities, GCC countries account for about 20% of global oil production, control 36% of global oil exports and have 47% of proven global reserves. Their earnings, government budget revenues and expenditures as well as aggregate demand largely depend on their oil exports. The contribution of oil to these countries' GDP in the case of Bahrain and Saudi Arabia for instant are 22% and 44% respectively.

Hammoudeh and Alisa (2004) found that GCC countries' oil exports are the primary determinants of foreign earnings and government budget revenues and expenditures. Therefore, they can be said to be the primary determinants of aggregate demand. This aggregate demand impacts corporate production and domestic price levels arguably, impacts corporate earnings and stock prices. In addition, this demand may also indirectly impact stock returns owing to its influence on expected inflation which affects the expected discount rate. Such a major oil impact on the national economy makes the GCC countries primary targets for exploring the relationship between the performance of their stock markets and oil prices.

Added to the above reason is the evidence found by Arouri and Rault (2010) which reveals that stock market liquidity indicator of the three largest GCC economies (Saudi Arabia, UAE and Kuwait) is positively related with the oil importance indicator. Additionally, the stock prices and stock returns in all GCC markets, with the exception of Saudi Arabia are positively influenced by increases in oil prices. Moreover, Ravichandran and Alkhathlan (2010) suggest that researchers should attempt to study the impact of macro-economic factors upon GCC stock markets under constant oil prices.

In a related study, Arouri and Rault (2010) state that researchers and market participants have been attempting to identify the impact of oil prices on stock prices but have not reached unanimous result. Nevertheless, these studies show that changes in oil prices significantly impact the GCC stock markets. This is a major reason for GCC countries to concentrate on the way their actions and decisions affect oil prices and to remain vigilant about the oil price changes in their own economies and stock markets. Arouri and Rault (2010) also suggest for researchers to look into the relation between oil and stock markets in GCC countries through the study of various economic sectors in the future.

Secondly, GCC stock markets are characterized to be different from the stock markets existing in developed and emerging countries in a way that the former are not as ensconced within international markets and hence, are very sensitive to regional political event (Hammoudeh & Choi, 2006; Marashdeh & Shrestha, 2010).

Finally, based on the suggestion by Rault and Arouri (2010), GCC markets represent promising areas for international portfolio diversification and current reforms have been carried out for the purpose of attracting global investors. Therefore, an in-depth look at the determinants of stock market returns in GCC stock market may assist GCC and foreign investors in making necessary investment decisions and may be useful to policy-makers' regulation of stock markets. For the above major reasons, it is clear how a study dedicated to the GCC countries' stock market could provide pertinent practical contribution.

In addition, majority of the studies on stock returns determinants (Gay, 2008; Al-Mutairi & Al-Omar, 2007; Narayan & Narayan, 2010; Arouri & Rault, 2010; Sunde & Sanderson, 2009; Sadorsky, 2003; and Chen, 2007) are not based on selected sectors and only provide general findings for the entire sectors, overlooking specific industry-related factors and hence, failing to include differences between sectors. As a result, some studies (Chen, 2007; Arouri & Rault, 2010) state that more detailed research is required to look into particular countries and markets.

Added to the above discrepancy, a major gap in existing literature concerning stock market determinants is the inclusion of only non-financial companies in the study sample due to methodological reasons, and hence, overlooking financial companies' returns determinants.

In the context of GCC countries, within their financial sectors, the insurance sector has recorded increasing importance and growth. This is evidenced by the growth of insurance premiums; 28% year-on-year to $10.6bn in 2009. Thus, it can be stated that the insurance premium growth in the GCC region far outgrows the world average of 3.4% in nominal dollar terms. Among the various insurance categories, health insurance has the potential to grow the most as governments are carrying out expansion of mandatory health insurance for a very significant population of expatriates; the population ranges from 30% in Saudi Arabia to 85% in the UAE (Value Partners, a global management consulting firm)[5].

[5]www.gulf-times.it, 15th March

Consequently, the growth of the GCC insurance sector outpaces the insurance sector of more developed countries as evidenced by the following statement:

> "While the global insurance market has shrunk slightly, the market in the GCC grew at a rapid pace of six per cent in non-life insurance and nine per cent in life insurance in 2009 and is expected to continue to grow. Insurance penetration in the GCC is two times lower than that of the BRIC countries. To reach the same market penetration as BRIC over the next decade, the GCC market will have to grow at an annual rate of 15 per cent, which is achievable" (AT Kearney, a leading management consulting firm, 2010).

Globally, the insurance company's stock market has continued to decline in terms of profit margin. However, the profit margin has been high for insurance companies in the GCC region. This indicates that the insurance companies in the region continue to enjoy high stock returns. It is important to study the insurance companies in the region so for us to understand why the region is recording an abnormal trend. It is also an important region of study remembering that only a few years ago, insurance companies were not embraced in the region (Jaffer, 2007).

Insurance companies in the region have set a target of 15% growth rate per year. This is also of importance in our study of the region. For learners, it is important to see how the insurance companies will increase their market penetration in the region by such a high percentage. The techniques used in the region will be important tools in penetrating other market regions (Jaffer, 2007).

Based on the arguments of the importance of targeting specific sectors for the investigation of the determinants of stock market performance, in addition to the growth of the insurance sector in GCC, the present study attempts to investigate the determinants of insurance companies' stock returns.

Identification of determinants of insurance companies' stock return is also beneficial to the development of actuarial models for the purpose of underwriting and investment operations of insurance companies. Moreover, since 1994, the U.S. Casualty Actuarial Society has made active promotions and developments of the DFA (Dynamic Financial Analysis) as a tool that actuaries can use to model the complicated and interrelated interrelations. The first step in the analysis involves the identification of the determinants of the insurance company's performance. In addition, some actuarial professional bodies have claimed that actuaries should consider risk factors as they may have a great impact on the company's performance. For instance, Guidance Note 2 issued by the Faculty and Institute of Actuaries in 1996 states that it is imperative for actuaries to test variations in some assumptions and to be alert to some risk factors upon carrying out dynamic solvency testing (Shiu, 2004). Even though the focus has been on insurance companies' profitability arguably the determinants of stock return are equally important to be studied for the benefit of the companies' stockholders.

Moreover, from the author's in-depth look through literature and to his knowledge, there exists no documented study regarding the determinants of GCC insurance sector stock returns. One such related study regarding the insurance sector was carried out in

Bangladesh (i.e. BelalUddin, 2009), but the study was confined to the determinants of stock return in the form of general microeconomic factors overlooking the unique insurance related measures. However, there have been many empirical studies carried out on insurance sectors concentrating on the determinants of operating performance or profitability.

Additionally, several studies (Gunsel & Cukur, 2007; Chen, 2007; Gay, 2008 and Tunalh, 2010) have also examined the effects of macroeconomic, oil prices and firm-specific variables on stock returns but not for the particular markets concentrated in this current study.

In the Malaysian context, Rahman, Sidek and Tafri (2009) explore the interaction between selected macroeconomic variables and stock price. The findings of the study reveal that the relationship among the macro-economic variables and the changes of stock prices and stock returns have been adequately studied in the developed countries but in the emerging countries, several avenues for research in this area still exists. They suggest that further research should be conducted involving the examination of the association between macro-economic factors and different sectors in the stock market.

Due to the above various reasons, the current study attempts to investigate the impact of macroeconomic factors, oil prices and firm-specific variables upon stock returns in the insurance companies of the GCC countries.

1.4 RESEARCH QUESTIONS

The focus of this study is placed on macro and micro economic factors that determine the stock market returns for Gulf insurance companies in GCC Countries stock markets.

It aims, in particular, at providing answers to two main questions:

I. What are the effects of macroeconomic factors (inflation rate, interest rate, money supply, oil prices and unemployment rate) on stock returns for GCC insurance companies?

II. What are the effects associated with firm-specific variables (EPS, dividend yield, leverage, loss ratio, affiliated investment, solvency margin and reinsurance dependence) on the stock returns for GCC insurance companies?

1.5 RESEARCH OBJECTIVES

The general objective of this study is to examine the effect of macroeconomic indicators (inflation, interest rate, money supply, oil prices and unemployment rate) on insurance index returns in GCC stock markets in addition to the effect of firm specific variables on insurance companies' stock returns (earning per share, dividend yield, leverage, loss ratio, reinsurance dependence, solvency margin, affiliated investment and stability of underwriting operation). Specifically, the study aspires to achieve the following objectives:

I. Examining the effects associated with macroeconomic factors (inflation rate, interest rate, money supply, oil prices and unemployment rate) on the stock returns for Gulf insurance companies in GCC stock markets.

II. Examining the effects associated with firm-specific variables (e.g. EPS, dividend yield, leverage, loss ratio, affiliated investment, solvency margin and reinsurance dependence) on the stock returns for Gulf insurance companies in GCC stock markets.

1.6 SIGNIFICANCE OF THE STUDY

The subject of what factors influence stock returns has been a heated debate for a long time now as firms seek to find solutions on how to choose and adjust their mix of securities in order to maximise stock returns. Identification of such factors is important for both practice and academic research.

Only little information exists on the factors that influence the stock returns in GCC stock markets in general, so it is important to examine the factors that affect stock returns in insurance sector in particular and financial sectors in general in GCC stock markets due to the importance of this sector.

GCC economies are well-integrated in the world economy; this study can be considered an important contribution to the investigation of small open economies. Such investigation would be very helpful to policymakers, investing community, shareholders, and portfolio managers and other business communities in general. This study provides insights into the factors affecting the insurance companies or financial sector in GCC countries. Therefore, this research will be of interest to insurance regulatory authorities, company managers and actuaries.

The finding of this study would be beneficial to actuarial for the purpose of underwriting and investment operation of insurance companies. Through identify the determinants of insurance companies' stock return, actuaries can examine whether the firm is exposed to the risk factors listed by the actuarial professional bodies.

Lastly, the researchers in this field also benefit from the recommendations of the study for their future research.

1.7 CONTRIBUTION OF STUDY

This dissertation is expected to add several primary contributions to the existing literature. First contribution attributed to the lack of research. The effects of macro-economic factors on the movement of stock prices have been well researched in the developed countries; still there is an avenue to research in this area for developing countries (Rahman, Sidek and Tafri (2009). Chen (2007), who investigated the relationship between non-macro and macro explanatory variables and Chinese hotel stock returns, recommends more studies by using data from other countries and markets.

Second, this study will be the first one that combines macroeconomic factors and firm-specific variables, as the determinants of stock returns in GCC stock markets.

Third, most empirical tests deal with the USA stock markets and comparative investigations with other markets can give valuable information on the validity of the theory's proposed, for example, the identification and the number of the factors on these markets (Rahman, Sidek & Tafri, 2009).

Accordingly, this study tries to bridge the following gaps:

I. The scarcity of similar studies in emerging markets necessitates more studies, such as this one.

II. This study will examine whether there are outcome similarities between the developed markets and the emerging markets.

III. This study will attempt to present additional findings to highlight the differences in results between studies in emerging markets and different sectors.

Many studies have been examined by various authors to analyze the association between stock return and macroeconomic variables, on the other hand this study will focus on the association between stock return and some of macroeconomic indicators and firm-specific variables, which means this study will examine the Multi-factor model by analyzing the relationship between stock return and other variables in insurance sector.

1.8 SCOPE OF THE STUDY

This study focuses on yearly financial reports provided by insurance companies listed on the GCC stock markets for the period of 2001 to 2010, as well as monthly and yearly economic reports from each country in GCC for the same period.

This study is organized into two phases. The first phase involves the use of secondary data to examine the effect of macro-economic factors on insurance companies' stock returns by investigation the relationship between these variables and insurance index returns. The second phase involves analyzing the impact of firm-specific variables on insurance companies' stock returns by investigation the relationship between these variables and the stock returns of each company.

1.9 STRUCTURE OF THE THESIS

This study is outlined into five chapters. Chapter one consists of introduction, GCC economy overview , overview of GCC insurance market, problem statement, research questions, the research objectives, significant of the study, contribution of study, scope of study, structure of the thesis and summary.

Chapter two is composed of three main sections discussing and presenting GCC's economic indicators, theories of stock price and past studies on the determinants of stock market price and stock return.

Chapter three provides details and procedures adopted in conducting the analysis. This incorporates hypothesis development, theoretical framework, population, sample and data collection, operational definitions, measurement of variables, model specification and data analysis techniques.

Chapter four presents the analyses and findings on the relationship between macroeconomic variables and firm specific variables as independent variables and insurance index returns and insurance companies' stock return as dependent variables.

Chapter fiv**e** provides summary of research findings, contribution of study, the implication of study, limitations of the research and recommendations for further research.

1.10 CHAPTER SUMMARY

This chapter presented an introduction, GCC economy overview, GCC insurance market overview, problem statement, research questions, research objectives, significant of study, contribution of the study, scope of study and structure of the thesis.

This research is conducted with a view to fill the research gap in the literature issues pertaining to the determinants of stock returns for insurance companies in GCC markets with an emphasis placed on listed insurance companies in these markets.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

The present chapter reviews literature related to this study to establish a solid foundation to foothold the study. It covers background on GCC economic conditions in Section 2.1, theories and empirical studies related to the determinants of stock price and stock returns in general, and on insurance companies, in Section 2.2 and 2.3. Finally, the summary of the empirical literature is presented in the final section.

2.1 GCC's ECONOMIC INDICATORS

GCC is the largest oil producer and exporter in the globe. With the production of oil and petroleum products, the region has been provided with several opportunities to increase the level of revenues and profits over the years. Moreover, the region witnessed flawless growth rate which tripled in size from the year 2002 to 2008 but the economic and financial recession in the year 2009 reduced the growth rate along with opportunities for the region. As a result, the region focused highly on diversification in the non-oil market.

The GCC countries maintain a policy of open capital accounts and a pegged (or nearly-pegged) exchange rate, thereby reducing their freedom to run an independent monetary policy. With the help of this, the region was able to borrow limited amount from foreign countries which significantly helped in the management of exchange rates. Moreover, the trade and current account of the region revealed significant insights regarding the trade surpluses. The economic indicators reveal that the GCC region is once again back on the track but with variety of products and services to offer to the international market. In earlier years, the region was just providing the foreign markets with oil but the region realized and acknowledged the importance of diversification through the financial and economic crisis.

This part provides an updated overview regarding the Gulf Cooperation Council (GCC). In order to do so, variety of economic indicators were taken into consideration to provide significant insights for the past 10 years until 2012. The indicators that are taken into consideration in this study include GDP growth rate, inflation rate, fiscal position of the GCC along with the money supply and external accounts.

2.1.1 GDP Growth Rate

The growth rate of the GCC region relies highly on the production and export of oil and petroleum to countries across the globe. The GDP growth rate of the GCC has been fascinating and outstanding from 2002-2008 and even after 2012 (IMF, 2012). Throughout 2002 to 2008 the region was provided with an opportunity to increase its economy threefold (Fox, 2011). The GCC countries enhanced its GDP from USD400 billion in the year 2003 to more than 1.1 trillion in the year 2008. A combined nominal GDP of the region grew at the highest ever rate of 28.9% to US$1076.8 billion in 2008 compared to a growth rate of 14.2% to US$835.6 billion in 2007(Fox, 2011). Such an increase in the growth rate in the year 2002-2008 was highly dependent on the strongly increasing oil demand in the world (Fox, 2011) (*see figure 2.1*). Some of the factors that contributed to such an extensive performance include better geo-political environment, boost in privatization of activities, increase in the Central Bank's assets along with the strengthening of the GCC's corporate sector.

On the other hand, the GCC region has witnessed a decline in the growth rate due to the rising financial and economic crisis (Bachellerie, 2012). The financial and economic crisis led to the decline in nominal GDP by -19.3 percent. Meanwhile, the real GDP declined from 6.4 percent to 0.5 percent in the years 2008 and 2009 respectively. With the global recovery of the oil market, the GCC region once again witnessed promising growth rate. The forecasted nominal GDP of the GCC record high of $1.56 trillion in 2012, up from $1.44 trillion in 2011 (*see figures 2.2).*

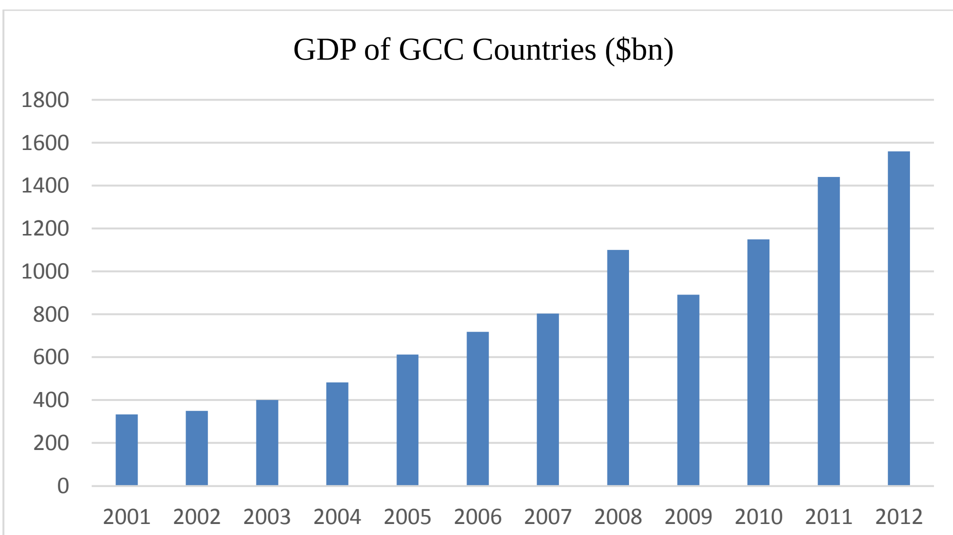

Figure 2.1
GDP of GCC Countries
Source: Gulf Investment Corporation

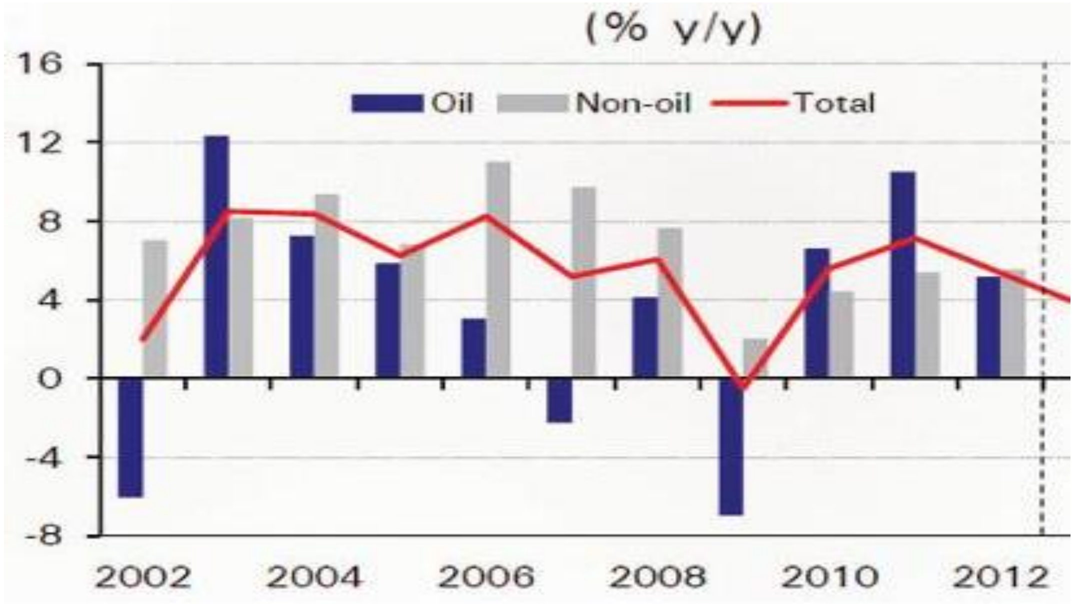

Figure 2.2
GCC's GDP Growth
Source: Gulf Investment Corporation

2.1.2 Inflation Rate

The inflation rate in the GCC as shown in figure 2.3, was quite low from 2002 to 2003 due to the prudent monetary and fiscal policies. Moreover, the access and availability of the goods and services in the region ensured low inflation rate. This could be witnessed by the 0.2 percent inflation rate which increased to 2.1 in 2004. The inflation rate was 6.7 percent in the year 2007 which reached 10.7 percent in the year 2008 (IMF, 2011). The increase in inflation rate was a result of the economic and financial crisis. The relatively higher inflation rate was basically due to the depreciation of the US dollar against the major currencies of the world because the GCC countries have fixed their exchange rate to the USD. As a result, the region witnessed lower interest rates, sufficient liquidity, higher spending, shortage of housing along with imbalance between the demand and supply of goods and services i.e. food, beverages and construction materials. The rising inflation rate was taken into consideration by the council. In addition, the wise and effective policies implementation by the government greatly helped in the reduction of the inflation rate. Due to such efforts, the inflation rate reduced to 3.3 percent in the year 2009.

In the year 2010, average inflation rate is 3.3 percent across the GCC region. At the lower end of the inflation range was GCC member countries i.e. Bahrain and UAE whereas at the higher end of the inflation range were Saudi Arabia along with Kuwait.

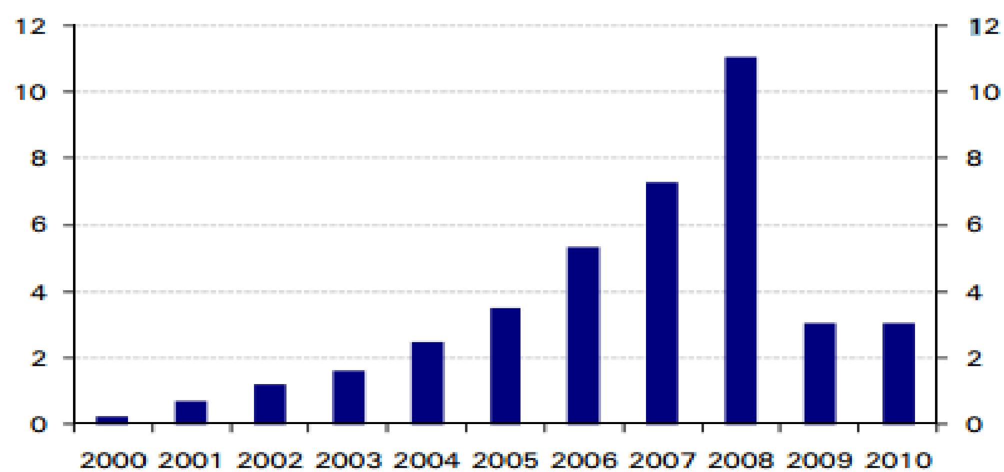

Figure 2.3
Inflation in GCC Countries
Sources: National sources / NBK

2.1.3 Fiscal Position

The fiscal position of the GCC region has always remained above the expectation of others. Oil and petroleum production and export have always supported the region's fiscal position. In the year 2008, the fiscal position as per the government report indicated that the region has a budget surplus of 25.3 percent of the GDP in comparison to 17.7 percent in the year 2007 (as shown in figure 2.4). The increase in oil prices due to the increasing demand has resulted in a high level of revenues. As a result, the region witnessed strong capital spending (Gulf Base, 2013).

Figure 2.4
Budget Surplus/ Deficit as a % of GDP
Source: Gulf Base, 2013

Due to the slumping of the oil market in the year 2009 as a result of the financial and economic crisis, the fiscal position of the region dropped to 3.3 percent of the GDP. After the economic and financial crisis, the GCC member countries realized that their revenues were highly dependent on the oil market due to which the region is spending highly on construction and promotion of the non-oil sector in the region (Gulf Base, 2013).

The region is aware of the fiscal reforms needed to reduce dependence on the oil sector to achieve fiscal discipline. Goal of achieving diversification is well in progress in the region despite the global financial and economic crisis, which made little impact on the economies of the region compared to the rest of the world (Gulf Base, 2013).

2.1.4 Money Supply

United States of America is the most prominent trading partner of the GCC region due to which the countries are highly focused on improving the trade relationship with the USA. In order to do so, the region has remained focused on maintaining and improving the exchange rate with the US dollar. This will provide the region with significant opportunities to enhance the profit margin along with the increase in the level of revenues. Kuwait is the sole exception in maintaining and improving the fixed exchange rate as the Kuwaiti Dinar was de-pegged to the US dollar in the year 2007.

To promote the long-term stability of the region along with the increase in profit margins, the GCC Central Bank has imposed restrictions on foreign borrowing capacity. By doing so, the GCC region has significantly enhanced its ability to keep the liabilities lower than other countries across the globe. The total reserves minus the gold of the GCC region was at an all-time high in the year 2008 (US $107.24 billion), an increase of almost seven billion in comparison to 2007 (US $100.76 billion).

The financial and economic crisis has also had a significant impact on the reserves. The reserves declined from USD 107.24 billion to USD 101.5 billion in 2009 (Gulf Base, 2013) (*see figure 2.5*).

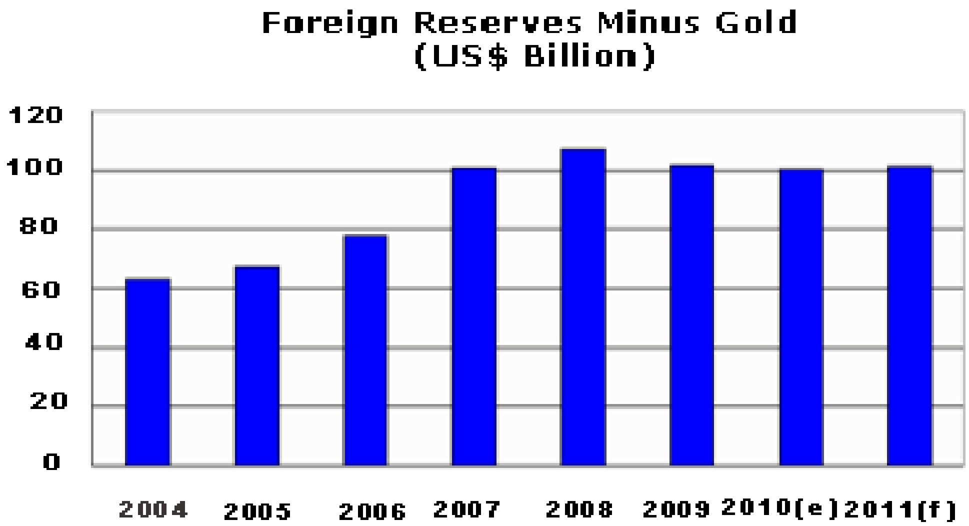

Figure 2.5
Foreign Reserves minus Gold
Source: Gulf Base, 2013

2.1.5 External Accounts

The production and export of oil and petroleum to the countries across the globe have presented the region with strong financial support for decades. In addition, UAE is the global and regional trade hub due to which the country is constantly provided with an opportunity to gain surpluses over trade (Shediac, Khanna, Rahim, & Samman, 2011). In the year 2008, UAE enjoyed surplus of $22.2 billion (8.5 percent of GDP) but the impact of financial and economic crisis on the trade was quite severe and a deficit of $7 billion was realized in the year 2009 (-3.1 percent of GDP) (*see figure 2.6*).

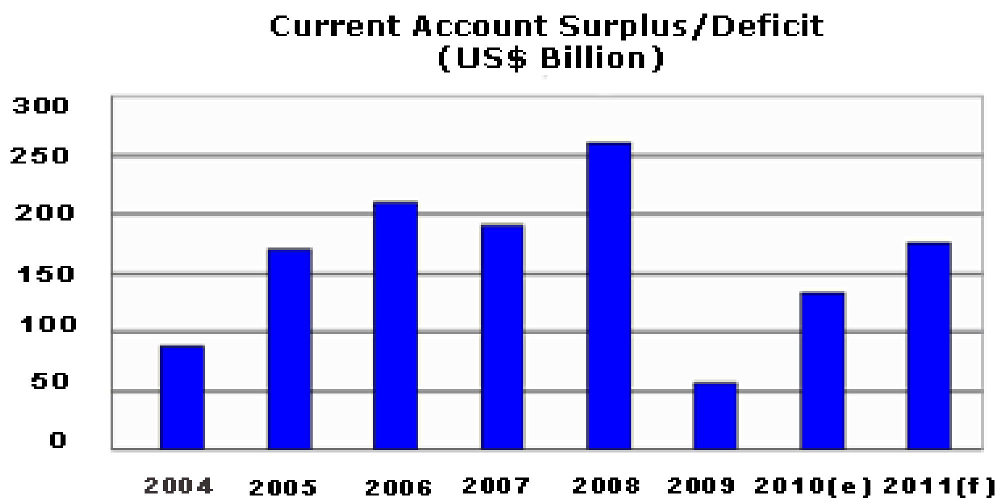

Figure 2.6
Current account Surplus / Deficit
Source: Gulf Base, 2013

With the recovery of the oil market, the external and trade accounts are constantly being taken into consideration by the region. The GCC's reliance on the oil market is quite high due to which the region is constantly supporting and promoting the oil and non-oil exports and re-exports. However the region has started diversifying in different markets (Hvidt, 2013). Different economies in GCC region are expected to do well in future and the most prominent among these economies include Kuwait and UAE (World Economic Forum, 2007)

2.2 THEORIES OF SECURITIES' PRICING

Many researches have been dedicated to the exploration of the fundamental factors driving stock returns through the guidance of asset pricing models such as Capital Asset Pricing

Model (CAPM) and the Arbitrage Pricing Theory (APT). Research in the field of finance has mainly stressed on the role of market-wide forces comprising the market portfolio and macroeconomic variables, for the purpose of predicting or explaining returns. Contrary to the situation in finance, in accounting, firm-specific accounting variables are generally used to explain returns.

Prior studies in the real estate literature (e.g., Brueggeman, Chen & Thibodeau, 1984; Chen & Tzang, 1988) show that CAPM-related single index models are not enough for studying the risk-return association of real estate-related assets. Titman and Warga (1986) also indicate that multi-index asset pricing models may be more appropriate for real estate portfolios compared to single-index models because returns from these portfolios are particularly sensitive to unexpected changes in inflation and interest rates. If more than one variable plays a major role in real estate returns, then the arbitrage pricing theory (APT) proposed by Ross (1976) would seem to be a natural selection as a theoretical framework for studying the securities' pricing.

2.2.1 Capital Asset Pricing Model (CAPM)

CAPM was developed by Sharpe (1964), Lintner (1965) and Mossin (1966). It states that non-diversifiable market risk impacts expected security returns. The general notion behind the model is that compensation is provided for the investors due to the time value of money or systematic risk which is characterized by the risk-free rate, whereby; the investors are compensated for investing over a certain period of time and for taking additional risk relative to market risk.

The capital asset pricing model is used to determine the most appropriate theoretical required rate of return of an asset if it is to be added to an already well diversified portfolio (Markowitz, 1999; Craig 2003). The model takes into account the security's risk free rate, market risk premium and the asset's systematic risk in calculating the expected rate of return. From this model, a security is said to be well priced if its market price is the same as the present value of its future cash flow when discounted at the rate suggested by the CAPM and given its relative riskiness (Shefrin & Statman, 2000; French, 2003). On the other hand, if its observed price is greater than the CAPM valuation, the security is said to be overvalued and if lower than the CAPM valuation, then it is undervalued (Daniel, Hirshleifer & Subrahmanyam, 2001).

2.2.2 Arbitrage Pricing Theory (APT)

Arbitrage price theory (APT) implied a relationship between the stock market and economic activity. However, this theory has been silent about determining which precise events or economic factors are likely to influence asset prices.

The APT was established by Ross (1976) as an alternative to CAPM. APT suggests different sources of risk in the economy that cannot be eradicated by sole diversification.

These sources can be considered as related to economy wide factors like inflation and changes in the aggregate output. In addition, in APT, instead of the calculation of a single beta as in the case of CAPM, many betas are calculated through the estimation of the sensitivity of an asset's return to changes within each factor (Ross & Walsh, 1983). According to French (2003), the APT has its basis on the idea that portfolio stock returns can be predicted through their linear relationship with several independent macroeconomic variables. Its calculations are based on the ability of an arbitrageur to make theoretically risk free profits from a misplaced security whose price is not equal to the expected end of period price that is discounted at the rate which is implied by the model (Jong, Rosenthal & Dijk, 2003; Dong, Hirshleifer & Richardson, 2006).

This theory has the potential of overcoming CAPM weaknesses as it needs less and realistic assumptions to be developed through a simple arbitrage argument (Shanken, 1982). In addition, its explanatory power is comparatively better as it is characterized by a multifactor model (Altay, 2003). According to Altay (2003), the APT's power and its generality are considered as its main strength as well as its weakness. This is because while APT enables researchers to choose the factors that provide the most suitable explanation for the data, it fails to explain variation in asset return in the form of limited number of easily identifiable factors.

The pioneering tests utilized the factor analytic approach or the FLM (factor loading model) which was developed by Miller and Gehr (1978) and was later extended by Roll and Ross (1980). Chen, Roll and Ross (1986) were the pioneers who used this pre-specification of macro variables approach in 1986.

Burmeister, Wall, and Kent (1986) find four macroeconomic factors impacting asset returns in APT framework. These factors are the unexpected change in the risk, unexpected change in the term structure, unexpected inflation, and unanticipated change in the growth rate of real final sales. Two of these four factors depend on Kalman filtering techniques for their estimation of unobserved economic variables.

Chen, Roll and Ross (1986) tried to utilize another approach through macroeconomic factors to explain asset returns in light of APT. APT return generating process considers the macroeconomic variables as factors and thus, the empirical APT outcome can be termed as Macroeconomic Variable Model (MVM).

Another obstacle in testing APT in a particular market comes in the form of methodological issues. This is owing to the fact that different methodologies and designs have been utilized in testing Macroeconomic Variable Model (MVM) resulting in divergent outcomes. Also, to determine the solution of the APT equation simultaneously, the Full Information Maximum Likelihood (FIML) method has been used, e.g. by Sweeney and Warga (1986) and Ariff and Johnson (1990). The Non-Linear Stage Least Squares (NLSLS), used by McElroy and Burmeister (1988) can also be used to solve the equation. These latter procedures made use of Iterated Non Linear Seemingly Unrelated Regression procedure simultaneously.

Harvey, Solnik and Zhou (2002) applied the GMM and uses return data from sixteen OECD countries plus Singapore, Malaysia and Hong Kong. They are interested, however, not only in explaining cross section differences but also to understand the time variation in international assets return. They specify information set to construct a conditional model with factors not pre-specified. The author don´t reject that at least two factors would be necessary to explain the conditional variance of the returns. The first factor is similar to the global market portfolio and the second factor would be related to foreign exchange risk.

2.2.3 Fama and French Three-Factor Model

The Fama and French (1993) three factor asset pricing model's development was owed to the compounding evidence of CAPM's poor performance in tackling realized returns. In Fama and French or FF's (1992a) study, an exploration of the joint rules that covers Earnings / Price (E/P) ratio, market beta, size and leverage and book-to-market equity ratio according to the cross-section of average stock returns for NYSE, Amex and NASDAQ stocks from the span of time from 1963 to 1990, was carried out. They revealed beta to possess no explanatory power. However, when utilized alone, E/P, size, book-to-market equity and leverage all displayed significant explanatory power in the explanation of the cross-section of average returns. Similarly, when jointly used, size and book-to-market equity displayed significant explanatory power and they seemingly absorb the impacts of leverage and E/P in expounding on cross-section average stock returns. Consequently, FF (1992a) asserted that if stocks are priced rationally, multidimensional risks arise.

Later, Fama and French (1993) extended their study to both stocks and bonds with the help of a time-series regression approach. They regressed the stocks and bonds taken on the monthly basis based on five factors which are: returns on a market portfolio, a portfolio for size and a portfolio for the book-to-market equity effect, a term premium and a default premium. The authors found the former three factors to be significant for stocks while the latter two significant for bonds. This led to the authors' development of a three-factor asset pricing model for stocks comprising the conventional market (beta) factor and two additional risk factors which are linked to both size and book to market equity. The authors asserted that this developed version of the model explains more of the cross section average returns of the U.S. stocks.

Fama and French (1996) provide a multifactor explanation and stated that their model is capable of explaining anomalies formerly overlooked by CAPM. They reported that an overall market factor and factors linked to firm size and book-to-market equity are quite attractive to investors and they came up with international evidence by quoting that values (high book-to-market equity) performed better than growth stocks (low book-to-market equity) as evidenced in 12 out of 13 main markets from 1975 to 1995 (Fama & French, 1998). Additionally, the authors noted an effect of an international caliber based on the evidenced which showed that small stocks performed better compared to large stocks as evidenced in 11 out of 16 markets, implying that the cross-sectional element of the expected stock returns is not comprehensively expounded by their betas.

The Fama and French Three Factor Model uses small caps and value stocks in its valuation. These stocks are identified to perform better than the market in general and are opposed by growth stocks to which the CAPM is added to reflect a portfolio's exposure to the two stocks (Fama & French, 1992). According to this model, returns increase proportionately with the risk and hence, if the returns increase with increases in stock price, then the stocks with a high price will be more risky in an efficient market (Fama & French, 1998). High stock prices are marked by low sales because of future earnings uncertainties or because stock prices are capital intensive.

2.3 EMPIRICAL STUDIES ON THE DETERMINANTS OF STOCK PRICE AND STOCK RETURNS

2.3.1 Macroeconomic Factors

There have been numerous researches that point to the fact that macroeconomic factors impact stock returns. Nevertheless, studies regarding the effect of these factors upon developing stock markets are still limited.

Fama (1981) reveals the existence of a significant association between macroeconomic factors and stock prices. Immediately after his study, a large number of studies have attempted to understand the basic relationship in a single country or in a group of countries. Owing to the trend of globalization in the previous two decades, several researchers such as Canova and de Nicolo (1995) and Nasseh and Strauss (2000) have carried out an investigation into the macroeconomic indicators' international impact on stock prices. However, majority of the research were carried out in the West (U.S.A. and European countries).

Kyereboah-Coleman and Agyire-Tettey (2008) investigate the macroeconomic factors' effect on Ghana Stock Exchange and revealed that lending rates and inflation rates impact the stock market performance. The results of their study reveal that indicators of macroeconomic factors should be kept in mind when studying investors in developing countries.

As for the specific case of companies in the insurance sector, arguments in some literature suggest that certain macroeconomic factors may affect their stock returns. For example, it has been argued that GDP growth and inflation affect underwriting and investment returns and thus impact insurers' financial health and stability (E.M.Varnell. Institute of Actuaries, 2009).

In the following section, previous studies regarding the association between stock price/return and some macroeconomic factors will be discussed.

a- Inflation Rate

Inflation is considered as an increase in the price of goods and service and is measured according to an annual percentage increase. In other words, as inflation increases, ever dollar buys a smaller percent of the good or service (Shiblee, 2009). Inflation has been defined in many ways by different economist. According to Johnson (1972) inflation is simply defined as sustained rise in general price level. Inflation is usually measured over periods that are sufficiently long to eliminate any bias arising from short term phenomena. Inflation is now worldwide, and it is one of the greatest challenges facing most nations in the 1980s. One significant feature of the present inflationary trend is its ability to defy solution in most countries (Ajayi & Ojo, 2006).

"When inflation rises, nominal interest rate goes up resulting in an increase in the demand for bonds; this reduces the individual's demand for stocks since stocks and bonds compete in an individual's portfolio allocation. Higher inflation rates reduce the incentive for a business firm to issue bonds for raising funds, since it would require it to lock into payments of higher nominal rate of interest. Therefore it is more attractive for a business to raise funds by selling equity rather than issuing debt securities. This results in an increase in the supply of stocks. An increase in supply and a decrease in demand for bonds would inevitably lower the price of stocks" (Quayes & Jamal. 2008; 767).

Previous studies however show that there is no consensus regarding the impact of inflation upon stock returns. Some studies reveal that inflation affects the long-run value of stocks while others assert that inflation inevitably leads to decline in stock prices

Tseng (1982) reveals a positive but insignificant association between CPI and stock price. He also revealed that the relationship between the annual percentage change displayed by nominal stock prices and the annual percentage change displayed in consumer prices is significantly unstable in the U.S. while Afolabi and Efunwoye (1995) reveal a link between inflation and rising prices.

Junttila, Larkomaa and Perttunen (1997) found a negative relation between unexpected inflation and the stock market in Finland. Similarly, Udegbunam and Eriki (2001), in their investigation of the effect of inflation on the Nigerian Stock Market, indicate that inflation has a significant measure of negative effect on the stock market.

In the context of Malaysia and Indonesia, Abd. Majid, Meera, Azis and Ibrahim (2001), reveal that the stock returns are independent of inflationary trends in the Malaysian economy; a finding supports the view that stock prices in Malaysia are a good hedge against inflation. Unfortunately, a contrary result was found in Indonesia as a negative relation was revealed between real stock returns and inflationary trends.

The Fisher's hypothesis was tested by Spyros (2001). The result reflects a contrary view that returns on stocks hedges inflation. This study shows that there is a negative but not statistically significant relationship between inflation and stock returns in Greece from 1990 to 2000. In this same Floros (2004) carried the same study on Greece economy and concluded that there is no relationship between inflation and stock returns in Greece. Crosby (2001) investigate the relationship between inflation and stock returns in Australia from 1875 to 1996 and found out that the Australian economy does not experience permanent changes in inflation or stock returns. The result shows that there exist short-run negative relationships between these two variables that depend on the period of time that is considered.

In another related study, Kolari and Anari (2001) collected share price and goods price data from six industrial countries and found that the Fisher elasticity of stock prices with regards to the long run in light of prices exceeding the unity and range of 1.04 to 1.65, implies a consistency that signifies inflation's negative effect in the short term and positive effect in the long one. On the other hand, Tatom (2002) found a negative long-term relation existing between share prices and inflation implying that higher share prices are associated with lower inflation.

Furthermore, Azeez and Yonezawa (2006) reveal inflation to have a significant impact upon the expected returns in each of the sample period. In another similar study, Al-Mutairi and Al-Omar (2007) explore the impact of inflation upon the value of traded shares in Kuwait's Stock Market and indicate a negative and long term effect of inflation on the value of traded shares. Thaker, Rohilina, Hassama and Fouad (2009) conduct an examination of the long-run equilibrium between inflation and stock prices in Malaysia and indicate the presence of a positive relationship between inflation rate (CPI) and stock prices.

In terms of the effect of inflation on insurance operation, inflation affects not only the level of discount rates but also the future cash flows. It has a negative impact on the insurance industry because when it increases, insurance companies have to increase premiums in order to make up for the increase in prices of the future claims (Frankel & Lee, 1998). In addition, policyholders have to bear the brunt of the increased cost of living brought about by inflation and thus, they are only left with a little amount of income to pay for insurance premiums. Not so long ago, inflation expectations was at a gradual increase owing to the investors' concern of the constant stimulation of the monetary systems significantly impacting investor sectors like motor vehicle and home owner's insurance policies to a great extent (Frankel & Lee, 1998).

Majmudar (2006) asserts that inflation plays a crucial role in insurance and has an adverse impact on many aspects of insurance operations, such as claims, expenses and technical provisions. Since it is predictable over the term of general insurance liabilities and expected inflation generally is taken into account when actuaries set premiums, inflation is unlikely to seriously impact the performance of general insurers. Nevertheless, there can be unexpected high claims inflation in liability and personal injury claims despite otherwise low inflation. Depending on an insurer's mix of business, these forms of inflation can affect the general insurance liabilities. If inflation is significantly greater than expected, it could cause insurers financial difficulty. As a result, general insurer performance would be negatively related to unexpected inflation.

b- Interest Rate

One of the primary returns on stocks/assets determinants is interest. The assumption is such that if domestic interest rate increases more than world interest rate, a significant increase is noted in capital inflow to the domestic country. This capital inflow into the country's economy may reflect in the capital market and this will result in the increase for stock demands while supply remains unchanged. Eventually, this would lead to over demand and increase in price of stocks and this latter increase will in turn, impact the return on stocks (Pilbeam, 2001).

In theory, the association between share prices and interest rate is manipulated by investors in portfolios of bonds and stocks (Apergis & Eleftheriou, 2002). Investors generally prefer higher interest rate bonds as this suggests that stock prices will eventually decrease. Contrarily, a decrease in interest rate results in increase in stock prices. This inverse relationship was discovered by Gjerde and Saettem (1999), Wongbangpo and Sharma (2002), Paul and Mallik (2003), Nasseh and Strauss (2004), McMillan (2005), Puah and Jayaraman (2007) and Reilly, Wright and Johnson (2007).

Literature is rampant with studies dedicated to the association between share prices and interest rates. Among these studies is the one conducted by Fama (1981) who asserts that inflation has a negative relationship with the expected real activity and the expected real activity has a positively relationship with returns on the stock market while stock market returns have a negative relation with the short-term interest rate. However, the impact of long-term interest rate on stock prices stems from the value model through the impact of long-term interest rate on the discount rate.

Campbell (1987) conducted an analysis on the relationship between the yield spread and stock market returns. He found that the same variables that were utilized in the prediction of excess returns in the term structure, predicted the excess stock returns, implying that an analysis of returns on bills, bonds and stock simultaneously should be advantageous. The findings of the study evidenced the effectiveness of the term structure of interest rates that predicts returns on the U.S. stock market that are in excess.

In a similar study, Zhou (1996) explores the relationship between interest rates and share prices by making use of regression analysis and reveals interest rates' significant impact on stock returns, particularly in long-term scenarios. The findings also show that long-term interest rate explained a considerable portion of the differences in price-dividend ratios and implies the unpredictability of the stock market is linked to the high volatility of long-term bond yields and may be determined through the different forecasts of discount rates.

In the context of Bogota, Arango , González and Posada (2002) found evidence of non-linear and inverse association between the share prices on the Bogota Stock Market and the interest rate measured through the inter bank loan interest rate, which is influenced by the monetary policy to some extent. The model developed for the study encapsulates the stylized fact on this market characterized by high dependence of returns in short terms.

Another similar group of studies were carried out regarding the association between share prices and interest rates in stock markets in a group of countries. For instance, Wongbangpo and Sharma (2002) explore the long-term interest rates' (LTR) effect on share prices in five Asian countries. The results indicate a negative long-term association between share prices and interest rates in the Philippines, Singapore, and Thailand but a positive relation is detected in Malaysia and Indonesia.

In a study involving Singapore and the U.S., Wong, Khan and Du (2005) reveal that prior to the 1997 Asian Financial Crisis, Singapore's stock market were co-integrated with interest rate. After the crisis, this existing equilibrium disintegrated. A similar scenario was also observed in the U.S. markets whereby the stock prices were integrated with macroeconomic variables prior to the 1987 Equity Crisis. The equilibrium was broken after the crisis and eventually disappeared after the 1997 Asian Crisis. This result is further compounded by the study conducted by Al-Mutairi and Al-Omar (2007) who reveal a negative and long term effect of interest rate on the value of traded shares which will be reflected on the stock price. In a related study, Salah Uddin and Alam (2009) conduct an examination of the direct association between stock price and interest rate, stock price and changes of interest rate, changes of stock price and interest rate and changes of stock price and changes of interest rate in the light of Dhaka Stock Exchange (DSE). In all the cases, it is revealed that interest rate had a significant negative relationship with stock price and changes of interest rate has a significant negative relationship with changes of stock price and similarly, changes of interest rate has a significant negative effect on changes of stock price. Moreover, Somoye, Akintoye and Oseni (2009) discover that the variability as measured by coefficient of variation (β) is significantly negative for lending interest.

In a recent study, Alam and Salah Uddin (2009) examined (in the context of developed and developing countries in the light of) the relationship between interest rate and stock price. They state that individual country results are mixed for both developed and developing countries. In the context of Malaysia, it is revealed that interest rate is not related to share price although interest rate changes had a negative relation with share price changes. In the contexts of Bangladesh, Columbia, Italy and South Africa, a negative relation was revealed between interest rates and share price, and between changes of interest rate and changes of share price. While in the contexts of eight countries namely, Australia, Canada, Chile, Germany, Jamaica, Mexico, Spain, and Venezuela, a significant negative relationship is revealed between interest rates and share price but no relationship is established between change of interest rate and change of share price. With the exception of the Philippines, in the rest of the countries, significant negative relationships between interest rates and share price and between changes of interest rate with changes of share price are revealed.

In the same direction, Pilinkus and Boguslauskas (2009) conduct an examination of the relationship between interest rate and stock price in Lithuania stock market price and the findings indicate that short-term interest rates caused contrary movements for stock prices.

In general, interest rate risk is one of the major risks that insurance companies face. Although it can be avoided, in cases where the durations of assets and liabilities are made almost parallel, life insurance companies mismatch the durations intentionally through their hold on assets with longer duration than liabilities for the purpose of obtaining higher returns (Booth, Chadburn & Haberman 2004). Although the interest rate change affects the value of assets and liabilities in a similar way, the effect on these assets and liabilities vary in cases where they possess different durations.

“Risk resulting from changes in interest rates is one of the main risks facing insurers. Interest rate change affects, not only the value of assets, but also the cost of claims. The higher the interest rate, the lower the asset value and the liability value. That is, interest rate change influences the value of assets and liabilities in the same direction. Moreover, the higher interest rates are, the higher claim inflation is likely to be, which means that claim costs increase. In addition, the impact of interest rate change on assets and liabilities is different if the two have different durations.” (Majmudar, 2006; 146).

Changes in inflation cause interest rate to change which affects the insurance industry. Based on that the inflation results in high interest rates which result in the increase in the risk of policyholders’ default payment of premiums. In turn, this will lead to the reduction of the company’s returns and particularly impacts insurance companies that specialize in providing claims that relate to title insurance contracts. In life assurance, they impact the choice of the holder of either accepting term assurance or whole life policy. However, informed policyholders generally prefer term assurance having adjustable rates on the premiums payable.

c- Money Supply

Money supply is divided into multiple categories - M0, M1, M2 and M3 - according to the type and size of account in which the instrument is kept.

M0 is characterized as the physical currency which means it is a measure of the money supply combining liquid or cash assets held within a central bank and the amount of physical currency that is circulating in the economy. M0 is also known as narrow money due to the fact that it is the smallest measure of money supply (Shiblee, 2009).

M1 is M0 coupled with demand deposits referred to as checking accounts. It is utilized as a measure for economists attempting to quantify the amount of money in circulation.

M2 is M1 coupled with small time deposits that are less than $100,000, savings deposits and non-institutional money-market funds. Economists usually utilize M2 to quantify the amount of money in circulation and to explain different economic monetary conditions. This measure is a key economic indicator that is utilized in the forecasting of inflation.

Finally, M3 is M2 coupled will all large time deposits, institutional money-market funds, short-term repurchase agreements and other larger liquid assets. It is a general measure of money used in the estimation of the entire supply of money within an economy.

In general many studies defined money supply comprising of three monetary aggregates termed as M1, M2, and M3. M1 is defined as the banks' transaction deposits and the cash in circulation, M2 encompasses saving accounts, small time deposits at banks, and retail money market funds while M3 includes large time deposits, repurchase agreements, Eurodollars and institutional money market funds.

Money growth influence interest rate and the prices and those will effect stock price and stock return. "The effects of money supply on stock prices are far from being straightforward. An expansive monetary policy stimulates the economy and increases the cash flow in the hands of public resulting in rising demand for stocks and other financial assets. Once these demands are translated into actual purchases, prices of stocks are likely to go up" (Wong, Khan, & Du, 2005).

Various studies (Homa & Jaffee, 1971; Rozeff, 1974; & Darrat, 1990) claimed that stock prices are directly impacted by the money supply changes through changes in portfolio and are indirectly impacted by the same through variables of economic real activity. Additionally, a marked change in money supply (increase or decrease) can result in the increase/decrease of money within the system which could lead to a scenario within which money chases few stocks or less money chases more stocks.

On the relationship between money supply and stock price, Sellin (2001) highlights two theories developed by the Keynesian economists and the real activity theorists. According to Keynesian economists, a negative association exists between stock prices and money supply while real activity theorists believe that the association between them is positive.

The Keynesian economists[6] argue that change in the money supply will affect the stock prices only if the change in the money supply alters expectations about future monetary policy. According to them, a positive money supply shock will lead people to anticipate tightening monetary policy in the future. They bid for funds in anticipation of tightening of money supply in the future, which will drive up the current rate of interest. As the interest rate goes up, the discount rates go up as well and the present value of future earnings falls. Stock prices, consequently decline. Furthermore, they argue that economic activities decline as a result of an increase in interest rates, which further depresses stock prices (Sellin, 2001).

On the contrary, real activity economists argue that an increase in MS implies that money demand is also increasing in the expectation of increased economic activity. In turn, higher economic activity leads to higher expected profitability causing the stock prices to

[6] Keynesian economics also called Keynesianism and Keynesian theory) is a macroeconomic theory based on the ideas of 20th century English economist John Maynard Keynes.

increase. In other words, real activity theorists believe that there is a positive association between money supply and stock prices (Sellin, 2001).

Sellin (2001) also discusses risk premium that was previously proposed by Cornell. According to the latter, money instead of alternate assets, is held for the purpose of precautionary measures. In addition, money demand is directly proportional to risk and risk aversion. In other words, an unplanned increase in money supply suggests a higher money demand under the conditions of monetary policy. Therefore, higher money demand implies higher risk. Consequently, investors are inclined to demand for higher risk premium for holding stocks which makes them unattractive, leading to a decrease in equity prices.

There are several studies which found a positive relationship between money supply and share price. Junttila, Larkomaa and Perttunen (1997) found that money supply is significantly positively and statistically associated with stock price in Finland Stock Market. This finding is consistent with Al-Sharkas's study (2004) which reveals that money supply (M2) has a positive impact on the Amman Stock Market. Wong, Khan and Du (2005) carried out a study in Singapore and U.S for the period prior to the 1997 Asian financial crisis. The findings show that Singapore's stock markets were co-integrated with the money supply and this integration dissolved when the crisis came. In the context of U.S., stock prices were co-integrated with macroeconomic variables prior to the 1987 equity crisis. Similarly, this equilibrium was disrupted in the 1987.

In other studies, Al-Tamimi (2007), Maskay (2007), Al-Mutairi and Al-Omar (2007), Rahman and Mustafa (2008) and Pilinkus and Boguslauskas (2009) explore the relation between MS and share price and the findings suggest a positive effect between money supply and stock value in UAE, Kuwait, Bangladesh and Lithuania.

In a more detailed and specific study, Thaker *et al* (2009) use the variance decomposition and impulse response function and found that MS positively reacts to share prices in the short run. However, this effect turns negative when the situation changes to the long run. Moreover, a similar result is revealed by Pilinkus and Boguslauskas (2009) who find that money supply has a strong positive effect on stock market prices in the short run.

In the Malaysian context, Rahman, Sidek and Tafri (2009) conduct a study on KLSE and their findings reveal that variables of monetary policies, e.g. proxied by money supply have a positive and significant impact on Malaysia’s stock market.

In sum, majority of the studies discussed in this section revealed that money supply has a positive impact on stock market price. Nevertheless, there are a few studies revealing that money supply has no impact on stock market. For instance, the study conducted by Türsoy, Günsel and Rjoub (2008) concerning the testing of the impact of money supply in Istanbul Stock Exchange, reveal that money supply has no significant effect on stock returns.

d- Oil Prices

A current trend in the energy sector has brought up an interest within the research community regarding the relationship of oil price–macroeconomics and oil prices-stock prices. According to Fang (2010) higher oil prices may affect the global economy through various ways such as transfer of wealth from oil consumers to oil producers, a rise in the cost of production of goods and services, and impact on inflation, consumer confidence, and financial markets.

Based on a study by Gogineni (2008), all industries are not equally dependent on oil. This assumption is due to the lack of articles expounding the effect of oil prices on the returns of non-oil-intensive industries.

On the other hand, Bjornland (2009) argues that higher oil prices generally represent an immediate movement of wealth from oil importers to oil exporters. She stresses that the medium to long term effect hinges mainly on what the government in the oil producing countries do with the additional income. In instances when this income is utilized in the purchase of goods and services in their country, higher oil prices will produce higher level of activity which results in improved stock returns.

Surprisingly, it has been observed that only a few studies in literature are addressed to the relationship between oil prices and stock markets in net oil-importing countries. Due to lack of research in these countries, the relationship shows ambiguity (Arouri & Rault, 2010).

Among the few studies relevant to the topic found in literature is Chen, Roll and Ross (1986) which is an examination of the effect of index oil price changes upon asset pricing. The authors find no overall impact. In a related study, Roger, Ronald and Hans (1996), make use of an unrestricted Vector Autoregressive (VAR) to present a significant relation between some U.S. oil companies' stock returns and changes in oil price. Nevertheless, the authors find no evidence of a relationship between oil prices and market indices like the S &P500.

Contrary findings can be found in the study conducted by Sadorsky (1999) who also made use of an unrestricted VAR and coupled it with GARCH (Generalized Autoregressive Conditional Hetroskedasticity) to study the impact on US monthly data. The findings show a significant relation between oil prices changes and aggregate stock returns. Based on this context, Roger *et al*., (1996) state that if oil plays an major role in the economy of a country, oil price should be expected to be correlated with changes in stock prices (Driesprong , Jacobsen & Maat , 2008).

Jones and Kaul (1996) argue that the oil price changes' impact to a country's economy, which are reflected in the stock returns, are likely to differ across countries according to their oil production and consumption level.

Further studies of stock markets are contributed by Sadorsky (1999) and Papapetrou (2001). The former study is conducted on monthly data from the years 1947 to 1996 – a complete contrast to the quarterly data. Sadorsky's (1999) analysis presents that oil price shock has a negative and a statistically significant effect on stock returns and higher production costs resulting from higher oil prices which will cause earnings to decrease and in turn leads to an immediate decline in stock prices in an efficient stock market. In other words, individual oil price shocks depress real stock returns. The author categorized the period of his study into two sub-periods. The findings of his analysis show that oil price shocks have a greater impact after 1986, implying that there exists a change in dynamics as opposed to change in reaction of the system to the shocks.

In other related studies, Udegbunam and Eriki (2001) reveal in their findings that the oil price volatility has no significant effect on stock price while El-Sharif, Brown, Burton, Nixon and Russell (2005) examine the relations between oil price changes and stock returns in the U.K. oil and gas sector and reveal the relationship to be significantly positive. In addition, Driesprong, Jacobsen and Maat (2008) carried out an examination of whether oil prices' changes predict stock returns using market data from 48 countries. The findings reveal that the sensitivity of the oil price changes is expected to differ from one country to another.

Gay's (2008) study concerning the effect of oil price on the stock market involves the exchange of a group of countries comprising of Brazil, Russia, India, and China. The findings of the study reveal no significant relationship. Similarly, Al-Fayoumi (2009) conducts a similar investigation in Turkey, Tunisia and Jordan, and the empirical findings of this paper suggest that changes in oil prices do not adversely affect these countries' stock markets. Along the same lines, Türsoy, Günsel and Rjoub (2008) conduct an examination of the effect of macroeconomic variables such as oil prices on the portfolios return. The results reveal that these factors have no significant effect on stock returns in Istanbul Stock Exchange.

Moreover, in another study, Park and Ratti (2008) conducted an examination of the relationship between oil price shocks and stock markets in the U.S. and 13 other European countries through the use of monthly data in the period from 1986-2005. The study indicated that oil prices play a major role in the stock market of oil importing countries. In addition, Park evidences that stock markets in oil exporting countries experience negligible effect of changes in oil prices compared to oil importing countries while stock prices in the latter countries experience less sensitivity to interest rate.

Finally, Rahman and Mustafa (2008) reveal a significant positive link between oil price and stock price in the short term. Based on the study by Arouri and Rault (2009), findings reveal a co-integration of oil prices and stock markets in GCC countries, while the SUR (Seemingly Unrelated Regression) results reveal that increase in oil prices has a positive effect on stock prices in countries with the exception of Saudi Arabia. Similarly, Narayan and Narayan's (2010) study reveals oil prices having a statistically significant positive impact on Vietnam's stock prices.

On the other hand, oil price changes have dual implications on the stock prices. When oil price increases in an economy, it may result in increased stock prices and thus, indicating that the economy is developing and real incomes are increasing. However, they may also indicate higher living costs and transport costs which translate to heavy burden upon consumers (Henry, 2000). The impact of these changes upon insurance companies is manifested as policyholder's default in premiums payment owing to the burden on them.

e- Unemployment Rate

Based on a Sociology dictionary, unemployment is regarded as a state when person having no job and is currently looking for one. Unemployment comes in different types depending on the cause. According to Jary and Jary (2000), unemployment is the state of not being employed in paid work or self-employed, even though one is available for such activity.

According to arbitrage pricing theory, assessment should be made of the systemic risk of an entire market and not of individual firms or micro-economies. An important marker of a region's financial health is its unemployment rate, which determines an economy's buying power and cash flow.

According to the International Labor Organization, (2011), unemployed workers are referred to as those individuals who are out of work, but are prepared to work for pay; they are available to work and are searching for work. Unemployment has its advantages as well as its advantages. The former includes its assistance in averting uncontrollable inflation which negatively impacts the population in the economy and has major long-term economic costs. Nevertheless, the previous notion that full employment normally leads to local inflation has been negatively proven as current expanded international trade has been shown to be capable of continuing the supply of low-priced goods also in situations when local employment rates rises to nearly full employment.

Another view of unemployment advantage and disadvantage is evidenced by the study conducted by Boyd, Liu and Jagannathan (2005). The authors reveal that normally, an increase in unemployment is "good news" for stocks during economic expansions and "bad news" during economic contractions. Conversely, news of unemployment collects information regarding future interest rates, equity risk premium and corporate earnings. In case of stocks, information regarding interest rates is highlighted during expansions while information about future earnings is highlighted during contractions. In their study, the authors explore the effects of fluctuating unemployment rates on the stock market and reveal that an increasing unemployment rate during recessions negatively affects stock market prices by driving the numbers down. On the other hand, during economic expansion, a rise in unemployment helps markets by driving the numbers up.

On the other hand, Türsoy, Günsel and Rjoub (2008) reveal that unemployment has no significant impact on stock returns on Istanbul Stock Exchange (ISE) while Shiblee (2009) found unemployment to have a weak influence on most companies in USA.

In sum, studies depending on unemployment in the estimation of stock price represent a weak estimate as the results are divergent. Pilinkus and Boguslauskas (2009) examined the effect of unemployment rate on stock prices and found them to be inversely related.

Changes in stock price owing to unemployment, hinge on the expansion or contraction of the economy (Keynes, 1936). In an expanding economy, stock prices tend to rise with the increasing unemployment rate and in a contracting economy, stock prices fall with the increasing unemployment rate because of the economy's negative response to the labor market. These stock prices' reactions owing to changes in rate of unemployment are impacted by the interest rates and expectations for growth. In turn, unemployment impacts the growth rate of the index of industrial population. Graham and Harvey (2001) reveals that, the unemployment's impact can be explained as; during contractions, the company's returns are significantly reduced while during expansion, they are increased to attract investment opportunities.

In the literature there is no clear academic consensus on the impact of unemployment announcement on stock market return. Any theory that assumes adjustment costs of labor gives a relationship between employment and the implicit shadow price of labour. Oi (1962) pioneered the idea that labour is a quasi-fixed factor of production. Phelps (1994) built on Salop (1979), Calvo (1979) and his own work in the 1960s (Phelps, 1968) to obtain three models linking unemployment to different asset prices where there is real wage rigidity due to efficiency wage reasons, see also Hoon and Phelps (1992) and Fitoussi and Phelps (1988).

2.3.2 Firm-Specific Variables

Various theories suggest that share price changes are linked to the changes in microeconomic variables which are imperative for stock valuation such as payout ratio, dividend yield, capital structure, earnings, size and growth of the firm. In the following sections, literature on the relationship between stock price/return and some general firm-specific factors are discussed.

a- Earnings per Share (EPS)

EPS presents a company's current and future potential debt and provides stockholders with information on the portion of earnings belong to each share (Zhang, 2008).

Basu (1983) stated that EPS is considered as that portion of a company's profit allocated to the share's outstanding common stock. A growing EPS often implies that the stock prices are also increasing. Increasing EPS earnings in insurance companies generally leads to more and more investors investing in the organization implying expansions of operations. In addition, EPS of a company will be evaluated by consumers prior to buying the company's polices as they want to be assured of the reward of their claims they will receive from the company (Kothari & Shanken, 1997).

Roux, Villiers, Hamman and Joubert's (2005) study involves the application of the bootstrap method in testing the relative importance of EPS and in explaining share price.

The findings of the study reveal that the contemporaneous year-on-year change in EPS provides a statistical significant contribution in explaining the year-on-year change in share price in both the upward and the downward phase of the economy.

In a related study, Al-Tamimi (2007) reveals a significant positive impact of EPS on the UAE stock prices. Also in the Middle East context, Umar (2008) carries out an investigation of the empirical links between stock returns and fundamental variables of the Saudi emerging stock market from the year 1990 to 2004. His study reveals that annual stock returns are positively associated with the earnings price ratios. The findings also indicate that book-market ratios and sales-price ratios are more efficient indicators of value compared to earnings-price ratio. Additionally, the debt-equity ratio is a more reliable proxy for risk compared to beta.

Similarly, Al-Omar and Al-Mutairi (2007) conduct an examination of the association between the Kuwaiti banks' share prices and three of their attributes measured by EPS, book value, and trade volume in the years 1980 to 2004 by making use of annual data and involving a sample of seven banks. The results indicate that on average, 71% of the variation in stock prices is attributed to the variation in EPS and BV and EPS has the highest impact on stock price averaging 39%. While, in the context of Bangladesh, Belal Uddin (2009) reveals a significant relation between stock market price and earnings per share of bank leasing and insurance companies of Dhaka Stock Exchange.

Al-Dini, Dehavi and Zarezadeh (2011) investigate the relationship between EPS and stock price in Iran and found positive relationship between (EPS) and stock price. According to this study, with the required information regarding the earning per share which is one of the remarkable criteria in evaluation of companies' financial performance, one can predict the stock price. In other words, earning per share changes can be used for predicting the stock price.

b- Dividend Yield

Dividend yield is a financial ratio that represents how much a company pays out in dividends each year relative to its share price. In the absence of any capital gains, the dividend yield is considered as the return on investment for a stock. Some of the prior inconclusive studies in literature dedicated to dividend-yield and stock price-volatility were carried out in USA by Harkavy (1953), Friend and Puckett, (1964), Litzenberger and Ramaswamy (1982), and Fama and French (1988).

On the other hand, researches outside of the United States are attributed to authors such as Ball, Brown, Finn and Officer (1979), who reveal dividend's positive effect on post announcement rates of return. Additionally, Allen and Rachim (1996) conduct an examination of the relation between dividend yield and stock price involving 173 Australian listed companies in the year 1972 to 1985, and the findings show no evidence of correlation between dividend yield and stock price. This finding is compounded by the findings of Henne, Ostrowski and Rechling (2007), who conduct an examination to the query of whether dividend yield impact stock return at the German capital market and the results indicate no such impact.

Based on the previous arguments in the case of insurance companies, this relationship between dividend yield ratio and stock return of insurance companies is not clear.

c- Leverage

Financial leverage refers to the utilization of borrowed funds for the purpose of increasing expected returns. According to Modigliani and Miller (1961), in a perfect capital market, all types of combination of securities have the same caliber. They claim that the company's market value is also regarded as its issued total market value of debt and equity securities and does not depend on its capital structure within the capital market. In other words, a company's securities' market value remains the same even in a different combination of its securities in a stable world characterized by: full information, complete markets, without tax, cost of transaction and financial distress. If this notion is correct, then the expected return on assets will not be impacted by the company's debt policy even though the expected operating income and total market value of its securities has been modified (Myers & Brealey, 2000). The authors' second proposal states that there exists a positive relationship between expected return on equity and debt-equity ratio i.e. the higher the financial leverage and gearing, the higher will be the rate of return on equity with the increase in risk. Owing to the trade-off between risk and return, the two propositions complement instead of oppose each other. Nevertheless, in reality, almost every scenario in a perfect capital market does not exist. Hence, both are not true and financial leverage may have an effect on company performance (Myers & Brealey, 2000).

Leverage is considered as a key component of effective catastrophe risk management. In areas characterized by low insurance penetration, and young markets, the latter definition becomes a central theme as there are many things that can be leveraged to establish strong and robust risk management systems.

Insurance companies generally collect advanced premiums for their reserve accounts and future claim settlements. For example, most collected premiums by non-life insurance companies are regarded as outstanding claims. Unearned premiums reserve has two main accounts in balance sheet's liability side. Owing to the unknown magnitude and the timing of the cash flows in outstanding claims reserve, it makes this reserve riskier compared to long-term corporate debt. It is considered to be similar to ordinary short-term loans because general insurance policies are generally given for short-term expiring after a year's time (Briys & Varenne, 2001). Additionally, policyholders normally get discounts on their premiums to replace the opportunity cost of the fund with the insurance companies. This discount is regarded as similar to insurance companies giving interest payments on corporate debt to policyholders (Berger, Cummins & Weiss, 1997).

As such, insurance companies have the possibility of prospering if they take reasonable leverage risk and on the other hand, they have the possibility of being becoming insolvent if risk is not minimized. Based on Adams and Buckle (2000), insurance companies with high leverage possess greater operational performance compared to insurance companies with low leverage. However, it is notable that more evidence support the notion that leverage risk decreases company performance.

Carson and Hoyt (1995) reveal a positive relationship between leverage and the chances for insolvency. Contrastingly, a negative relationship is established between leverage and performance by Browne, Carson and Hoyt (2001). Also, Dimitrov and Jain (2006) evidence a negative relation between leverage and stock returns which reveal a negative relation to contemporaneous and future adjusted returns.

In another study, Penman, Richardson and Tuna (2007) carry out an examination regarding the effect of book-to-price stock returns through leverage consideration. The authors divided the book's component into book-to-price reflecting the risk of operation and the leverage component reflecting financing risk. The findings reveal the leverage component to be negatively linked to returns as evidenced in firms displaying both high and low book-to-price companies. The results remain the same following the consideration of distress measures and the high chance of default because of default risk price in equities.

The use of leverage in financing the company's operations can increase a firm's expected returns and may lead to accelerated growth and earnings. Leverage generally leads to increased stock prices resulting from increased earnings and accelerated growth. The positive response of stock prices of insurance companies towards the adoption of leverage stems from debt financing's tax benefit shield (Baker, Greenwood & Wurgler, 2003; Gordon & Hines, 2002).

Majority of the studies available in literature regarding the insurance sector generally concentrated on the determinants of profitability or financial performance. One of the exceptions to this general occurrence is the study by Belal-Uddin (2009) that is an attempt to determine the determinants of stock price for Bangladeshi insurance companies with the help of some factors not related to the insurance operations such as net asset value per share, dividend percentage and earnings per share.

d- Loss Ratio

Loss ratio is the ratio of the annual claims that are paid by the insurance company to the premiums received. Generally, insurers establish premium rates on the basis of an anticipated loss supporting the claim payments, administrative costs, profit requirements and an appropriate risk margin for adverse experience (freedictionary.com). For the purpose of generalization, the New York State Insurance Department Insurance Department (2005) simplified the definition of loss ratio as the percentage of total premium dollars that is paid for claims on a particular type of long term care coverage. According to Financial Services Liberalization, Final Report (February 28, 2006), the loss ratio is one of the critical factors that impact ROA. It is also established that firms having higher solvency have a higher possibility of being profitable while the reduction of loss ratios can impact profitability in a positive way.

The study by Hrechaniuk, Lutz and Talavera (2007) utilized financial data for the samples of Spanish, Lithuanian and Ukrainian insurance companies operating in the national markets in different years. The model of the study predicts that this factor inversely influences the insurer's performance due to the fact that the higher level of incurred losses is expressed in lower level performance. The results reveal a positive influence of loss ratio upon corporate revenue performance in Lithuania while a negative influence is revealed upon the real profitability in Ukraine.

According to Darzi (2011), the initial ratio in the earnings and profitability category is represented by the ratio of net claims spent on net premiums and this ratio is also referred to as claim ratio or loss ratio. It is a representation of the net claims proportion spent out of the earned premiums. The claim ratio analysis reveals a heightening trend in all the public sector insurers with the exception of United where it did the opposite. The financial health of insurers benefits from the low loss incurring ratio.

A high loss ratio is characterized by an organization's poor performance which will lead to low price of stock in the market. Based on research, in the insurance industry, a high loss ratio generally results in low returns as attraction on new investment will be low and therefore, the number of policyholders who adopt their policies will also be low. An organization having a high loss ratio should resort to an efficient way of underwriting policies to reinsure its portfolio as this implies highly valued assets with large number of policyholders covered by its various policies. Hence, reinsurance is positively linked with stock prices as the higher the level of reinsurance, the higher the stock prices will be and in turn, the company will have a large share of the market and high returns from operations.

e- Reinsurance Dependence

General insurance companies normally take out insurance covers for the purpose of stabilizing earnings, increasing the capacity of underwriting providing protection from huge losses (Shiu, 2004). Nevertheless, there is the insurance cost to keep in mind. Consequently, the determination of a suitable retention level becomes important for insurance companies and it is imperative that they create a balance between decreasing insolvency risk and potential profitability. Retention level refers to the dollar amount of losses that the firm will retain. Even when the lowering of the retention level results in the increase of the operational stability and insurance dependence, it also reduces the potential profitability. In a study on U.K. general insurance companies by Shiu (2004), a negative relation was found between reinsurance dependence and performance.

"Reinsurance dependence is complicated by insurer type. For instance, a specialist insurer would need to purchase more reinsurance than a personal line insurer. The specialist insurers usually cover volatile classes of business and write varied risks. The business of low claim frequency, high claim severity, is more volatile, less predictable, and has worse losses than a personal lines book of high claim frequency, low claim severity. As a result they rely on reinsurance to a large extent in order to stabilize their results and take on larger risks, which cannot be justified by their capital base alone. Since there is also a cost for reinsurance, determining an appropriate retention level is important for general insurers, which have to strike a balance between decreasing insolvency risk and reducing potential profitability. Although it increases operational stability, it also increases reinsurance dependence, i.e., lowering the retention level reduces the potential profitability. Therefore, reinsurance dependence may be negatively related to performance" (Majmudar, 2006; P.137).

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According to Laux and Muermann (2006), if the nature of insurance companies' portfolio comprises of risky and highly valued stock, they normally undertake reinsurance and cedes on policies. Therefore, the higher the rate of insurance, the higher will be the stock price of the company whose returns will increase. Additionally, it will receive a large market share owing to the consumers' confidence of the compensation they will receive if the insurance company goes bankrupt or becomes insolvent.

f- Affiliated Investments

An affiliated investment is the kind of relationship characterized as inter-company where one of the companies involved possess less of the other company's stock. It is the kind of relationship where two different companies are considered as subsidiaries of another larger company. A subsidiary company is considered as one that has more than 50% of its voting shares possessed by the parent company. A subsidiary is always considered an affiliate and the suitable term used is where the parent-subsidiary relationship is ignored.[7]

Based on the Banking Act of 1933 in USA, affiliated investment is considered as a bank owned or controlled organization through its stock holdings or is owned by the bank's shareholders', or whose officers are bank directors. In the Investment Company Act in USA, affiliated investment is defined as a company whereby 5% or more of its outstanding voting securities are directly or indirectly owned by the bank.

[7] www.answers.com/topic/affiliate-investment#ixzz1EhzNugMN

An insurance company with affiliated investment indicates that it has a fairly high degree of capital markets, integration as well as efficiency of operations. These advantages could mean better stock prices and higher returns and command of a large share of policyholders in the economy.

According to Shiu (2004), affiliated investments would lead to increase of the threat of insolvency to the parent company. Accordingly, it is believed that the association between performance and investments which are affiliated would come out negative.

g- Solvency Margin

Solvency margin refers to the figure by which an insurer's capital surpasses its anticipated liabilities. Generally, solvency margin denotes an insurance firm's capacity to satisfy its long-standing obligations (Barrieu & Albertini, 2009).

Solvency margin is one of the indicators of financial soundness. Insurance companies with higher solvency margin are considered to be more sound financially. A high solvency margin is associated with large equity investment, relative small sized and highly profitable. According to Shiu (2004), financially sound insurance companies are better able to attract prospective policyholders and are better able to adhere to the specified underwriting guidelines. By adhering to the guidelines, the insurance companies can expect a better underwriting result. Therefore, it is expected that the relationship between performance and solvency margin would be positive.

Shiu (2004) argues that solvency margin acts as one of the main indicators of financial effectiveness. To this end, insurance companies projecting increased solvency margins are believed to be in a better financial position. They are more able to garner prospective policyholders and follow the necessary underwriting guidelines. Their ability to follow the guidelines will result in better underwriting. According to Shiu (2004), solvency margin is positively related to the company's performance. In other words, insurance companies having higher solvency margin perform better compared to those having lower solvency margin.

According to Majmudar (2006), solvency margin is one of the indicators of financial soundness. Insurance companies with higher solvency margins are considered to be more financially sound. The insurer performance may be improved through a higher solvency margin, as better risks are attracted to the more stable insurers, and these insurers are better able to achieve higher premium revenues. The concept of financial strength covers not only the sufficiency of the excess of assets over liabilities necessary to ensure that claim payments are made as they fall due, but also the ability of the insurer to remain solvent in statutory terms as further business is written. However since the solvency margin is the difference between two monetary amounts (assets and liabilities), each of which is susceptible to variation, and hence, there can rarely, if ever, be an absolute guarantee of solvency.

h- Stability of Underwriting Operation

Stability of underwriting operation refers to the stability of the premiums earned from underwriting activities in the insurance company. Heavy fluctuations in the amount of premiums earned by a firm indicate a lack of stability in the underwriting operations of the insurance company while an increase in net premiums underwritten by an insurance firm without an accompanying increase in reserves would indicate the firm is undertaking cash flow underwriting in order to survive tough economic conditions (Carson, & Hoyt, 1995).

Insurance companies normally use cash flow underwriting as a pricing tool. A cash flow underwriting happens when an insurance product's quoted price is below premium rate required to include the amount of expected losses that have been predicted. The main aim is to develop a sufficient investment capital through increased business originating from lower prices.[8]

The major changes in net premiums written signify instability of the underwriting operation of an insurance company. The result of an unexplained increase in the net premiums written may signify that the company is involved in "cash-flow underwriting" while trying to save itself out of a financial difficulty. However, the same increase could also signify favorable diversification of business if it is coupled with the following factors:

[8] http://www.investopedia.com/terms/c/cash-flow-underwriting.asp

sufficient reserves, feasible operation and, a favorable product mix (The National Association of Insurance Commissioners, 2001a).

The net premiums written indicator's annual change is quite akin to both NAIC Life/Health Insurance Regulatory Information System (IRIS) Ratio 10 (Change in premium) and the NAIC Property/Casualty IRIS Ratio 3 (Change in net writings). It possesses normal values ranging from −33% and 33% (NAIC, 2001b, 2001a). The comprehensive ranges of normal values signify that the indicator is not a very accurate predictor of performance. Based on the above discussion, it can be stated that there is a lack of previous expectation concerning the direction of the relationship between performance and stability of underwriting operation (Shiu, 2004).

The stock prices value may be improved through underwriting, and this involves the process of risk exposure and potential clients' evaluation (Laux & Muermann, 2006). An insurance company that is capable of underwriting its operations will have the ability to avoid risk exposures, level of claims and higher returns from unclaimed risks resulting in the companies' increased stock prices.

2.4 SUMMARY OF SOME PREVIOUS STUDIES

Table 2.1

Summary of some previous studies

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
1999	Ystein Gjerde and Frode Sættem	Norway	Dependent variable • stock return Independent variables • interest rate(-) • inflation(-) • industrial production(+) • Consumption • The Organization for Economic Development industrial production index • Foreign exchange rate • Oil prices	The study is an extension of results regarding the associations between stock returns and macroeconomic factors in major markets characterized by a valid, small and open economy. The study utilized the multivariate vector auto regressive (VAR) approach on Norwegian data. Monthly observations were used over a period of 20 years from 1974 to 1994. The multivariate vector auto-regression modelling technique is used instead of the conventional structural modelling procedure to achieve the goals of the study.	The outcome of the study reveals the following: In Norway's economy, the real interest rate plays a critical role. Changes in the interest rate in the VAR system is negatively responded to by stock returns. Stock returns account for little variation in inflation and interest rates account for a substantial fraction. The association between real activity and inflation shows insignificant. In addition, stock market accurately responds to changes in oil price but it shows a delayed response to domestic real activity changes. Moreover, stock returns positively respond to changes in industrial production albeit in a delayed way.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2003	Satya Paul and Girijasankar Mallik	Australia	-Dependent variable • stock Price Independent variable • Inflation(insig) • Interest rate (-) • GDP	This is an investigative study of the relation b/w macroeconomic factors and stock prices in Australian banking and finance sectors through the use of quarterly data for the period 1980QI-1999Q1. In this study, the authors conducted standard co-integration tests and estimated an error correction model to examine whether there exists a long term association between bank and finance stock prices with macroeconomic variables.	The findings reveal that bank and finance sector stock prices are intertwined with the three basic macroeconomic variables. The findings reveal the following impact on stock prices, • Interest rates negative effect • GDP growth's positive effect • Inflation's insignificant effect
2005	Le Roux, N. J. Hamman, W. D.De Villiers, J. U.Joubert, C.	South Africa	Dependent variable • share price Independent variable • CPS • EPS(+)	The study sample comprises of industrial shares' having a comprehensive yearly record listed on the Johannesburg Stock Exchange from 1980 to 1999. They utilized the bootstrap method (an instrument used to derive standard errors, statistical properties estimation, distributions and attributions of statistical significance) to tackle drawbacks in the Demsetz (1995) model.	The authors employed the bootstrap method in their testing of the relative importance of earnings per share and cash flow per share in explaining share price. The findings indicated: 1- That the contemporaneous year-on-year change in EPS statistically and significantly contributes to the explanation of the year-on-year change in share price in the upward as well as the downward economic phase. 2- That the contemporaneous year-on-year change in CPS statistically and significantly contributes to the explanation of year-on-year change in share price during the economic downward phase.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2007	Abdullah Al.mutairi and Husain Al.Omar	Kuwait	- Dependent variable Value of traded share - Independent variables • Interest Rate (-) • money supply(+) • inflation(-) • government expenditure	- This study aims to examine the impact of macroeconomic factors (interest rate, money supply, inflation and government expenditure) on Kuwait stock exchange performance. - Monthly observations from 1995-2005 for the whole market. -Vector auto-regression technique is used to obtain the goal of this study. Therefore, the variables are ordered as follow: R, GX, M, R V and the model is estimated by a system of equations equals the number of variables in the model where each variable is regressed on it's lagged values and the lagged values of the other variables in the system.	The results indicate, on average, that a negative and long term effect of both interest rate and. inflation, a positive and. long term effect of money supply, and. a positive and long term effect of government expenditure except for the insurance sector, The study indicates that macroeconomic variables have the expected but a limited impact on the activities of the Kuwait Stock Exchange. Concerning the size of the macroeconomic variables effect, the results show that macroeconomic variables have a long run but limited effect averaging 30%. However this effect varies across sectors with a range from 18% to 30%. In a closer look at the results, on average, inflation has the highest effect among the macro variables with an average of 11%, followed by money supply with an average of 6%, then interest rate with an average of 4%, and finally government expenditure with an average of 2.6%.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2007	Nil Günsel and Sadõk Çukur	UK (London Stock Exchange)	- Dependent variable • Stock Returns - Independent variables • The term structure of interest rate(+) • Unanticipated inflation (no impact) • Unanticipated sectoral industrial production • The risk premium(+) • The exchange rate • The money supply • Unanticipated sectoral dividend yield	The paper analyzes the empirical application of APT to UK stock pricing listed on the This paper aims to analyse London Stock Exchange. The paper also attempts to identify the group of macroeconomic variables corresponding to stock market factors. The study sample comprises of 350 firms listed in the DataStream from January 1980 to December 1993. A total of 87 firms remain after the filtering process forming industry portfolios with no missing monthly observations. Seven economic variables are studied to satisfy the study's objective through the use of APT model. Variables can be included into the model as stated by CRR (1986).	The results reveal the following: • Macroeconomic factors have a significant effect in the UK stock exchange market • Each factor affects different industries in a different way. • Regression outcome reveal huge differences among industry portfolios and macroeconomic variables. • R2 differs from 94% to 28% owing to the use of industry specific variables like unexpected sector industrial production/unexpected sectoral dividend yield. • Unexpected inflation have no impact on the industry returns with the exception of Food, Beverage and Tobacco at 10% • Risk premium positively impacts the return of construction and engineering (sectors that are close).The outcome is not clear on the positive impact of risk premium upon the sectors. • A single month lagged effective exchange rate appears to a have a positive impact on the return of chemical products • Interest rate has a positive impact on the returns of four industries namely construction, food, beverage and tobacco, oil exploration and production of electronic and electric equipment.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
					• No firm conclusion regarding the long and short term components of interest rates and expectations of term structure interest rate. • Unexpected sectoral production appears to have a negative impact with food, beverage and tobacco industry at a significant level of 5%. • Three months lagged unexpected sectoral industrial production appears to have a negative impact on the paper, packaging and printing industry at a significant level of 1%.This is the same for engineering. • One month lagged unexpected industrial production of households, goods and textiles appears to have a positive impact on household, goods and textile industry at a significant level of 5%. • Money supply has a positive impact on the return of building materials & merchants, food, beverage, and tobacco and a negative impact on household goods and textiles • Dividend yield showed a significant and negative impact at 1% for all industries.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2007	Ming-Hsiang Chen	China	Dependent variable • stock returns Independent variables industrial production (IP)(+) • imports(IM) • DR • 7-year Government bond yield (LGB) • 3-month Treasury bill rate (TB) • consumer price index (CPI) • total foreign tourist arrivals (TA) Non-macro • SARS outbreak in February 2003 • Political events. • Financial crisis. • -The Iraqi war in 2003. • The terrorist attacks of September 11, 2001. • Sports mega-events (the 2000 Sydney Olympics, the 2002 Japan /Korea World Cup. • Announcement of the 2008 Beijing Olympics).	The study sample comprises of monthly hotel stock prices gathered from 4 Chinese hotels that included in the Shenzhen Stock Exchange and the Shanghai Stock Exchange gathered October 1996 to September 2003. The macro data included: industrial production (IP), imports (IM), discount rates (DR), 7-year Government bond yield (LGB), 3-month Treasury Bill Rate (TB), consumer price index (CPI), and total foreign tourist arrivals (TA). The paper utilized the Regression Model in an attempt to investigate the association between macro and non-macro explanatory factors and the sample hotels stock returns.	The findings revealed the following, • The DIP, DIM, DDR and DSPD significantly accounted for the Chinese hotel stock returns. An increasing IP implies economic expansion providing firms with ample chance to increase sales and earnings which in turn, leads to increased stock prices based on the basic financial theory. In sum, the hypothesized association was confirmed. • Non-macro events impact Chinese hotel stock returns significantly in the form of financial crises, natural disasters, wars, terrorist attacks, political events, and sports mega-events.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2008	Turgut Türsoy, Nil Günsel and Husam Rjoub	Istanbul Stock Exchange Turkish	Dependent variable • Portfolio return Independent variables • Money supply • Industrial production • Crude oil price • Consumer price index • Import • Export • Gold price • Exchange rate • Interest rate • Gross domestic product • Foreign reserve • Unemployment rate • Market pressure index	The study sample comprised of stocks of the companies listed in ISE (Istanbul Stock Exchange) completely gathered monthly from January 2001 until Sept. 2005. Following the filtering process, 174 stocks remained and are classified under 11 portfolios (Industry Sector). The macro-economic variables' data of a similar time frame was gathered from the central bank of Turkey. The authors made use of the model developed by Chen, Roll * Ross (1986), to examine the macro-economic variables on stock return.	• This paper carried out an examination of the influence of macroeconomic variables on the portfolios return. The findings reveal no significant effect on stock returns in Istanbul Stock Exchange (ISE).

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2009	Mohammed Belal Uddin	Bangladesh	Dependent variable • Market Price of Stock Independent variables • Net Asset Value per Share • Dividend percentage • Earnings per Share(+)	The population comprised of 86 listed companies (bank leasing and insurance companies), based on probability sampling basis, listed in the Dhaka Stock Exchange (DSE). The author made use of two regression models which are the Linear Function Model and the Logarithmic Function Model to analyze the data.	There is a significant association between the following; market price of stock and net asset value per share; market price of stock and dividend percentage; market price of stock and earnings per share of market returns of bank leasing and insurance companies of the Dhaka Stock Exchange in Bangladesh.
2009	Khaled Hussainey and Le Khanh Ngoc	Vietnam	Dependent variable • stock prices Independent variables • industrial production(+) • interest rates (no impact) • US stock prices	Data is collection from January 2001 to April 2008 on a monthly basis in addition to stock prices and macroeconomic data for a period of 88 months for both U.S. and Vietnam.	The results indicated: • The industrial production positively impacts Vietnamese stock prices. • The long- and short-term interest rates do not impact stock prices in the same direction. • The US real production activity has greater impact on Vietnamese share prices compared to the U.S. money market.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2009	Md. Mahmudul Alam and Md. Gazi Salah Uddin	• Australia • Bangladesh • Canada • Chile • Colombia • Germany • Italy • Jamaica • Japan • Malaysia • Mexico • Philippine • S. Africa • Spain • Venezuela	-Dependent variable • stock Price - Independent variable • Interest Rate	The study attempts to support the existing share market efficiency on the basis of monthly data from January 1988 to March 2003 and to determine the empirical association between stock index and interest rate in fifteen developed and developing nations. The study also attempts to investigate the reasons behind market inefficiency, and the association between the following: share price and interest rate, changes of share price and changes of interest rate through both time series and panel regressions.	• The consensus based on theoretical argument is the presence of a negative association b/w stock price and interest rate. • Mixed results for individual countries • In the context of Malaysia, no relation is found b/w share price & interest rate although changes in interest rate have a negative relation with changes in share price. • In Japan, interest rate positive relates with share price but change in interest rate negatively relates with change in share price. • In Bangladesh, Columbia, Italy & S. Africa, a negative relation exists for both interest rate with share price and change in interest rate with change in share price. • In Australia, Canada, Chile, Germany, Jamaica, Mexico, Spain, and Venezuela, a negative relation exists between interest rate and share price while no relation exists between their changes. • With the exception of Philippines, a negative relation exists either between interest rate with share price or their changes or both.

Table 2.1 *(continued)*

Year of study	Author(s)	Country(s)	Variables Examined	Data and Methodology	Findings
2010	Halil Tunalh	Turkey	Dependent variable • Stock Returns Independent variables -Dow Jones Industrial Average, Foreign Exchange Rates, one Month Time Deposit Rates, Gold Prices, IPI, Producer Price Index ,International Crude Oil Prices, Total Credit Volume, Money Supply, Net Foreign Exchange Reserves	The study is an analysis of the association between macro-economic variables and stock returns in the Turkish Stock Market. To carry out the study, an analysis of several macroeconomic variables acting as basic indicator of Turkish economy are carried out through the VAR model on a monthly basis from January 2002 to August 2008.	• A negative relationship was revealed between U.S. Dollar, Gold Prices, 1-Month Time Deposit Rates and stock returns. • A positive relation was revealed between Industrial Production Index, Total Credit Volume, Import, Money Supply, Net Foreign Exchange Reserves, International Crude Oil Prices, Dow Jones Industrial Average and stock returns.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter explained the method that is used to achieve the study objectives. The theoretical framework for the research is discussed in Section 3.1. Section 3.2 presents the research population, sample and data collection. Sections 3.3 and 3.4 provide the operational definitions and the measurements of variables. Model specification is presented in Section 3.5 followed by data analysis technique in the last section.

3.1 THEORETICAL FRAMEWORK

Various macro and micro economic factors affect equity pricing in the stock market and the impact varies from one firm to another, from one industry to another and from one economy to another, at different times. From previous studies some theories such as CAPM, APT, Fama and French's three-factor model have been used to explain securities' pricing and to predict stock returns' behavior. Arbitrage pricing theory (APT) is a well-known method of estimating the price of an asset. The theory assumes an asset's return is dependent on various macroeconomic, market and security-specific factors.

The explanatory variables selection has its basis on their theoretical relationship with the dependent variables and the explanatory variables are expected to partially clarify the dependent variables variation. In the present research, we consider both economic and company-specific variables to affect the stock returns of insurance companies.

3.1.1 Hypotheses Development

The stock returns are affected either positively or negatively by various factors that are internal and external to system of economy. The literature of the determinants of stock returns emphasizes on macro-economic factors. Developing the hypothesis of these variables is in line with Arbitrage Pricing Theory (APT), one of the most widely used theories to explain the effect of macro-economic factors on security returns.

According to Burmeister *et al* (1986) an empirical matter, indices or spot or futures market prices may be used in place of macro-economic factors, which are stated at low frequency (e.g. monthly) and often with significant estimation errors. Market indices are sometimes derived by means of factor analysis. More direct "indices" that might be used are:

- short term interest rates;
- a diversified stock index such as the S&P 500 or NYSE Composite Index;
- the difference in long-term and short-term interest rates;
- oil prices

This section will be based on the theories and previous studies discussed in the previous chapter. The discussion elucidates the variables that are examined in this study.

a- Inflation

Inflation refers to the increase in prices of goods and real rate of return. It impacts both the level of discount rates and future cash flows. In the insurance industry, insurance companies are forced to raise the premiums to cover for the increase in prices of future claims (Burda & Wyplosz 1997). Besides this, policyholders are burdened with the increase in the cost of living resulting from inflation and hence they have little income to pay for insurance premiums. In the recent past, inflation expectations have been on the increase because investors are concerned with the continuous stimulation of monetary systems which in turn, affects insurance sectors such as motor vehicle and home owner's insurance policies to a great extent (Frankel & Lee, 1998).

The empirical literature on the impact of inflation on stock returns has witnessed major contribution by different scholars over the years. But the empirical evidence provided by most of these studies has been mixed, and a consensus has not yet emerged (Fama, 1981; Kaul,1990; Asogu, 1991; Daykin, Pentikäinen & Pesonen, 1994; Afolabi*et.al,* 1995; Jhingan,1997; Udegbunam & Eriki, 2001; Kolari,2001; Abd. Majid.et.al, 2001; Tatom, 2002; Azeez & Yonezawa, 2006; Al-Mutairi & Al-Omar, 2007; Junttila, Larkomaa & Perttunen, 1997; Thaker *et al*, 2009).

While studies like Pierrel and Kwok (1999), Geske and Roll (1983), Floros (2004), Ugur (2005), Yeh and Chi (2009), Pesaran*et al* (2001), Haan (2004), Crosby (2001), Spyros (2001) among others revealed a negative association between inflation and stock returns; Boudoukh and Richardson (1993), Graham (1996), Choudhry (2001), Patra and Posshakwale (2006) and Lee *et al.* (1998) among others reported positive relationship between these variables.

Based on the theoretical argument the following hypothesis is specified:

H1: There is a relationship between inflation rate and stock returns for insurance index in GCC Countries.

b- Interest Rate

Inflationary changes spur interest rate which also has an impact on the insurance industry. High inflation results in high interest rates which leads to an increase in default risk of premium payment by policyholders. This will reduce a company's returns. This especially affects insurance companies which specialize in providing claims relating to title insurance contracts. Pertaining to life assurance, they will affect the holder's choice of either taking term assurance or whole life policy. Informed policy holders will prefer term assurance that has adjustable rates on the premiums payable.

Interest rate is cited as a critical determinant of stock market price and stock return. The effect of interest rate on stock market price is a fairly well studied topic in various studies (Fama, 1981; Tseng, 1982; Campbell, 1987; Kaul, 1990; Zhou, 1996; Junttila *et al*., 1997;

Arango *et al*., 2002;Booth *et al*., 2004; Wong, Khan and Du, 2005; Salah Uddin and Alam , 2007; Al-Mutairi and Al-Omar, 2007; Somoye *et al*., 2009; Alam and Salah Uddin, 2009; and Pilinkus, Boguslauskas, 2009). These studies found a negative relationship between interest rate and stock market price.

Likewise, the hypothesis related to interest rate is also built upon APT which suggests a negative association between stock prices and interest rates and there is a consensus on the relationship between interest rate and stock market price.

So the second hypothesis is developed as follows:

H2: Interest rate has a negative impact on stock returns for insurance index in GCC Countries.

c- Money Supply

Money supply which refers to a situation where there is a high circulation of money in the economy also may affect stock price performance (Frankel & Lee, 1998). When the supply of money is high, interest rates tend to decline (Gilchrist, Charles & Huberman 2005). Based on that monetary control measures intended to ward off this situation will result in an increase in interest rate and in turn, lead to low stock prices and hence, low attraction of policyholders to buy the policy.

A number of studies have focused on the effect of money supply on stock market price and stock returns (Junttila, Larkomaa & Perttunen, 1997; Sellin, 2001; Wong, Khan &

Du, 2005; Al-Tamimi, 2007; Maskay, 2007; Al-Mutairi & Al-Omar, 2007; Rahman & Mustafa, 2008; Türsoy, Günsel & Rjoub, 2008; Pilinkus & Boguslauskas, 2009; Thaker *et al*., 2009; Shiblee, 2009; and Rahman *et al.*, 2009). In general, most of the studies found that money supply has a positive impact on stock market price. However, Türsoy, Günsel and Rjoub (2008) who tested the impact of money supply in Istanbul Stock Exchange, found that this effect is insignificant.

To my knowledge, there have been no studies done on the effects of money supply on insurance company's stock returns and most of the previous studies which have used APT in other sectors suggest a positive association between money supply and stock price/ return, so this hypothesis is developed as follows:

H3: The money supply has a positive impact on stock returns for insurance index in GCC Countries.

d- Oil Prices

According to Jones and Kaul (1996), the oil price changes influences the economy of the country as reflected on the stock returns and this potentially differs across countries depending on their level of oil production and consumption. Similarly, Clare and Thomas (1994) contended that changes in oil price may influence industry costs through forced macro-policy responses, potential output and thus, revenues.

Oil price changes have two implications on the stock prices. When an economy is marked by increasing oil prices, it may lead to increase in stock prices implying that the economy is developing and real income is increasing. On the other hand, they may imply higher living costs and transport costs indicating that consumers are burdened (Henry, 2000).

A few studies have only been dedicated to the oil prices-stock market relationship in ne oil-importing nations (Chen, Roll & Ross, 1986; Huang *et al*., 1996; Sadorsky, 1999; Papapetrou, 2001; Udegbunam & Eriki, 2001; El-Sharif *et al*., 2005; Driesprong*et al*., 2008; Park & Ratti, 2008; Gay, 2008; Türsoy, Günsel & Rjoub, 2008; and Al-Fayoumi, 2009).

In countries that are oil exporters, this relationship has often been overlooked so this relation is not clear. A few studies in oil exporting countries (e.g. Rahmanand & Mustafa, 2008; Bjornland, 2009; Arouri & Rault, 2009; Narayan & Narayan, 2010) emphasize that prices of stock market are expected to be positively affected by oil price changes through the positive income and wealth effects.

This study will focus on insurance sectors in GCC countries, as oil exporting countries; therefore the following hypothesis is specified:

H4: There is a relationship between oil prices and stock returns for insurance index in GCC Countries.

e- Unemployment Rate

Stock price changes due to unemployment depend on whether the economy is expanding or contracting (Keynes, 1936). For an expanding economy, stock prices rise with rising unemployment rate while for a contracting economy, they fall with rising unemployment since the economy responds negatively to the labor market. These reactions of stock prices due to the changes in unemployment rate are influenced by interest rates and growth expectations.

In response, unemployment affects the growth rate of the index of industrial production. In Graham and Harvey's (2001) study the evidence from the field shows that in relation to the companies, the effect of unemployment is that during contractions, the returns of the companies are reduced significantly while in an expanding cycle, they are increased due to attractiveness of investment opportunities.

In the existing academic literature, several studies have examined the effect of unemployment rate on stock return and stock price (Clare & Thomas, 1994; Boyd, Liu & Jagannathan, 2005; Türsoy, Günsel & Rjoub, 2008; Pilinkus & Boguslauskas, 2009; and Shiblee, 2009). But there is no congruence in the results between these studies.

Therefore, in this study the following hypothesis is specified:

H5: There is a relationship between unemployment rate and stock returns for insurance index in GCC Countries.

The hypotheses related to general firm-specific variables and insurance company specific variables are built upon APT and Fama and French three-factor model.

f- Stock Market Return

This study undertakes a research to seek the impact of the macroeconomic variables with return of GCC stock markets as control variable on insurance index return. Tu and Li (2013), examine the impacts of macroeconomic factors which including inflation rate, exchange rate, money supply and interest rate on banking industry stock return in China, they used the return of Shanghai stock market and the return of Shenzhen stock market as control variables.

So this hypothesis is developed as follows:

H6: Stock market return has a positive impact on stock returns for insurance index in GCC Countries.

g- Earnings per Share

According to Basu (1983), EPS refers to part of the company's profit that is appropriated to the share's outstanding common stock. In insurance sector consumers will also evaluate the EPS of the company before buying policies from it since they will be assured of being rewarded of their claims from such a company with a low to no EPS.

EPS is one of the micro-economic factors that has been examined by previous studies (Roux, Villiers, Hamman & Joubert, 2005; Al-Tamimi, 2007; AL-Omar & AL-Mutairi, 2007; Umar 2008; and Somoye, Akintoye & Oseni, 2009). These studies found a positive association between earnings per share and stock market price and stock return.

There is a consensus on the relationship between earnings per share and stock market and stock return. The hypothesis is developed as follows:

H7: Earnings per share has a positive and significant impact on stock returns for insurance companies in GCC Countries.

h- Dividend Yield

Dividend yield ratio shows the amount of dividend that a company pays out to shareholders relative to its stock price. It indicates capital gains or returns from investments (Baker *et al*. 2003). Insurance companies that have high dividend yield have higher stock prices compared to those with a low dividend yield. The effect of this is that they will attract potential investors and consumers of insurance policies since they will be assured of quality operations. As a result, the returns due to the company will be high.

The previous studies on dividend-yield and stock price and stock return have been carried out in the context of the U.S. by Harkavy (1953), Friend and Puckett, (1964), Litzenberger and Ramaswamy (1982), Fama and French (1988), and Ohlson (1995). Some results indicated that the dividend yield has no influence on stock return (Allen & Rahim, 1996; Henne, Ostrowski & Rechling, 2007). On the other hand, Ball, Brown, Finn and Officer (1979) and Rashid and Rahman (2008) have found a positive relationship between stock price and dividend yield, while the relationship is negative in the study conducted by Baskin (1989).

Most of the studies are largely non-conclusive, so the hypothesis is developed as follows:

H8: There is a relationship between dividend yield and stock returns for insurance companies in GCC Countries.

i- Leverage

Use of leverage to finance the operations of a company can raise a firm's expected returns and accelerate growth and earnings. In insurance companies, leverage has the effect of increasing the stock prices due to increased earnings and accelerated growth. The idea behind this positive response of stock prices to leverage level adopted the notion that debt financing has a tax benefit shield (Baker & Wurgler, 2000; and Gordon & Hines, 2002).

Only few studies have focused on the effect of leverage on stock price and stock return as most focus on the effect of leverage on stock return (Modigliani & Miller (1961); Hurdle (1974); Carson & Hoyt (1995); Dimitrov & Jain (2006); and Penman, Richardson & Tuna (2007)) but there is lack of consensus regarding the leverage-stock return relationship.

Tennant and Starks (1993) and Klein *et al.,* (2002) concur with these studies on the fact that a company with high returns is mostly dependent on the leverage of its capital financing.

On the other hand, many studies conducted to examine this factor on financial performance (Bothwell, Cooley and Hall 1984; Nissim and Penman 2003; Vijayakumar and Kadirvelu 2004; and Athanasoglou, Brissimis and Delis, 2008), also have no consensus about the impact of leverage on financial performance.

Based on the above discussions, the following hypothesis is developed:

H9: There is a relationship between leverage and stock returns for insurance companies in GCC Countries.

In terms of insurance company specific variables, there is a lack of studies on the determinants of stock return in insurance companies but there is a study on the determinants of the performance of U.K. general insurance companies which suggest the following variables (Shiu, 2004).

j- Loss Ratio

Loss ratio shows the ability of a company to generate losses over profits in a given period. A high loss ratio indicates poor performance of an organization (Rubin, 2000). Hence it will lead to low price of stock in the market. Studies have shown that in the insurance industry, this will lead to low returns as attraction on new investment will be low and so will be the number of policyholders who would purchase their policies. An insurance company with a high loss ratio should underwrite its policies in an efficient way and reinsure its portfolio. These activities arguably increase its operating costs and reduce the return from its operations.

On the other hand, reducing loss ratios can have a positive impact on profitability (Financial Services Liberalization, Final Report February 28, 2006). According to Angoff and Brown's (2007) study, a key metric insurer is used to evaluate Michigan Auto Insurance companies performance loss ratio, which is described as the ratio of losses to the premium earned with all other things the same, the lower the loss ratio, the higher will be the business profit.

Hrechaniuk, Lutz and Talavera (2007) investigate the determinants of the insurance companies' performance in Lithuania, Spanish and Ukraine. The results indicate that loss ratio has a negative relationship with profitability, but this relationship is insignificant for Lithuania.

Based on these studies the following hypothesis is specified:

H10: There is a relationship between the loss ratio and stock returns for insurance companies in GCC Countries.

k- Reinsurance Dependence

Dependence on reinsurance companies is another potential factor that affects the stock return of insurance companies. Insurance companies undertake reinsurance and cede on policies if the natures of their portfolio consist of risky and highly valued stock. Hence, the higher the rate of reinsurance, the higher will be the returns of the stock prices of the company. In addition, it will gain a large market share because the consumers have confidence of being compensated by reinsurance company if the insurance company goes bankrupt or becomes insolvent (Laux & Muermann 2006).

According to Shiu (2004), insurance firms often take out reinsurance cover for their earnings stabilization, for increasing underwriting capacity and for providing protection against considerable losses. However, reinsurance is costly and hence, it is imperative for insurance companies to determine a suitable retention level and to maintain a balance between decreasing insolvency risk and the reduction of potential profitability. With an increase in reinsurance dependence the level of retention also reduces but at the same time the potential profitability reduce.

Hence the effect of reinsurance dependence on stock return can be positive due to insurance stability or negative due to high reinsurance cost, hence the hypothesis to be tasted,.

H11: There is a relationship between the reinsurance dependence and stock returns for insurance companies in GCC Countries.

l- Affiliated Investments

An insurance company that has affiliated investment is an indicator of a fairly high degree of capital markets, integration and efficiency of operations. These advantages will translate to better stock prices of such an organization and hence, higher returns and command of a large share of policyholders in the economy. Generally, affiliated investments are considered to increase insolvency risk of the mother company (Shiu 2004).

So the hypothesis to be tested is as follows:

H12: There is a relationship between the affiliated investments and stock returns for insurance companies in GCC Countries.

m- Solvency Margin

According to Meyers (1989), a high solvency indicates a good stock price performance while the contrary indicates low risk and thus, rational investors will be attracted to those companies for investment even though their stock prices are low.

One of the indicators of sound finance is solvency margin. Insurance companies having greater solvency margin are financially sound compared to others how have lower ones. Financially sound insurance firms are more capable of attracting potential policyholders and of adhering to stipulated underwriting policies. Through this adherence, the insurance companies can look forward to a better underwriting outcome (Shiu 2004).

Based on the above arguments the hypothesis to be tested is as follows:

H13: There is a positive relationship between the solvency margin and stock returns for insurance companies in GCC Countries.

n- Stability of Underwriting Operation

The value of stock prices can be improved through underwriting. Underwriting involves the process of evaluating risk exposures and potential clients (Laux & Muermann, 2006). An insurance company that is able to underwrite its operations will be able to hedge against risk exposures and level of claims and expect higher returns from unclaimed risks. This will lead to increase in stock prices of such companies.

High fluctuations in net premiums written indicate instability in an insurance firm's underwriting operation. An unexpected increase in net premiums written revealed that the firm may be employing "cash-flow underwriting" in an attempt to keep afloat. Nevertheless, this is not always the case; sometimes, an unusual increase in net premiums written could show positive business expansion if it is followed by sufficient profitable operations and a product mix that is stable (NAIC, 2001a).

Based on the above discussion the hypothesis is developed as follows:

H14: There is a relationship between stability of underwriting operation and stock returns for insurance companies in GCC Countries.

3.1.2 Research Framework

In line with the study objectives, the theoretical framework of this study has been developed and portrayed in two figures. Figure 3.1 illustrates the hypothesized relationships between macroeconomic factors and stock market return as a control variable and insurance sector' stock returns in GCC countries (H1, H2, H3, H4, H5 and H6).

Figure 3.2 illustrates the hypothesized relationships between general firm-specific variables and insurance companies' stock returns in GCC countries (H7, H8, and H9) and the hypothesized relationships between insurance company specific variables and insurance companies' stock returns in GCC countries (H10, H11, H12, H13 and H14) in addition to the significant variables from the first model.

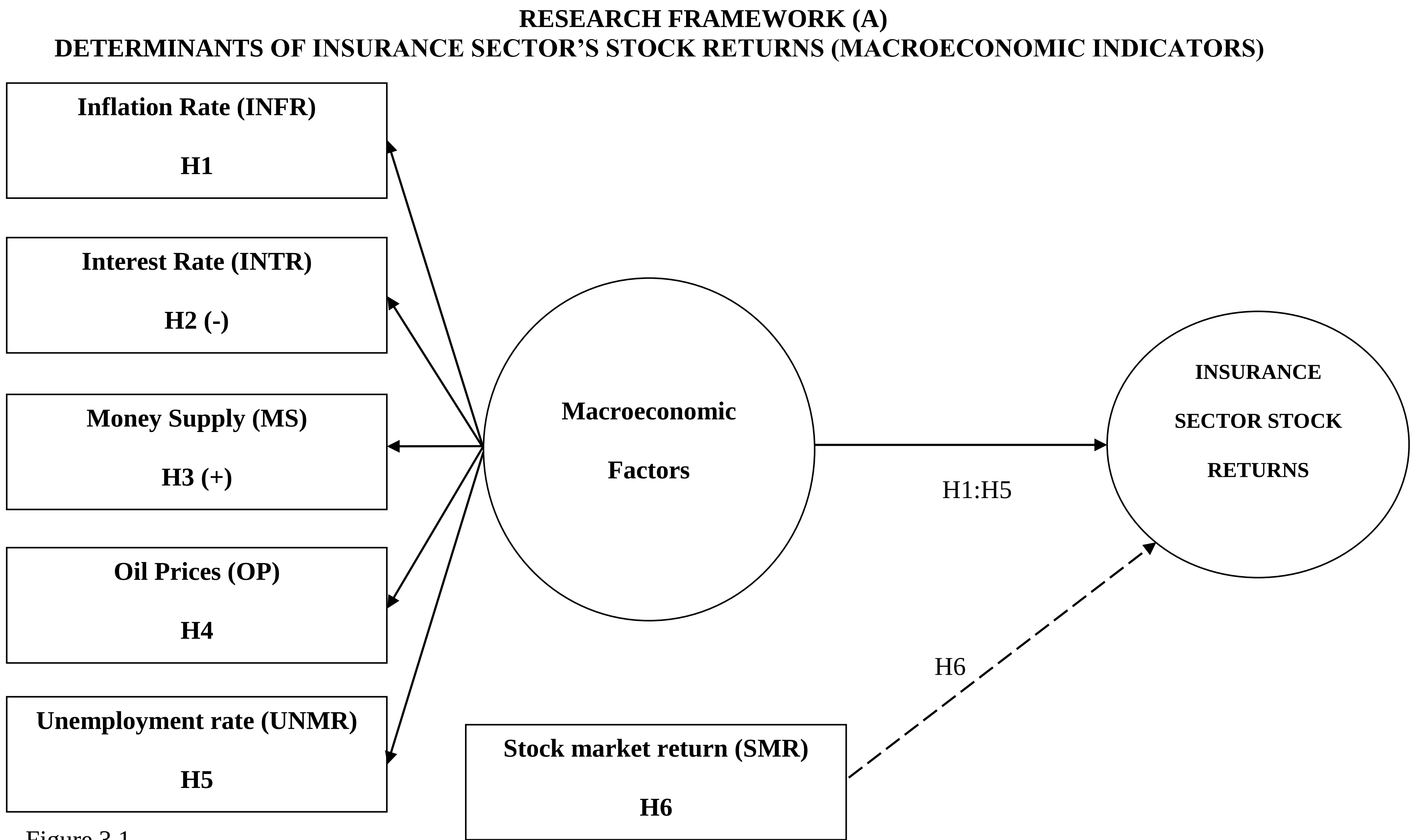

Figure 3.1
Research Framework A

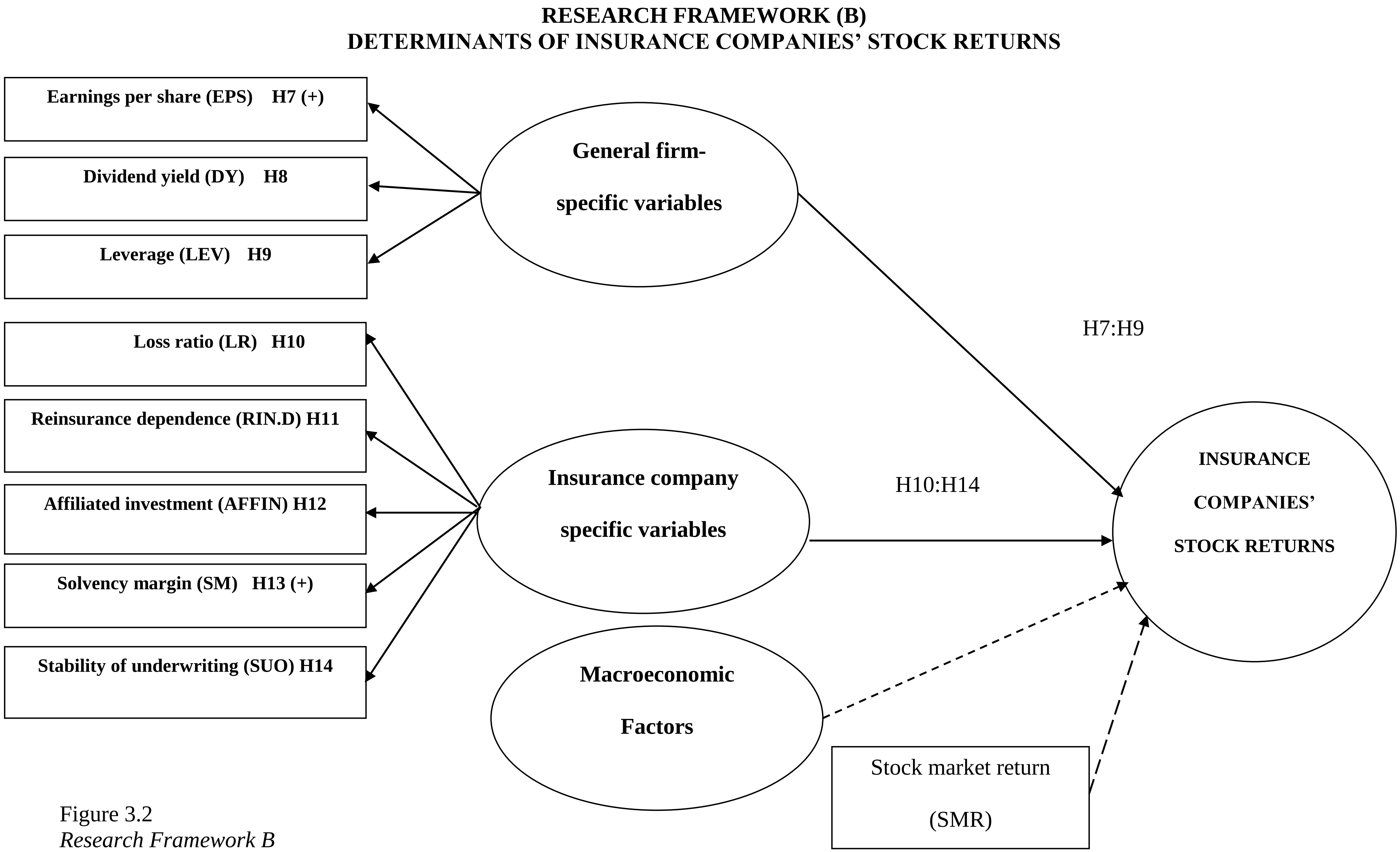

Figure 3.2
Research Framework B

3.2 POPULATION, SAMPLE AND DATA COLLECTION

The population in this study consists of all insurance listed companies in GCC countries stock markets from 2001 to 2010 as shown in Table 3.1.

Table 3.1
Number of Listed Insurance Companies in GCC Countries Stock Markets from 2001 to 2010

COUNTRY	STOCK MARKET	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	T
KSA	TADAWUL	0	0	0	0	1	1	15	21	26	31	95
OMAN	MUSCAT SECURITIES MARKET	2	2	2	2	2	2	2	2	2	2	20
QATAR	QATAR EXCHANGE	5	5	5	5	5	5	5	5	5	5	50
KINGDOM OF BAHRAIN	BAHRAIN BOURSE	6	6	6	6	6	6	6	6	6	5	59
KUWAIT	KUWAIT STOCK EXCHANGE	4	4	4	4	7	7	7	7	7	7	58
UAE	ABU DHABI SECURITIES EXCHANGE	5	5	5	6	8	11	11	13	15	15	94
	DUBAI FINANCIAL MARKET	2	2	3	3	6	10	11	11	13	13	74
	T	24	24	25	26	35	42	57	65	74	78	450

Source: (The data is collected by the researcher from the GCC countries' stock markets)

The samples used for testing the hypotheses consist of all listed conventional insurance companies in GCC countries stock markets from 2001 to 2010 as show in table 3.2. The Islamic insurance companies have been excluded from this study because there are many differences in their insurance operations and financial statements from the conventional insurance. The period 2001-2010 was chosen because there are relatively few insurance companies listed before 2001. The datastream codes for insurance sector index for each market are given in table 3.2.

Table 3.2

Listed Non-Islamic Insurance Listed Companies in GCC Countries Stock Markets from 2001 to 2010

COUNTRY	STOCK MARKET	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	T
KSA	TADAWUL (TDWINSR)	0	0	0	0	1	1	1	7	18	25	53
OMAN	MUSCAT SECURITIES MARKET (OMANS&I)	2	2	2	2	2	2	2	2	2	2	20
QATAR	QATAR EXCHANGE (QTRINSU)	1	1	3	3	3	3	3	3	3	3	26
BAHRAIN	BAHRAIN STOCK EXCHANGE (BHRAINS)	4	4	4	4	4	4	4	4	4	4	40
KUWAIT	KUWAIT STOCK EXCHANGE (KSEINSU)	2	3	4	4	5	5	5	5	5	5	43
UAE	ABU DHABI SECURITIES EXCHANGE (ABUINSU)	1	6	10	10	11	12	12	12	12	12	98
	DUBAI FINANCIAL MARKET (DFMINSU)	3	5	8	8	9	9	9	9	9	9	78
	TOTAL	13	21	31	31	35	36	36	42	53	60	358

Source: (The data is collected by the researcher from GCC countries' stock markets)

Secondary data for monthly macroeconomic indicators, annual reports of companies listed on the GCC Stock Markets Exchange, monthly insurance sectors returns and yearly insurance companies' stock returns will be used to provide answers to the mentioned research questions in this study.

Macroeconomic indicators will be taken from the financial statistics through the International Monetary Fund and the economic reports from GCC countries along with the Thomson Reuters DataStream. Other data regarding general firm-specific variables and insurance company specific variables are obtained from the financial statements of the companies. These statements are available in the companies' annual reports and from Thomson Reuters DataStream.

3.3 OPERATIONAL DEFINITIONS

The present study's variables are divided into dependent and independent variables. The former variables comprises of insurance sectors index return and insurance companies' stock return. Independent variables are categorized into macroeconomic factors (inflation rate, interest rate, money supply, oil prices and unemployment rate), firm-specific variables (EPS, dividend yield, leverage, loss ratio, reinsurance dependence, affiliated investment, solvency margin and stability of underwriting).

3.3.1 Dependent Variable

The dependent variables for this study are insurance sector index return and stock return. A stock index refers to a set of stocks constructed in a way that tracks a specific market, sector, commodity, currency, bond or other assets; for instance, the NDX is an index tracking the biggest 100 non-financial firms listed in NASDAQ. Stock price is described as the purchasing cost of a security on an exchange. Stock prices may be influenced by various factors, among others, market volatility, current economic conditions and company reputation.

According to Jeyanthi and William (2010) return is a motivating variable that stimulated the investors to invest money into stock market. Return is a profit that earned from the stock's prices.

3.3.2 Independent Variables

a- Inflation

According to Beletski (2006) the percentage increase/decrease of Consumer Price Indices (CPI) or Retail Price Indices (RPI) is the top common type of inflation in the financial markets. These indices are developed from a basket of goods and services price that are considered as proxies of the patterns of consumption of households in a geographical location.

In theoretical investigation, there exists only a single meaning that is attached to the term inflation; an increase in the quantity of money that is not counteracted by a matching increase in the requirement for it. In this situation, a fall in the objective exchange-value of money must happen. On a similar note, deflation refers to a diminution of the quantity of money which is not counteracted by a matching diminution of the demand for it, so that an increase in the objective exchange-value of money must happen (Cachanosky, 2009). According to Shiblee (2009), inflation is sustained increase in the general level of prices of goods, and services.

b- Interest Rate

Interest rate is a rate which is charged or paid in lieu of the use of money. An interest rate is frequently presented as an annual principal's percentage. It is reached by dividing the interest amount by the principal amount. Rates of interest frequently changes because of inflation and the Federal Reserve Board policies. From the perspective of the consumer, the rate of interest is presented as the annual percentage yield (APY) upon the earning of interest.[9]

Financial Dictionary (2009) defines interest rate as a value percentage of a balance or debt that is paid each time period. The percentage of rate of interest usually remains constant but the amount that is paid changes based on the balance amount or debt[10].

c- Money Supply

The money supply is described as the amount of money contained in the economy. This may seem straightforward on the surface but it is complicated by the difficulty in describing the meaning of money. The most appropriate definition is the actual amount of

[9]http://www.investorwords.com/2539/interest_rate.html
[10]Financial Dictionary. © 2009 Farlex, Inc

circulating bank notes and coins. The issue with the above definition is that most money is contained in bank deposits and other obligations as opposed to existing in a physical form (Morris & Morris, 2007).

d- Oil Prices

The price of petroleum is the result of computing certain factors such as the specific gravity (as per the American Petroleum Institute - API), as well as the sulphur content of oil (Welfens, 2011). A combination of the API figures and the specific gravity gives the grade of the oil (Lyons & Plisga, 2005). The location and the grade are merged to give the price per barrel (159 liters) of petroleum (Energy Charter Secretariat, 2007). Oil prices usually denote the per barrel price of Brent Crude according to the Intercontinental Exchange or of light crude (WTI - West Texas Intermediate) and to the New York Mercantile Exchange trading figures. In the international petroleum industry, crude oil products are traded on various oil bourses based on established chemical profiles, delivery locations, and financial terms.

e- Unemployment Rate

Unemployment is the condition in which a person does not have any work, is not available at work and is currently searching for work. There are various types of unemployment based on the cause and disagreement upon which is most serious. Various economic theories recommend differing measures to confine it, and address its significance. For instance, monetarism postulates that controlling inflation to drive growth and investment is relatively more significant as this will result in increased employment (Shiblee, 2009).

f- Earnings per Share

Earnings per share (EPS) refers to the figure arrived at after dividing the net earnings with the outstanding shares figures (International Accounting Standards Board, 2008).
EPS = (Net Earnings – dividends on preferred stock) / Outstanding Shares.

According to Stickney, Weil, Schipper and Francis (2009) EPS denote a firm's profit that is allocated to every outstanding share arising from common stock. EPS acts as a pointer to the profitability of a firm. While computing EPS, it is more correct to utilize a weighted average amount of shares over the accounting firm. This is because the shares volume may change over time. Data sources however, usually make the computation simpler by utilizing the outstanding share volumes at the conclusion of the accounting period.

g- Dividend Yield

The dividend yield is the figure obtained after dividing the yearly dividend per share by the price of a stock (Tortoriello, 2009). The equation below captures the essence of the dividend yield.

Dividend Yield = Yearly dividend per share / Stock's price per share

In other words, the dividend yield refers to a firm's sum dividends payments divided by the company's market capitalization (Bragg, 2007). The resulting figure is usually presented in percentage form.

h- Leverage

Leverage is of 2 types, namely: operating leverage and financial leverage. Operating leverage (OL) is the figure obtained after subtracting variable cost from a company's revenue and then dividing the outcome by the firm's operating income (Besley & Brigham, 2007). Financial leverage (FL) is the figure arrived at after dividing a firm's operating income by the new income (Gibson, 2010).

In general terms, leverage denotes a technique by a firm to multiply losses and gains. Common methods of achieving leverage include borrowing funds, utilizing derivatives and purchasing fixed assets. Most of the previous studies such as Penman, Richardson and Tuna (2007) and Cai and Zhang (2010) measured this variable by the ratio of total debt to the value of equity.

i- Loss Ratio

According to Majmudar (2006), loss ratio is a ratio of incurred claims to earned premiums. The ratio should be calculated separately for each class of business and the trends over the past years carefully studied.

Loss ratio refers to the figure obtained after adding adjustment expenses figures to the sum of losses paid out via claims and then dividing the resultant figure by the sum of earned premium. The loss ratio figure is presented in percentage form (Koucheryavy, Harju, Iversen & Iversen, 2006). Essentially, the loss ratio is the proportion of the amounts paid out by an insurance firm as benefits and allied costs to the revenue generated via premiums (Meier, 2007).

j- Reinsurance Dependence

Reinsurance dependence refers to a situation whereby a cedent's business viability is overly contingent on its ongoing capacity to yield a huge percentage of its total exposure to retrocessionnaires[11] and reinsurance companies on helpful terms (International Monetary Fund, 2003). Dependence occurs when the reinsurance company's proportion of current receivables and technical reserves are huge in relation to the cedent's capitalization and cash flows. In such a situation, if a key reinsurer fails to pay, the cedent's fiscal strength is threatened (Standard & Poor's, 2005). This is in spite of whether such delay emanates from coercive communication, a genuine legal dispute, or utter non-payment by a reinsurer.

k- Affiliated Investments

In insurance, affiliated investments belong to 3 key categories, namely: subsidiaries that are not exposed to risk based capital; publicly traded insurance subsidiaries; and investment and insurance subsidiaries that are exposed to see-through risk-based capital computation (National Association of Insurance Commissioners, 2009).

11Retrocessionnaires is a reinsurance company that accepts or takes a retrocession.

l- Solvency Margin

Solvency margin refers to the figure by which an insurer's capital surpasses its anticipated liabilities. Generally, solvency margin denotes an insurance firm's capacity to satisfy its long-standing obligations (Barrieu & Albertini, 2009). The term is the measure of a firm's after-tax revenue in relation to the company's total debt. It denotes the minimum excess on an insurance company's assets above its liabilities (Lombardi, 2006). The figure is set by regulators in the insurance industry.

m- Underwriting Operation

Underwriting operation refers to the process by which experts carry out detailed analyses on expenses and insurance procedures. In this process, expenses for functional components and staff levels are analyzed (Feldstein & Fabozzi, 2011). Afterwards, procedures for management, policy, maintenance, and workflow are evaluated.

3.4 MEASUREMENTS OF EXPLANATORY VARIABLES

Table 3.3

Measurements of Explanatory Variables

Variables	Notation	Measurement	Support	Data Sources
Insurance companies' Stock return	ICSR	ICSR=((Pt-Pt-1)/Pt-1)*100	Campbel and MacKinlay (1997); Watsham and Parramore (1997).	GCC Stock Markets Website and Thomson Reuters data stream
Stock market return	SMR	SMR=((SMPIt-SMPIt-1)/SMPIt-1)*100	Campbel and MacKinlay (1997); Watsham and Parramore (1997).	Thomson Reuters data stream
Insurance sector index return	I.S.R	ISR=((ISPIt-ISPIt-1)/ISPIt-1)*100	Campbel and MacKinlay (1997); Watsham and Parramore (1997).	GCC Stock Markets Website and Thomson Reuters data stream
Inflation Rate	DLNCPI	Inflation is measured using a consumer price index DLNCPI= ((LNCPIt-LNCPIt-1)/ LNCPIt-1))*100	Jaffe and Mandelker (1979); Tseng (1982) ; Wilson and Jones (1987); Tsoukalas(1999); Ibrahim and Aziz (2003); Al-Khazali and Pyun (2004); Chen (2007); Quayes and Jamal (2008); Gay (2008); Shiblee (2009); Thaker, Rohilina , Hassama and Bin Amin (2009).	International financial Statistics, GCC Countries' economy Reports and Thomson Reuters data stream
Interest Rate	DINTR	Inter bank loan interest rate DINTR=((INTRt-INTRt-1)/INTRt-1)*100	Arango *et al*. (2002); Al-Mutairi and Al-Omar (2007); Salah Uddin and Alam (2007); Alam and Salah Uddin (2009).	International financial Statistics, GCC Countries' economy Reports and Thomson Reuters data stream
Money Supply	DLNMS	Money supply is measured by (M2) DLNMS=((LNMSt-LNMSt-1)/LNMSt-1) *100	Siti (2003); Ibrahim and Aziz (2003); Rahman, sidek and Tafri (2009).	International financial Statistics, GCC Countries' economy Reports and Thomson
Oil Prices	DLNOP	Real oil price according to different types of crude oil[12]. Oil Prices is measured by (OP) DLNOP=((LNOPt-LNOPt-1)/LNOPt-1)*100	Fang (2010); Narayan and Narayan (2010); Ravichandran and Alkhathlan(2010); Le and Vinh (2011) .	International financial Statistics, GCC Countries' economy Reports and Thomson Reuters data stream

[12] There are three most quoted oil products: 1- North America's West Texas Intermediate crude (WTI). 2- North Sea Brent Crude. 3- the UAE Dubai Crude

Table 3.3 *(continued)*

Variables	Notation	Measurement	Support	Data Sources
Unemployment rate	DUNMR	Unemployed workers /total labour force DUNMR=((UNMRt-UNMRt-1)/ UNMRt-1)*100	Boyd, Liu and Jagannathan (2005); Türsoy, Günsel and Rjoub (2008); Pilinkus and Boguslauskas (2009).	International financial Statistics, GCC Countries' economy Reports and Thomson Reuters data stream
Earnings per share	EPS	Earnings per Share (EPS) = (Net Earnings – dividends on preferred stock) / Outstanding Shares.	Roux,Villiers Hamman and Joubert (2005) ; Al-Tamimi (2007); (International Accounting Standards Board, 2008); Al-Omar and Al-Mutairi (2008); BelalUddin(2009).	Financial statements from companies annual reports and Thomson Reuters data stream
Dividend yield (DY)	DY	Dividend Yield = yearly dividend per share / stock price per share	Litzenberger and Ramaswamy (1982); Fama and French (1988); Ohlson (1995); Henne, Ostrowski, Rechling (2007).	Financial statements from companies annual reports and Thomson Reuters data stream
Leverage	LEV	This variable is measured by the ratio of total debt to the value of equity.	Gropp and Vesala (2004); Penman, Richardson and Tuna (2007); Cai and Zhang (2010).	Financial statements from companies annual reports and Thomson Reuters data stream
Loss Ratio	LR	This variable will be proxy by the ratio of incurred claims to the earned premiums.	Majmudar (2006); Basbug (2006); Angoff and Brown (2007).	Financial statements from companies annual reports and Thomson Reuters data stream

Table 3.3 *(continued)*

Variables	Notation		Support	Data Sources
Reinsurance Dependence	REID	This variable is measured as reinsurance ceded divided by total assets (RCTA).	Shiu(2004); Majmudar(2006).	Financial statements from companies annual reports and Thomson Reuters data stream
Affiliated investment	AFF.IN	This variable is measured as total affiliated investments divided by shareholders' funds (TAISF).	Shiu (2004).	Financial statements from companies annual reports and Thomson Reuters data stream
Solvency Margin	S.M	This variable is measured as net assets divided by net premiums written (NANPW).	Shiu (2004); Majmudar(2006).	Financial statements from companies annual reports and Thomson Reuters data stream
Stability of Underwriting Operation	SUO	This variable is measured as the difference of net premiums written between the current year and the prior year divided by net premiums written prior year (ACNPW). The lower the value of ACNPW, the more stable the underwriting operation will be.	Shiu (2004); Majmudar(2006).	Financial statements from companies annual reports and Thomson Reuters data stream

3.5 MODEL ESTIMATION

To test the proposed models equation, the present study makes use of the panel data regression. Panel data regression is useful as it enables the deletion of unobservable heterogeneity that various companies within the sample data could reveal (Himmelberg, Hubbard, & Palia, 1999). This type of regression is advantageous over independent cross-sectional or time-series regression. Among the significant advantages include the provision of a combination of time-series and cross-sectional observations, the provision of more informative data, variability, less collinearity among variables, greater levels of freedom, and higher efficiency. Moreover, by making data available for many thousand units, panel data enables the minimization of the bias that may result if individual/company level data is categorized into general aggregates. Finally, panel data are better detectors and measurement of the impact that are unobservable in pure cross-section or time-series data (Gujarati, 2003; Baltagi & Li1995).

The traditional normal linear regression assumes a constant error term throughout time periods and locations. If this assumption is true, it confirms the existence of homoscedasticity. But if variations exist in the observation, it may lead to a non-constant error term variance produced from the regression and as a result, the problem of heteroscedasticity prevails. Hence, if that occurs, the estimates of the dependent variable become less predictable (Gujarati 2003).

The present study attempts to clarify the stock returns-macroeconomic variables relationship. Accordingly, as mentioned, before we analyze the interaction of insurance sector return in GCC countries and five macroeconomic variables which are inflation rate, interest rate, money supply, oil prices, unemployment rate. The empirical analysis in this study covers monthly data for 10 years (2001-2010).

In the first model, this study will apply these equations:

Since the first objective of this study is to investigate the effect of macroeconomic indicators and oil prices on insurance index stock returns, the first model is as shown below:

$$ISR= \beta + \beta 1DLNCPI + \beta 2DINTR + \beta 3DLNMS + \beta 4DLNOP+ \beta 5DUNMR + \beta 6SMR + e \qquad \text{A (3.1)}$$

Where:

ISR: Insurance stock index returns

CPI: Consumer price index

INTR: Interest rate

MS: Money supply (M2)

OP: Oil prices

UNMR: Unemployment rate

SMR: Stock market return

Since the second objective of this study is to examined the effects associated with general firm-specific variables (EPS, dividend yield and leverage), insurance company specific variables (loss ratio, solvency margin, affiliated investment, stability of underwriting operations and reinsurance dependence) in addition to the significant macroeconomic indicators from the first model on the stock returns for Gulf insurance companies in GCC stock markets, The second model is as shown below:

ICSR = β + β1EPS + β2DY + β3LEV + β4LR+ β5REID + β6SM + β6AFFIN + β8SUO + β9SMR + βn Macro economic factors + e…...…………………………..…... (3.2)

Where:

ICSR: Insurance companies' stock return

EPS: Earnings per share

DY: Dividend yield

LEV: Leverage

LR: Loss ratio

REID: Reinsurance dependence

SM: Solvency margin

AFFIN: Affiliated investment

SUO: Stability of underwriting operation

3.6 DATA ANALYSIS TECHNIQUES

3.6.1 Descriptive Data

Data is run through descriptive analysis in order to provide an overview of data normality, spread reliability and trends that arise and to establish a basis for advanced statistical analysis. This prepares a strict analysis of the research data (Sekaran, 2003). The descriptive analysis aims to examine the data's central tendency comprising of mean, mode and median, the dispersion of data through standard deviation, skewness of data through skew index, and kurtosis through the index of kurtosis.

Skewness is considered the third standardized test that gauges the level to which probability distribution symmetry is determined. The rule is such that if skewness is higher than zero, then the distribution is skewed to the right side with more observation on the left (Sekaran, 2003). In addition, Kurtosis characterizes the relative peakedness or flatness of a distribution compared with the normal distribution. Positive kurtosis indicates a relatively peaked distribution. Negative kurtosis indicates a relatively flat distribution." The kurtosis of a sample is consistent with a normal distribution for a population if it is small, e.g. less than 0.3.

3.6.2 Normality Test

The question of how to test whether or not data comes from normal distribution is a typical question when employing normal distribution test. This can be determined by a simple method of a histogram wherein which the shape of normal distribution with similar means and standard deviation as those of the relevant data. It is convenient that many statistical packages are currently available to draw the histogram while superimposing the normal curve. In drawing such a histogram, the Q-Q plot is considered as a plot of the percentiles/quintiles of a standard normal distribution over that of the observed data. If it is observed that near normal distribution exists, the resulting plot can be somewhat of a straight line having a positive slope (Dowdy, Weardon & Chilko, 2011). Larger sample size reduce the detrimental effects of non-normality and significant departures from normality and may be negligible for sample sizes of 200 or more (Hair *et al.*, 2010).

3.6.3 Pearson Correlation

The most common measure of dependence between two variables is provided by the Pearson product-moment correlation coefficient or what is known as the “Pearson’s Correlation” (Rodgers &Nicewander, 1988). This correlation can be calculated by the two variables covariance divided by their standard deviations product.

When the Pearson correlation is +1, a perfect positive increasing linear relationship is confirmed while when it is -1, a perfect decreasing negative linear relationship exists. Some correlations that lie between the two shows the level of linear dependence between the two variables. As it nears zero, less relationship is established while if it is nearer to either the two extremes (-1 and +1), a strong correlation is established between the variables (Dowdy, Weardon & Chilko, 2011).

3.6.4 Diagnostic Tests for Panel Data

a- Multicollinearity

Multicollinearity can generally be described as the correlation between variables and is a regression sample phenomenon. A perfect collinearity variables reflects that the variables are non-orthogonal.

Multicollinearity is defined as the degree of correlation among independent variables. Verifying the multicollinearity problem can be done through bivariate correlations of all the independent variables. Where two variables exist in a regression, multicollinearity can be determined by verifying the zero-degree correlation. A high correlation can be attributed to the presence of multicollinearity. In the present research, multicollinearity detection can be done through the use of VIF (Variance Inflation Factor) value. If VIF is greater than 10 multicollinearity exists in the regression.

Multicollinearity can also be defined through the exploration of the two or more independent variables' relationship. It happens when a single independent variable is significantly correlated with a group of other independent variables. Multicollinearity can simply be identified by studying the correlation matrix of the independent variables. In which case, if there exists high correlations (0.90 and above), collinearity is present (Hair et al., 2006).

b- Heteroscedasticity

Homoscedasticity is another assumption required for the regression inferences validity where error term is considered to have constant variance. Variances that fall short of satisfying this property are described to be heteroscedastic (Mendenhall & Sinchich, 2003, p.379).

Moreover, heteroscedasticity is described as a distortion existing in the regression analysis where error term shows no variance similarity. An issue concerning heteroscedasticity often arises in a cross section data more than in a times series data because in the former, the research is impacted with population data at a specific time while the latter's research data is in the same group in the same period. The detection of heteroscedasticity is possible through many ways like graphic methods, Park methods, Glesjer methods and Spearman's Rank Correlation.

The presence of heteroscedasticity arises when the error variance reveals a non-constant variance in which case, the disturbance of every observation drawn from various distributions has different variance. In other words, the observed value variance of the dependent variable surrounding the regression line is dynamic. Each observed value of the dependent variable can be observed as being obtained from various conditional probability distributions with various conditional variances.

The issue of heteroscedasticity can be determined through the use of White General Heteroscedasticity Test, Breuch-Pagan Godfrey Test, Park Test or Glejser Test (Gujarati, 2003; Wooldridge, 2003; Green, 2003). Additionally, heteroscedasticity can also be detected by using the Cook-Weisberg (2009) test and to examine if the squared standardized residuals are related to a linear manner to the dependent variables (Hamilton, 2003). In a null hypothesis of homogeneous residuals is tested; a p-value higher than 0.05 indicates failure to reject the hypothesis and thus the residual variance is considered homogenous.

After the detection of heteroscedasticity, it can be resolved through the use of White's heteroscedasticity consistent variance and standard error technique, weighted least Square method or by data transformation (Hair et al., 2006; Gujarati, 2003).

c- Autocorrelation

Autocorrelation is described as going against the assumptions stating that the errors are uncorrelated and independent and each error term's size and direction does not affect the others'. Autocorrelation can be related with the cross-sectional data (spatial autocorrelation) although it is often related with the time series data and the latter is by definition, ordered in time.

Autocorrelation can be detected through many approaches with one of them being the Durbin-Watson test. For the time series, regression results are reported in a standard manner through the Durbin-Watson d-test for correlation such that a d nearer to 0 indicates positive autocorrelation and a d nearer to 4 indicates negative autocorrelation. For the determination of whether or not the proximity to 0 or 4 is such that the model can be determined as having positive or negative autocorrelation, upper and lower critical d values depending on the number of observations (N) and the number of explanatory variables (k) are considered.

The null hypothesis stating no correlation between successive residuals can be evaluated through the following formula;

$$d = \frac{\sum_{t=2}^{n} (e_t - e_{t-1})^2}{\sum_{t=1}^{n} e_t^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.11)}$$

Through the formula, the value of d is compared to the lower and upper critical values of dL and dU respectively as postulated in Durbin and Watson. If the resulting d is lower compared to the tabulated dL, the null hypothesis is rejected and therefore, there is correlation among the residuals. If on the other hand, d is higher compared to the tabulated dU, then the residuals are considered to be negligibly correlated. If the calculated d lies between the tabulated critical values, it would mean that the test is inconclusive and hence, autocorrelation is further tested in the following section through panel least squares and generalized least squares of panel.

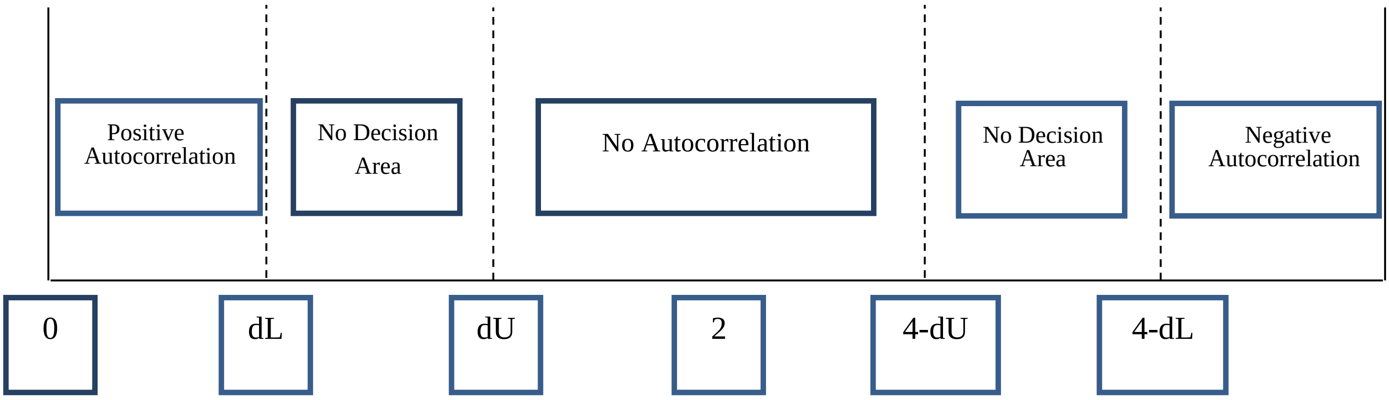

Figure 3.3
Critical Values for the Durbin-Watson Test

The existence of autocorrelation triggers the model's requirement to be transformed in a way that the error term in the transformed model contains no autocorrelation in a process known as generalized least squares (GLS). The observation is of small number, GLS is not appropriate and hence the observation has to be transformed through the Prais-Winsten transformation. With relatively large samples, GLS will not be adversely impacted by a single missing observation.

3.6.5 Panel Data Analysis

A combination of time series and cross sectional data sets is referred to as longitudinal/panel data sets. These sets are more inclined towards cross-section analysis that is wide by normally short in light of over time observations. The units heterogeneity are the core issue of panel data analysis.

a- The Constant Coefficients Model

The constant coefficients model is a kind of panel model having constant coefficients and refers to intercepts as well as slopes. If there are no significant spatial or significant temporal effects, the entire data is run through an ordinary least squares regression model. More often than not, there are either spatial or temporal effects but sometimes neither of the two is found to be statistically significant. The constant coefficients model is sometimes referred to as the pooled regression model (Stock & Watson, 2007).

b- The Fixed Effects Model

Majority of empirical studies in economics is aimed at explaining the relationship between a dependent variable "Y" and one or more explanatory variables (x_1, x_2,…..,x_N). The aim is to determine if x_i affects Y and if it does, then what is the size and direction of this effect. For the solution to this query, data sample has to be obtained through an unbiased estimate of the impact of X upon Y. For unbiased estimation, it is crucial to carry out confounding variables (observable and non-observable). In order to control the observable variables, a multiple classical linear regression model can be used while the unobservable ones varying throughout units but constant overtime, fixed effects regression model can be utilized. This model is the multiple classical linear regression modelextension. On the other hand, for the fixed regression model, panel data is required.

c- The Random Effects Model

The previous model enables the unobserved individual effects to be associated with the variables. The units' differences are then structured as shifts in the constant term. If however, the individual effects are not associated with the regressors, then it is appropriate. The random effects model significantly minimizes the parameters that need estimation.

d- Selecting between Pooled Estimation, Fixed Effects and Random Effects

Two statistical tests are used in order to identify which methodology is appropriate. First, to compare the pooled estimates and random effect estimate, the Lagrangian Multiplier Test is performed. With a large chi-square test, indicative of a low p-value, we reject the null that the pooled estimate is appropriate.

Second to select between fixed or random effects is through the use of Hausman test. Fixed effects are statistically the more reasonable thing to do when dealing with panel data as they always provide consistent results but on the other hand, they are not the most efficient model to use. Random effects offer superior P-values and they estimate more accurately and thus, random effects should be run in justifiable cases.

The Hausman test confirms the efficiency of a model against a less efficient one to ensure that the former provides consistent results. Its null hypothesis stated that coefficients estimated by the efficient random effects estimator are identical to the ones estimated by the consistent fixed effects estimator and if they present an insignificant P-value, Prob>chi2 higher than 0.05, the random effects should be utilized if not then, fixed effects are suitable.

CHAPTER FOUR

ANALYSES & FINDINGS

4.0 INTRODUCTION

The present chapter presents the study findings which entail the examination of the association among macroeconomic indicators, microeconomic variables and insurance companies' stock returns. It adopted panel data techniques by considering pooled and fixed or random effect specification to explore the relationship between macroeconomic indicators and insurance index return and microeconomic variables and insurance companies 'stocks returns.

This chapter has two sections based on its objectives. Section one focuses on macroeconomic indicators and stock index returns, so this section is outlined as follows: descriptive statistics, correlation analysis, panel data estimation, diagnose test for panel data application**,** and lastly hypotheses testing. Section two discusses the analyses on the relationship between microeconomic variables (general firm specific variables and insurance company variables) and insurance companies' stocks returns through panel data estimation technique. This section hence contains details on descriptive of panel data, correlation analysis, panel data estimation, diagnose test for panel data application, and lastly testing the hypotheses is carried out.

4.1 THE EFFECT OF MACROECONOMIC INDICATORS ON GCC'S INSURANCE INDEX RETURNS

4.1.1 Descriptive Analysis

a- Descriptive Statistics by Cross Sections

The general data statistical features under study include the mean, minimum and maximum values, standard deviation, and variation in coefficients.

Table 4.1 presents the descriptive statistics for Kuwait data and it indicates that the minimum and maximum values of variables are under the accepted range. The mean of insurance index returns in Kuwait stock market is 1.02 and the median is 1.238. The minimum value is -15.44 and the maximum value is 12.665. The mean of inflation (DLNCPI) is 0.063 and the median is 0.042. The minimum value is -0.177 and the maximum value is 0.458. The mean of change in interest rate (DINTR) is 0.1997 and the median is 0. The minimum value is -57.143 and the maximum value is 125. The mean of change in money supply (DLNMS) is 0.096 and the median is 0.091. The minimum value is -0.449 and the maximum value is 0.672. The mean of change in oil prices (DLNOP) is 0.388 and the median is 0.716. The minimum value is -11.309 and the maximum value is 8.217. The mean of change in unemployment rate (DUNMR) is 0.614 and the median is 0.268. The minimum value is -4.348 with a maximum value of 10. The mean of stock market return (SMR) is 1.35 and the median is 1.821. The minimum value is -31.612 with a maximum value of 15.96.

Based on the standard deviation, ISR, DINTR and SMR have higher volatility compared to the DLNMS, DLNOP and DUNMR.

Table 4.1

Descriptive Statistics of Kuwait Stock Market (from January 2001 to December 2010).

1	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	1.02	0.063	0.1997	0.096	0.388	0.614	1.35
Median	1.238	0.042	0.000	0.091	0.716	0.268	1.821
Maximum	12.665	0.458	125	0.672	8.217	10	15.96
Minimum	-15.441	-0.177	-57.143	-0.449	-11.309	-4.348	-31.612
Std. Dev.	4.914	0.119	12.891	0.192	2.846	2.689	6.659
C.V	4.817	1.892	64.547	2.005	7.334	4.376	4.929
Sum	122.439	7.571	23.968	11.499	46.562	73.738	162.124
Sum Sq. Dev.	2873.881	1.693	19776.39	4.393	963.621	860.365	5276.769
Observations	120	120	120	120	120	120	120

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return.

Table 4.2 shows the descriptive statistics for Oman data and it indicates that the minimum and maximum values of variables are under the accepted range. The mean of insurance and service index returns in Muscat Securities Market is 0.826 and the median is 0.334. The minimum value is -26.481 and the maximum value is 21.288. The mean of inflation (DLNCPI) is 0.068 and the median is 0.014. The minimum value is -1.014 and the maximum value is 1.09. The mean of change in interest rate (DINTR) is -0.294 and the median is -0.296. The minimum value is -3.368 and the maximum value is 2.702. The mean of change in money supply (DLNMS) is 0.118 and the median is 0.139. The minimum value is -0.377 and the maximum value is 0.662. The mean of change in oil prices (DLNOP) is 0.356 and the median is 0.0.585. The minimum value is -11.011 and the maximum value is 6.921. The mean of change in unemployment rate (DUNMR) is -1.143 and the median is -1.35. The minimum value is -2.913 with a maximum value of 1.096. The mean of stock market return (SMR) is

1.23 and the median is 1.531. The minimum value is -28.924 with a maximum value of 20.308.

Based on the standard deviation, ISR, DLNOP and SMR have higher volatility compared to the DLNCPI, DINTR, DLNMS and DUNMR.

Table 4.2
Descriptive Statistics of Muscat Securities Market (from January 2001 to December 2010).

2	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	0.826	0.068	-0.294	0.118	0.356	-1.143	1.231
Median	0.334	0.014	-0.296	0.139	0.585	-1.35	1.531
Maximum	21.288	1.09	2.702	0.662	6.921	1.096	20.308
Minimum	-26.481	-1.014	-3.368	-0.377	-11.011	-2.913	-28.924
Std. Dev.	5.621	0.192	1.069	0.204	2.616	1.01	6.516
C.V	6.808	2.834	3.633	1.733	7.339	0.962	5.293
Sum	99.091	8.137	-35.296	14.13	42.773	-137.106	147.736
Sum Sq. Dev.	3760.512	4.37	135.914	4.963	814.463	143.902	5052.086
Observations	120	120	120	120	120	120	120

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.3 presents the descriptive statistics for Oman data and it indicates that the minimum and maximum values of variables are under the accepted range. The mean of insurance index returns in Bahrain Stock Exchange is 0.326 and the median is 0.619. The minimum value is -19.828 and the maximum value is 12.919. The mean of inflation (DLNCPI) is 0.02 and the median is 0.025. The minimum value is -0.173 and the maximum value is 0.212. The mean of change in interest rate (DINTR) is -0.097 and the median is 0. The minimum value is -15.419 and the maximum value is 12.376. The mean of change in money supply (DLNMS) is 0.123 and the median is 0.092. The minimum value is -0.572 and the maximum value is 1.011. The mean of change in oil prices (DLNOP) is 0.289 and the median is 0.439. The minimum value is -10.34 and the maximum value is 7.477. The mean of change in unemployment rate (DUNMR) is -0.369 and the median is -0.269. The minimum value is -2.839 with a maximum value of 3.396. The mean of stock market return (SMR) is 0.409 and the median is 0.726. The minimum value is -12.63 with a maximum value of 9.689.

Based on the standard deviation, ISR, DINTR, DLNOP and SMR have higher volatility compared to the DLNCPI, DLNMS and DUNMR.

Table 4.3
Descriptive Statistics of Bahrain Stock Exchange (from February 2003 to December 2010).

3	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	0.326	0.02	-0.097	0.123	0.289	-0.369	0.409
Median	0.619	0.025	0.000	0.092	0.439	-0.269	0.726
Maximum	12.919	0.212	12.376	1.011	7.477	3.396	9.689
Minimum	-19.828	-0.173	-15.419	-0.572	-10.34	-2.839	-12.63
Std. Dev.	5.148	0.072	3.691	0.255	2.715	1.273	4.106
C.V	15.805	3.669	38.219	2.073	9.375	3.445	10.044
Sum	30.95	1.86	-9.179	11.69	27.514	-35.111	38.83
Sum Sq. Dev.	2491.581	0.486	1280.760	6.119	692.783	152.319	1584.866
Observations	95	95	95	95	95	95	95

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.4 reveals the obtained descriptive statistics with regards to the Kingdom of Saudi Arabia (KSA). From the table, it can be seen that the mean of insurance index returns in Saudi stock market is 0.001 and the median is -1.152. The minimum value is -36.331 and the maximum value is 47.274. The mean of inflation (DLNCPI) is 0.113

and the median is 0.094. The minimum value is -0.037 and the maximum value is 0.326. The mean of change in interest rate (DINTR) is -0.5 and the median is -0.171. The minimum value is -2.37 and the maximum value is 1.926. The mean of change in money supply (DLNMS) is 0.089 and the median is 0.079. The minimum value is -0.107 and the maximum value is 0.321. The mean of change in oil prices (DLNOP) is 0.179 and the median is 0.534. The minimum value is -9.555 and the maximum value is 5.072. The mean of change in unemployment rate (DUNMR) is -0.079 and the median is 0.188. The minimum value is -1.01 with a maximum value of 3.393.The mean of stock market return (SMR) is 0.254 and the median is 0.291. The minimum value is -33.34 with a maximum value of 19.713.

Based on the standard deviation, ISR, DINTR, DLNOP and SMR have higher volatility compared to the DLNCPI, DLNMS and DUNMR.

Table 4.4
Descriptive Statistics of Saudi Stock Market (Tadawul) (from May 2007 to December 2010).

4	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	0.001	0.113	-0.5	0.089	0.179	-0.079	0.254
Median	-1.152	0.094	-0.171	0.079	0.534	0.188	0.291
Maximum	47.274	0.326	1.926	0.321	5.072	3.393	19.713
Minimum	-36.331	-0.037	-2.37	-0.107	-9.555	-1.01	-33.337
Std. Dev.	14.72	0.089	1.103	0.112	2.795	0.845	9.477
C.V	14590	0.780	2.206	1.256	15.642	10.678	37.28
Sum	0.046	4.987	-21.998	3.924	7.866	-3.482	11.183
Sum Sq. Dev.	9320.561	0.337	52.306	0.539	336.007	30.717	3861.97
Observations	44	44	44	44	44	44	44

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return.

The descriptive statistics for the data for country of Qatar are presented in Table 4.5. From the table, it can be seen that the mean of insurance index returns in Qatar Exchange is 1.948 and the median is 2.791. The minimum value is -29.005 and the maximum value is 29.432. The mean of inflation (DLNCPI) is 0.057 and the median is 0.137. The minimum value is -5.184 and the maximum value is 0.258.The mean of change in interest rate (DINTR) is 0.653 and the median is 0. The minimum value is -22.286 and the maximum value is 27.551. The mean of change in money supply (DLNMS) is 0.191 and the median is 0156. The minimum value is -2.231 and the maximum value is 2.957. The mean of change in oil prices (DLNOP) is 0.331 and the median is 0.553. The minimum value is -11.128 and the maximum value is 6.52. The mean of change in unemployment rate (DUNMR) is -1.787 and the median is -1.794. The minimum value is -8.163 with a maximum value of 2.5.The mean of stock market return (SMR) is 1.908 and the median is 1.303. The minimum value is -31.883 with a maximum value of 33.71.

Based on the standard deviation, ISR, DINTR and SMR have higher volatility compared to the DLNCPI, DLNMS, DLNOP and DUNMR.

Table 4.5

Descriptive Statistics of Qatar Exchange (from January 2003 to December 2010).

5	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	1.948	0.057	0.653	0.191	0.331	-1.787	1.908
Median	2.791	0.137	0.000	0.156	0.553	-1.794	1.303
Maximum	29.432	0.258	27.551	2.957	6.52	2.5	33.707
Minimum	-29.005	-5.184	-22.286	-2.231	-11.128	-8.163	-31.883
Std. Dev.	11.365	0.554	6.299	0.7795	2.5491	2.343	10.25
C.V	5.834	9.7015	9.649	4.088	7.693	1.311	5.372
Sum	187.014	5.481	62.67	18.305	31.805	-171.516	183.182
Sum Sq. Dev.	12270.92	29.152	3768.837	57.727	617.284	521.534	9981.47
Observations	96	96	96	96	96	96	96

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

The descriptive statistics for the state of Abu Dhabi are shown in the Table 4.6. From the table, it can be seen that the mean of insurance index returns in Abu Dhabi Securities Exchange is 0.008 and the median is 0.186. The minimum value is -15 and the maximum value is 21.14. The mean of inflation (DLNCPI) is 0.148 and the median is 0.1. The minimum value is -12.573 and the maximum value is 15.773.The mean of change in interest rate (DINTR) is 0.303 and the median is 0. The minimum value is -10.593 and the maximum value is 17.629. The mean of change in money supply (DLNMS) is 0.143 and the median is 0.133. The minimum value is -0.525 and the maximum value is 0.697. The mean of change in oil prices (DLNOP) is 0.322 and the median is 0.432. The minimum value is -11.094 and the maximum value is 7.255. The mean of change in unemployment rate (DUNMR) is 0.655 and the median is 0.319. The minimum value is 0 with a maximum value of 2.778.The mean of stock market return (SMR) is 0.586 and the median is 0.615. The minimum value is -23.409 with a maximum value of 48.754.

Based on the standard deviation, ISR, DINTR and SMR have higher volatility compared to the DLNCPI, DLNMS, DLNOP and DUNMR.

Table 4.6
Descriptive Statistics for Abu Dhabi Securities Exchange (from August 2004 to December 2010).

6	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	-0.008	0.148	0.303	0.143	0.322	0.655	0.586
Median	0.186	0.1	0.000	0.133	0.432	0.319	0.615
Maximum	21.14	15.773	17.629	0.697	7.255	2.778	48.754
Minimum	-15	-12.573	-10.593	-0.525	-11.094	0.000	-23.409
Std. Dev.	5.101	2.32	4.204	0.196	2.732	0.788	9.335
C.V	680.75	15.655	13.889	1.377	8.476	1.202	15.932
Sum	-0.581	11.414	23.308	10.983	24.82	50.443	45.114
Sum Sq. Dev.	1977.694	408.97	1342.98	2.929	567.262	47.135	6622.401
Observations	77	77	77	77	77	77	77

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.7 lists the descriptive statistics for Dubai Securities Exchange. From the table, it can be seen that the mean of insurance index returns in Dubai Securities Exchange is -0.326 and the median is -0.811. The minimum value is -20.223 and the maximum value is 37.495. The mean of inflation (DLNCPI) is 0.148 and the median is 0.1. The minimum value is -12.573 and the maximum value is 15.77. The mean of change in interest rate (DINTR) is 0.303 and the median is 0. The minimum value is -10.593 and the maximum value is 17.629. The mean of change in money supply (DLNMS) is 0.143 and the median is 0.133. The minimum value is -0.525 and the maximum value is 0.697. The mean of change in oil prices (DLNOP) is 0.322 and the median is 0.432. The minimum value is -11.094 and the maximum value is 7.255. The mean of change in unemployment rate (DUNMR) is 0.655 and the median is 0.319. The minimum value is 0 with a maximum value of 2.778.The mean of stock market return (SMR) is 0.901 and the median is -0.163. The minimum value is -33.517 with a maximum value of 46.568.

Based on the standard deviation, ISR, DINTR and SMR have higher volatility compared to the DLNCPI, DLNMS, DLNOP and DUNMR.

Table 4.7
Descriptive Statistics for Dubai Securities Exchange *(from August 2004 to December 2010).*

7	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	-0.326	0.148	0.303	0.143	0.322	0.655	0.901
Median	-0.811	0.1	0.000	0.133	0.432	0.319	-0.163
Maximum	37.495	15.773	17.629	0.697	7.255	2.778	46.568
Minimum	-20.223	-12.573	-10.593	-0.525	-11.094	0.000	-33.517
Std. Dev.	9.908322	2.32	4.204	0.196	2.732	0.788	12.923
C.V	30.411	15.655	13.889	1.377	8.476	1.202	14.344
Sum	-25.09	11.414	23.308	10.983	24.82	50.443	69.373
Sum Sq. Dev.	7461.288	408.97	1342.980	2.929	567.262	47.135	12692.45
Observations	77	77	77	77	77	77	77

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return.

b- Descriptive of Panel A

Panel A include macroeconomic variables and insurance stock index return from 2001-2010.

Table 4.8 presents the descriptive statistics of the study variables. The results confirm the adequacy of the data used in estimating the macroeconomic variables as determinants of insurance index' returns.

Table 4.8 presents the descriptive statistics of the study variables for GCC's stock markets. The results confirm the adequacy of the data used in estimating the macroeconomic variables as determinants of insurance index' returns.

Table 4.8 shows the descriptive statistics for Panel A. It can be seen from the table that the data reflects that minimum and maximum value of all variables is within range.The mean of insurance index returns in GCC's stock markets is 0.658 and the median is 0.547. The minimum value is -36.33 while the maximum value is 47.27. The mean of inflation (DLNCPI) is 0.081 and the median is 0.065. The minimum value is -12.573 and the maximum value is 15.77. The mean of change in interest rate (DINTR) is 0.1062 and the median is 0. The minimum value is –57.14 and the maximum value is 125. The mean of change in money supply (DLNMS) is 0.13 and the median is 0.119. The minimum value is -2.23 and the maximum value is 2.957. The mean of change in oil prices (DLNOP) is 0.328 and the median is 0.555. The minimum value is -11.309 and the maximum value is 8.217. The mean of change in unemployment rate (DUNMR) is -0.274 and the median is 0. The minimum value is -8.163 with a maximum value of 10.The mean of stock market return (SMR) is 1.045 and the median is 1.027. The minimum value is -33.516 with a maximum value of 48.75.

The table shows that ISI, DINTR, DLNOP and SMR have greater volatility in comparison to DLNCPI, DLNMS and DUNMR.

Based on the number of observation in this study and according to Hair *et al.* (2010) the larger sample size reduce the detrimental effects of non-normality and significant departures from normality and may be negligible for sample sizes of 200 or more.

Table 4.8
Descriptive Statistics of Panel A (All GCC stock markets)

	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	0.658	0.0808	0.1062	0.13	0.328	-0.274	1.045
Median	0.547	0.065	0.000	0.119	0.555	0.000	1.027
Maximum	47.274	15.773	125	2.957	8.217	10	48.75
Minimum	-36.33	-12.573	-57.143	-2.231	-11.309	-8.163	-33.517
Std. Dev.	8.028	1.167	6.65	0.357	2.695	1.932	8.488
C.V	12.201	14.439	62.641	2.758	8.222	7.04	8.119
Sum	413.859	50.836	66.779	81.523	206.156	-172.596	657.542
Sum Sq. Dev.	40472.80	855.232	27775.09	80.213	4560.342	2343.495	45242.75
Observations	629	629	629	629	629	629	629

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.9 presents the number of cross-section in addition to the observation numbers in every cross-section for all GCC's stock markets so unbalanced panel data was utilized in this study.

Table 4.9
Number of Observations by Cross-Section-panel A (All GCC stock markets)

Cross - section	Number of observations	%
Kuwait Stock market	120	19.08
Muscat Securities Market	120	19.08
Bahrain Stock Exchange	95	15.10
Saudi Stock Market (Tadawul)	44	7.00
Qatar Exchange	96	15.26
Abu Dhabi Securities Exchange	77	12.24
Dubai Financial Market	77	12.24
Total	629	100.00

Table 4.10 presents the descriptive statistics of the study variables for GCC's stock markets without Oman. The results confirm the adequacy of the data used in estimating the macroeconomic variables as determinants of insurance index' returns.

Table 4.10 shows the descriptive statistics for Panel A. The mean of insurance index returns in GCC's stock markets is 0.618 and the median is 0.591. The minimum value is -36.33 while the maximum value is 47.27. The mean of inflation (DLNCPI) is 0.084 and the median is 0.079. The minimum value is -12.573 and the maximum value is 15.77. The mean of change in interest rate (DINTR) is 0.201 and the median is 0. The minimum value is –57.14 and the maximum value is 125. The mean of change in money supply (DLNMS) is 0.132 and the median is 0.116. The minimum value is -2.23 and the maximum value is 2.957. The mean of change in oil prices (DLNOP) is 0.321 and the median is 0.549. The minimum value is -11.309 and the maximum value is 8.217. The mean of change in unemployment rate (DUNMR) is -0.07 and the median is 0.189. The minimum value is -8.163 with a maximum value of 10.The mean of stock market return (SMR) is 1.002 and the median is 0.98. The minimum value is -33.516 with a maximum value of 48.75.

The table shows that ISI, DINTR, DLNOP and SMR have greater volatility in comparison to DLNCPI, DLNMS and DUNMR (*for more details see appendix A*).

Table 4.10
Descriptive Statistics of Panel A (All GCC stock markets without Oman)

ISR: Insurance stock return.

	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
Mean	0.618	0.084	0.201	0.132	0.321	-0.07	1.002
Median	0.592	0.079	0	0.116	0.549	0.189	0.981
Maximum	47.274	15.773	125	2.957	8.217	10	48.754
Minimum	-36.331	-12.573	-57.143	-2.231	-11.309	-8.163	-33.517
Std. Dev.	8.501	1.294	7.373	0.385	2.715	2.027	8.894
C.V	13.746	15.42	36.765	2.907	8.46	29.074	8.88
Sum	314.769	42.719	102.076	67.385	163.381	-35.491	509.809
Sum Sq. Dev.	36708.17	850.835	27615.39	75.231	3745.757	2087.83	40185.55
Observations	509	509	509	509	509	509	509

LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.11 presents the number of cross-section in addition to the observation numbers in every cross-section for all GCC's stock markets without Oman.

Table 4.11
Number of Observations by Cross-Section-panel A (All GCC stock markets without Oman)

Cross - section	Number of observations	%
Kuwait Stock market	120	23.58
Bahrain Stock Exchange	95	18.66
Saudi Stock Market (Tadawul)	44	8.64
Qatar Exchange	96	18.86
Abu Dhabi Securities Exchange	77	15.13
Dubai Financial Market	77	15.13
Total	509	100.00

4.1.2 Correlation Analysis

The computed correlation matrix of five macroeconomic indicators and stock returns over 10 years are presented in Table 4.12. The hypothesis testing to test the correlation is:

H_0: ρ=0, indicating no relationship between the two variables
H_1: ρ≠ 0, indicating a relationship between the two variables

Table 4.12 lists the results of the Pearson correlation analysis. It confirmed some level of correlation between dependent variable (stock index return) and independent variables (inflation, interest rate, money supply, oil prices and unemployment rate) in addition to stock market return as a control variable in Panel A which covered seven GCC's stock markets. It shows the presence of a negative and significant correlation between ISR and DLNCPI at significant level 5%. A positive and significant correlation between ISR and DLNOP and between ISR and SMR at significant level 1%. These relations are not significant between ISR and DINTR, ISR and DLNMS and ISR and DUNMR.

The correlation result measures the linear relation between the variables. As suggested by the table, the entire variables have a weak correlation among themselves. The highest correlation recorded is 0.266 which is obtained for relationship between DLNOP and SMR. DLNMS however has weak relationship with insurance index return.

Table 4.12
Pearson Correlation-panel A (All GCC stock markets)

	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	**1**						
DLNCPI	**-.080** .045**	**1**					
DINTR	**.030 .460**	**-.002 .965**	**1**				
DLNMS	**.025 .531**	**-.031 .445**	**-.022 .584**	**1**			
DLNOP	**.200*** .000**	**-.009 .812**	**.017 .672**	**-.008 .847**	**1**		
DUNMR	**-.039 .334**	**.027 .496**	**-.004 .910**	**-.087** .030**	**.038 .347**	**1**	
SMR	**.265*** .000**	**.051 .203**	**.014 .730**	**.067* .092**	**.266*** .000**	**.010 .798**	**1**

*. Correlation is significant at the 0.1 level (2-tailed).
**. Correlation is significant at the 0.05 level (2-tailed).
***. Correlation is significant at the 0.01 level (2-tailed).
ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.13 lists the results of the Pearson correlation analysis. It confirmed some level of correlation between dependent variable (stock index return) and independent variables (inflation, interest rate, money supply, oil prices and unemployment rate) in addition to stock market return as a control variable in Panel A (without Oman) which covered six GCC's stock markets. It shows that ISR was significantly and negatively related to DLNCPI at significant level 5%. It was found that ISR was significantly and positively related to DLNOP and SMR at significant level 1%. These relations are not significant between ISR and DINTR, ISR and DLNMS and ISR and DUNMR. The highest correlation recorded is 0.263 which is obtained for relationship between DLNOP and SMR. DLNMS however has weak relationship with insurance index return (*for Pearson correlation for each stock market see appendix D*).

Table 4.13
Pearson Correlation-panel A (All GCC stock markets without Oman)

	ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	**1**						
DLNCPI	**-.088** .048**	**1**					
DINTR	**.036 .412**	**-.002 .959**	**1**				
DLNMS	**.026 .556**	**-.034 .442**	**-.025 .579**	**1**			
DLNOP	**.191*** .000**	**-.005 .907**	**.022 .621**	**.009 .838**	**1**		
DUNMR	**-.028 .522**	**.028 .528**	**-.012 .791**	**-.085* .055**	**.041 .354**	**1**	
SMR	**.249*** .000**	**.054 .227**	**.020 .651**	**.078* .077**	**.263*** .000**	**.025 .578**	**1**

*. Correlation is significant at the 0.1 level (2-tailed).
**. Correlation is significant at the 0.05 level (2 tailed).
***. Correlation is significant at the 0.01 level (2-tailed).
ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

4.1.3 Panel Data Estimation

Table 4.14 presents the results of first model in terms of pooled estimation by using OLS and GLS models. Table 4.15 presents the results of first model in terms of fixed effects by using PLS and GLS models. The results of first model in terms of random effects are presented in table 4.16. In the next section diagnostic tests for panel data analyses are presented in order to conclude on the appropriate model for explaining the relationship between macroeconomic variables and insurance index return (*see appendix E&F*).

Table 4.14

Results of pooled estimation (OLS & GLS)

Models / Variables	Pooled (with Oman)		Pooled (without Oman)	
	OLS	**GLS**	**OLS**	**GLS**
C	0.276426 (0.4033)	0.275370 (0.0586)	0.305171 (0.4298)	0.158918 (0.4095)
DLNCPI	-0.613366 (0.0198)	-0.517615 (0.0000)	-0.642526 (0.0223)	-0.505148 (0.0000)
DINTR	0.028605 (0.5339)	0.013787 (0.6195)	0.032819 (0.5042)	-0.007254 (0.7827)
DLNMS	0.101628 (0.9061)	0.887752 (0.0000)	0.044893 (0.9622)	0.757205 (0.0039)
DLNOP	0.414672 (0.0005)	0.324196 (0.0000)	0.417450 (0.0027)	0.330747 (0.0000)
DUNMR	-0.179848 (0.2582)	-0.119015 (0.1146)	-0.151437 (0.3989)	-0.130884 (0.0001)
SMR	0.219673 (0.0000)	0.189942 (0.0000)	0.209749 (0.0000)	0.209148 (0.0000)
R^2	0.099044	0.211752	0.090821	0.193080
Durbin-Watson	1.995939	2.013806	1.957121	2.031944
Prob (F-statistic)	0.000000	0.000000	0.000000	0.000000

LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.15
Results of fixed effects model (PLS & GLS)

LNCPI: Natural logarithm of consumer price index.

Models / Variables	Fixed Effects (with Oman)		Fixed Effects (without Oman)	
	PLS	**GLS**	**PLS**	**GLS**
C	0.301958 (0.0002)	0.276994 (0.0181)	0.316525 (0.0000)	0.329971 (0.0003)
DLNCPI	-0.605709 (0.0000)	-0.534571 (0.0000)	-0.634658 (0.0000)	-0.575428 (0.0000)
DINTR	0.027149 (0.1133)	0.013638 (0.3193)	0.031419 (0.0757)	0.019763 (0.0460)
DLNMS	0.102320 (0.8242)	0.798585 (0.1561)	0.043151 (0.9281)	0.863659 (0.2302)
DLNOP	0.413832 (0.0339)	0.244106 (0.0464)	0.416373 (0.0827)	0.190952 (0.1681)
DUNMR	-0.098195 (0.4675)	-0.187888 (0.3031)	-0.051336 (0.6947)	-0.124281 (0.4719)
SMR	0.216416 (0.0000)	0.179515 (0.0001)	0.205578 (0.0000)	0.148235 (0.0003)
R^2	0.102923	0.089345	0.095521	0.071580
Durbin-Watson	1.998359	2.005899	1.959532	1.927439
Prob (F-statistic)	0.000000	0.000000	0.000001	0.000105

INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.16

Results of random effects model

Models / Variables	Random Effects	
	With Oman	**Without Oman**
C	0.276426 (0.2499)	0.405170 (0.3736)
DLNCPI	-0.613366 (0.0000)	-0.584289 (0.0025)
DINTR	0.028605 (0.0861)	0.034041 (0.2092)
DLNMS	0.101628 (0.8107)	-0.211132 (0.8320)
DLNOP	0.414672 (0.0324)	0.394601 (0.0093)
DUNMR	-0.179848 (0.1527)	-0.177105 (0.2804)
SMR	0.219673 (0.0000)	0.205398 (0.0007)
R^2	0.099044	0.074612
Durbin-Watson	1.995939	1.939355
Prob (F-statistic)	0.000000	0.000001

LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

4.1.4 Diagnostic Tests for Panel Data Application (Panel A)

a- Tests of Multicollinearity

The multicollinearity test results listed in Tables 4.17 & 4.18 indicate that the entire VIF for variables are lower than the 10. The tolerance indicators for the factors are higher than 0.10. The results do not indicate any multicollinearity issue. The multicollinearity results (through Tolerance & VIF analyses) for each hypothesis test are provided in the respective sections.

Table 4.17
VIF Tests for macroeconomic indicators-panel A (All GCC stock markets)

Model	Unstandardized Coefficients		Collinearity Statistics	
	B	Std. Error	Tolerance	VIF
(Constant)	.276	.331		
DLNCPI	-.613	.262	.995	1.005
DINTR	.029	.046	.999	1.001
DLNMS	.102	.861	.986	1.014
DLNOP	.415	.118	.927	1.079
DUNMR	-.180	.159	.990	1.010
SMR	.220	.037	.921	1.085

a.Dependent Variable: ISR
ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

Table 4.18
VIF Tests for macroeconomic indicators-panel A (All GCC stock markets without Oman)

Model	Unstandardized Coefficients		Collinearity Statistics	
	B	Std. Error	Tolerance	VIF
(Constant)	.305	.386		
DLNCPI	-.643	.280	.995	1.005
DINTR	.033	.049	.998	1.002
DLNMS	.045	.948	.984	1.016
DLNOP	.417	.138	.929	1.077
DUNMR	-.151	.179	.990	1.010
SMR	.210	.042	.921	1.086

a. Dependent Variable: ISRISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

b- Heteroscedasticity

Heteroscedasticity is tested through a formal test known as the White Test prior to testing the hypothesis. A heteroscedasticity problem more often happens to a cross sectional data compares to time series data. It is because in a cross sectional dataset, the research is affected with population data within a certain time but not to time series dataset since the data are in the same group in the same time period (Hill *et al*, 2008).

Table 4.19 presents the results of White's heteroscedasticity-corrected standard errors for panel A (with Oman). The p-value is less than 0.05, which indicates that the null hypothesis of constant variances is rejected and hence there is problem of heteroscedasticity (*see appendix G*).

Table 4.19

White Heteroskedasticity Test-panel A (All GCC stock markets)

F-statistic	1.564	Probability	0.036
Obs*R-squared	41.297	Probability	0.039

Table 4.20 presents the results of White's heteroscedasticity-corrected standard errors for panel A (without Oman). The p-value is less than 0.05, which indicates that the null hypothesis of constant variances is rejected and hence there is problem of heteroscedasticity (*see appendix H*).

Table 4.20

White Heteroskedasticity Test-panel A (All GCC stock markets without Oman)

F-statistic	1.744819	Probability	0.012422
Obs*R-squared	45.40538	Probability	0.014730

c- Autocorrelation

There are various methods to detect autocorrelation. One of the methods is Durbin-Watson test. The standard reporting of regression results for time series data entails the Durbin-Watson d-test for autocorrelation. As shown in figures 4.1 & 4, 2 a d with a value closer to 0 indicates positive correlation and one that is closer to 4 indicates negative correlation. For the determination of the proximity to 0 or 4 in order to confirm whether the model is positive or negative autocorrelation, d has upper and lower critical values which hinges on the observations number (N) and the explanatory variables number (k). In the first model with Oman the acceptable value for d for no autocorrelation at 1% significance level is between 1.850478 and 2.1495216. For this model without Oman the d value for no autocorrelation at 1% significance level is between 1.818165 and 2.1818835.

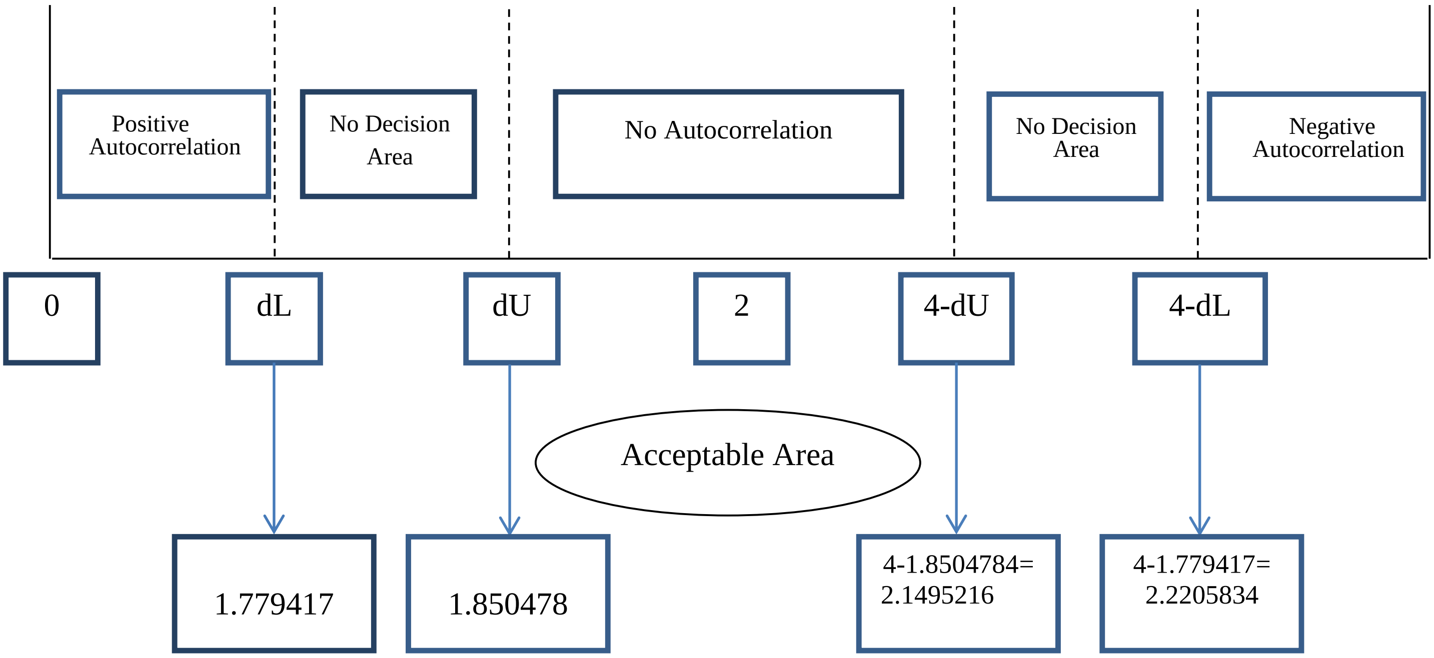

Figure 4.1
Critical Values for the Durbin-Watson Test: 1% significance level: Panel A (All GCC stock markets)

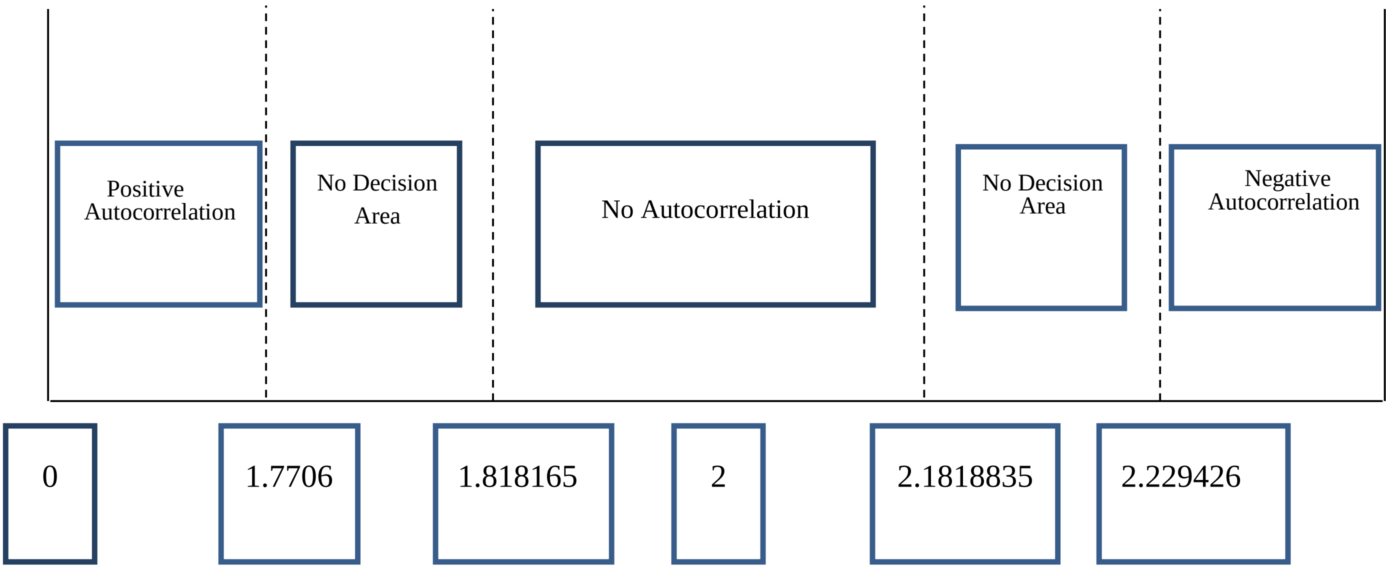

Figure 4.2
Critical Values for the Durbin-Watson Test: 1% significance level: Panel A (All GCC stock markets without Oman)

4.1.5 Choosing between Fixed Effects, Random Effects and Pooled Model

a- Choosing between Fixed and Random Effects (Hausman test)

Hausman test (H) is utilized for the determination of the suitable model which could be either fixed effect model (FEM) or random effect model (REM). The fixed model is suitable for a significant H value. The null hypothesis in Hausman test is that estimators in FEM and REM do not differ substantially. It is based on asymptotic chi-square distribution. If null hypothesis is rejected then FEM may be appropriate and REM may not be useful. Despite the Hausman test still there is no simple rule to decide whether FEM and REM is a more appropriate model to be used.

1- Hausman Test for First Model with Oman

Table 4.21 shows that the p-value is 0.4982 and this is higher than 0.05. Therefore, H_0 is confirmed in the first model with Oman. This means that there is no relationship between the estimated regression error and the independent variables. If there exist such relationship a fixed-effect model and if does not exist a random effect model will be applied, so the random effect model should be utilized (*see appendix I*).

Table 4.21
Hausman Test panel A (with Oman)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	5.362408	6	0.4982

2- Hausman Test for First Model without Oman

Table 4.22 shows that the p-value is 0.4733 and this is higher than 0.05. Therefore, H_0 is confirmed in the first model with Oman. This means that there is no relationship between the estimated regression error and the independent variables, so the random effect model should be utilized (*see appendix J*).

Table 4.22

Hausman Test panel A (without Oman)

Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Period random	5.567632	6	0.4733

b- Choosing between Random Effects Model and Pooled Estimation (Breusch-Godfrey serial correlation LM test)

1- Lagrangian Multiplier Test for First Model with Oman

Table 4.23 presents the test for the random effect model based on the residuals. Since LM test shows that the probability value is not significantly different from zero, the pooled estimation is the appropriate model to use.

Table 4.23

Breusch and Pagan Lagrangian multiplier test estimated results panel A (with Oman)

	Var	sd = sqrt(Var)
ISR	64.44713	8.027897
e	58.9403	7.677259
u	0	0
Var(u) = 0		
chi-squared (1) = 1.35		
Prob > chi-squared = 0.245		

2- Lagrangian Multiplier Test for First Model without Oman

Table 4.24 presents the test for the random effect model based on the residuals. Since LM test shows that the probability value is not significantly different from zero, the pooled estimation is the appropriate model to use.

Table 4.24
Breusch and Pagan Lagrangian multiplier test estimated results panel A (without Oman)

	Var	sd = sqrt(Var
ISR	72.26018	8.500599
e	66.80439	8.173395
u	0	0
Var(u) = 0		
chi-squared (1) = 0.96		
Prob > chi2-squared = 0.328		

The first step to select the best model is to choose between fixed or random effects and pooled estimation. After considering the results of Hausman test and Breusch and Pagan Lagrangian multiplier test, it is concluded that the most appropriate technique to estimate parameters and hypotheses test in the first model is pooled estimation in both cases (with Oman and without Oman).

The second step is to choose between ordinary least square and generalized least square through white heteroskedasticity test. White test indicates that there is a problem of heteroscedasticity in the both cases (with Oman and without Oman), hence generalized least square is the best model to test the effect of macroeconomic variables and insurance index return.

The last step is to compare the results between the model with Oman and without Oman to see the effect of Oman insurance and service index on the first model of this study especially when there are only two insurance companies listed in Muscat securities market and the insurance index is combined with service index.

After considering the results of white heteroskedasticity test, LM test and Hausman test, the pooled estimation with GLS appears to be the most appropriate method for parameters estimation and hypotheses testing with regards to the relationship between insurance stock market returns and macroeconomic variables.

Table 4.25
Pooled estimation with generalized least squares (panel A)

Models / Variables	Pooled (with Oman) GLS	Pooled (without Oman) GLS
C	0.275370 (0.0586)	0.158918 (0.4095)
DLNCPI	-0.517615 (0.0000)	-0.505148 (0.0000)
DINTR	0.013787 (0.6195)	-0.007254 (0.7827)
DLNMS	0.887752 (0.0000)	0.757205 (0.0039)
DLNOP	0.324196 (0.0000)	0.330747 (0.0000)
DUNMR	-0.119015 (0.1146)	-0.130884 (0.0001)
SMR	0.189942 (0.0000)	0.209148 (0.0000)
R^2	0.211752	0.193080
Durbin-Watson stat	2.013806	2.031944
Prob (F-statistic)	0.000000	0.000000

ISR: Insurance stock return.
LNCPI: Natural logarithm of consumer price index.
INTR: Interest rate.
LNMS: Natural logarithm of money supply.
LNOP: Natural logarithm of oil price.
UNMR: Unemployment rate.
SMR: Stock market return

The results as summarized in Table 4.25, present the impact of inflation, rate of interest, money supply, oil prices, rate of unemployment and stock market return on insurance index' returns in GCC stock markets by using pooled estimation with GLS (with Oman and without Oman). The results from the pooled estimation with Oman show that there is no significant relationship between unemployment rate and insurance index's return and this relation is significant when exclude Oman, so there is an effect on the result in the first model when Oman is included.

Based on that this study will exclude Oman from the first model and consider this model without Oman.

Table 4.25 shows that the coefficient of the inflation (CPI) which is proxied by DLNCPI is negative and significant at the level of 1%. Second, coefficient of interest rate (DINTR) is negative and insignificant. Third, money supply (MS), proxied by (DLNM2), has a positive and significant relationship with stock returns at the level of 1%. Fourth, the result regarding oil prices (DLNOP) is reported to be positive and significant at 1% level. As for unemployment (DUNMR), it can be seen that the results is negative and significant at 1% level. The control variable which is stock market return (SMR) has a positive and significant impact on insurance index return at 1% significant level.

The F-statistic is less than 1% critical value and this indicates that the model is adequate for predicting and estimating insurance index returns, using the five proposed independent variables and stock market return as a control variable.

The results, as shown in Table 4.25, indicate that there is no autocorrelation problem (1.818165 < 2.031944 < 2.1818835) at 1% significance level (*see figures 4.2)*.

4.1.6 Hypotheses Testing and Discussion of Macroeconomic Variables and Insurance Index Returns

The first section's objective of the present research is to investigate the relationship between macroeconomic indicators and insurance sectors stock returns in GCC markets.

Next section discusses the findings in light of theoretical and empirical literature.

a- Inflation

The results, which are summarized in Table 4.25, present a negative and significant association between inflation (DLNCPI) and insurance index's return at significant level of 1%.

Hypothesis H1 predicts an association between the rate of inflation and stock returns for insurance companies in GCC Countries. From Table 4.25, the inflation coefficient (DLNCPI) is -0.505 and statistically significant at 1%, which means that inflation has direct negative effect on insurance index returns, thus, hypothesis H1 is supported and this result is consistent with the theory.

The negative association between insurance index's return and inflation are inconsistent with the traditional notion that equity shares should be used as hedges against inflation. When considering inflation as a monetary phenomenon and in terms of role of money, the positive association between asset returns and growth of money are ambiguous to the finance theory.

This relation was contended by several studies; for instance, Fama (1981), Fama and Gibbons (1982), Asprem, (1989), Wasserfallen, (1989) and Marshall (1992), who emphasis that real stock returns are negatively correlated with inflation. In another related study, Kolari (2001), found that the Fisher elasticity of stock prices with regards to the long run in light of prices exceeding and signifies inflation's negative impact in the short term whereas Tatom (2002) found a negative association in the long-term exist between share prices and inflation.

In terms of insurance industry Majmudar (2006) asserted that inflation has a key role in insurance and a negative effect on various aspects of its operations including claims, expenses and technical provisions. However, since inflation is predictable over the term of general insurance liabilities, and it is taken into consideration when actuaries establish premiums, it is not likely to significantly affect the performance of basic insurers.

b- Interest Rate

Table 4.25 presents insignificant association between interest rate (DINTR) and stock returns. The results show that H2 is rejected, so this result is inconsistent with the theory. This nevertheless is consistent with Alam and Salah Uddin (2009) study, which examined the rate of interest-stock price relationship in the context of developed and developing nations and revealed that individual nation results are inconsistent for both developed and developing countries with the inclusion of Malaysia. The result also showed that rate of interest is not linked to share price.

On the basis of Abugri's (2008) findings, the stock returns responses to interest rate are negative and significant in the context of Brazil, Argentina, and Chile. On the other hand, in Mexico it seems to be insignificant in explaining the returns movement. Additionally, Tursoy *et al.*'s (2008) regression results revealed no significant relation between rate of interest and stock returns.

The different in the result between this study and theory is perhaps due to the different monetary policies in GCC countries. Shotar and Shams (2006) looked into the GCC countries economic structure in their attempt to determine whether or not they can adopt identical policies when establishing common currency in 2010. They revealed that the GCC country members have distinct economic policies and significant differences which may hinder the expected advantages of the monetary union.

Another reason attributed to the focus of this study on insurance sector in GCC markets. This is consistent with the findings reported by Maysami, Howe and Hamzah (2004), who found insignificant association between rates of interests in the long and short term, and stock market returns in case of SES (Stock Exchange of Singapore's All-S Sector Indices) All-S Equities Hotel Index.

Shiu (2004) argues that high interest rates bring high bond investment income, which accordingly enhances investment performance of insurance companies. However arguably in theory increase in interest rates would reduce bond values and hence the insurance companies' investment income. This relation is not clear as the bond markets in GCC are still underdeveloped.

c- Money Supply

The results, which are summarized in Table 4.25, indicate a positive and significant association between money supply (DLNMS) and insurance index's return at significant level of 1%. Hypothesis 3 predicts a positive money supply-stock returns association for insurance companies in GCC. From Table 4.25, the coefficient of money supply (DLNMS) is 0.757 and statistically significant, which means that supply of money directly and positively impacts insurance index returns, thus, hypothesis 3 is supported and this result is consistent with the theory. Real activity theorists also believe a positive money supply-stock prices association (Sellin, 2001).

This result matches those of several empirical studies which found a positive and significant affect upon returns, such as Ratanapakorn and Sharma (2007), Al-Tamimi (2007), Maskay (2007), Al-Mutairi and Al-Omar (2007), Rahman and Mustafa (2008) and Pilinkus and Boguslauskas (2009).

d- Oil Prices

The results, which are shown in Table 4.25 presents a significant and positive association between oil prices (DLNOP) and insurance index's return at significant level of 1%. Hypothesis 4 predicts a relationship between prices of oil and stock returns for insurance index in GCC member countries. The coefficient of oil prices (LNOP) is 0.331 and statistically significant, which means that oil prices has direct positive effect on insurance index returns.

In oil-importing countries many studies such as, Papapetrou (2001), Park and Ratti (2008), Driesprong, Jacobsen and Maat (2008), Chiou and Lee (2009), Malik and Ewing (2009), Miller and Ratti (2009), Bharn and Nikolova (2010), Chen (2010), Filis (2010), Reboredo (2012) have shown a negative association between price of oil and stock market.

Oil export revenue is the primary source of government's budget and expenditure and the main driver of aggregate demand. It is therefore not surprising that a number of studies have documented favorable, yet conflicting, evidence of oil price changes on stock returns in GCC countries.

In this study GCC are major oil exporting countries and some researchers reported a positive relationship between stock market and prices of oil in countries exporting oil (El-sharif et al., 2005; Arouri and Rault, 2010; Mohanty et al., 2010). Moreover Arouri and Rault (2010) showed oil price have a positive and significant effect upon the GCC countries stock market. Also Mohanty et al. (2010) examined the crude oil price changes-stock returns relationship in the context of GCC countries (Bahrain, Kuwait, Qatar, Oman, Saudi and UAE). They found a positive and significant relationship in most of these countries. The studies' results from oil exporting countries are consistent with the results from this study.

According to Bjornland (2009), the mechanisms for propagating oil price shocks are significantly different for oil-exporting countries. First and foremost, higher oil prices result in an immediate transfer of wealth from oil- importers to oil-exporters. When this income is transmitted back to the economy, economic activity expands in response. It is this positive perceived effect on the macroeconomy that leads to higher activity in stock markets during an oil price boom. GCC countries have a broader oil sector, accounting for 45% of global oil reserve.

e- Unemployment Rate

The results listed in Table 4.25 show a negative and significant relationship between unemployment rate and stock returns at significant level of 1%. Hypothesis 5 predicts a relationship between unemployment rate and stock returns for insurance companies in GCC Countries.

The coefficient of unemployment rate (UNMR) is -0.131 and statistically significant, which means that unemployment rate has direct negative effect on insurance index returns, thus, hypothesis H5 is accepted. In the literature there is no clear academic consensus on the impact of unemployment announcement on stock market return.

This result is supported by Keynes (1936), who reveals a negative relationship between stock prices and unemployment rate in contracting economy. As for insurance companies the unemployment's impact can be explained as; during contractions, the company's returns are significantly reduced while during expansion, they are increased due to increase in demand for insurance.

4.2 FIRM SPECIFIC VARIABLES AND INSURANCE COMPANIES' STOCK RETURNS

4.2.1 Descriptive of Panel Data B

Panel B include firm specific variables (earning per share, dividend yield, leverage, loss ratio, reinsurance dependence, solvency margin, affiliated investment and stability of underwriting operation) in addition to yearly macroeconomic indicators (inflation, changing in money supply, changing in oil prices, rate of changing in unemployment rate and stock market return) and insurance companies stock return from 2001-2010 for sixty cross-sections which are insurance companies in GCC stock markets.

Table 4.26 presents the descriptive statistics of the variables utilized in panel B. The results confirm the adequacy of the data used in estimating the microeconomic variables as determinants of insurance companies' stock returns. The data shows the least and the highest value of all variables is within range.

The mean of insurance companies stock returns (ICSR) is 8.683% and the median is 2.279%. The minimum value is -89.5% and the maximum value is 201.158%. The mean of earnings per share (EPS) is 16.798¢ and the median is 1.72¢. The minimum value is -32.15¢ and the maximum value is 324.68¢.

The mean of dividend yield (DY) is 4.557¢ and the median is 3.85¢. The minimum value is 0¢ and the highest value is 23.5¢. The mean of leverage (LEV) is 1.675 times and the median is 1.015 times. The minimum value is 0.01 times and the maximum value is 98.425 times. The mean of loss ratio (LR) is 0.697 (69.7%) and the median is 0.651 (65.1%). The minimum value is 0.0006 (0.06%) and the maximum value is 5.406 (540.6%). The mean of reinsurance dependence (REID) is 0.173 (17.3%) and the median is 0.159 (15.9%). The minimum value is 0 and the maximum value is 0.677 (67.7%). The mean of affiliated investment (AFFIN) is 0.193 (19.3%) and the median is 0. The minimum value is 0 and the maximum value is 6.755 (677.5%). The mean of solvency margin (SM) is 9.306¢ and the median is 6.980¢. The minimum value is 0.002¢ and the maximum value is 85.62¢. The mean of stability of underwriting operation (SUO) is 0.274 (27.4%) and the median is 0.15 (15%). The minimum value is -0.999 (-99.0%) and the maximum value is 5.829 (528.9%).

The mean of inflation (DLNCPI) is 1.356% and the median is 0.806%. The minimum value is -11.028% and the maximum value is 14.95%. The mean money supply (DLNMS) is 1.759% and the median is 1.566%. The minimum value is -1.084% and the maximum value is 5.22%. The mean oil prices (DLNOP) are 3.1187% and the median is 4.11%. The minimum value is -10.0634% and the maximum value is 10.99%. The mean unemployment rate (DUNMR) is 2.407% and the median is 3.2258%. The minimum value is -50% and the maximum value is 33.33%. The mean stock market return (SMR) is 15.411% and the median is 15.165%. The minimum value is -61.165% and the maximum value is 149.157%.

The standard deviations indicate that ICSR, EPS, SM, DUNMR and SMR are more volatile compared to DY, LEV, LR, REID, AFFIN, SUO, DLNCPI, DLNMS and DLNOP (*see appendix B&C*).

Table 4.26

Descriptive Statistics of panel B

	ICSR	EPS	DY	LEV	LR	REID	AFFIN	SM	SUO	DLNCPI	DLNMS	DLNOP	DUNMR	SMR
Mean	8.683	16.798	4.557	1.675	0.698	0.173	0.193	9.306	0.274	1.356	1.759	3.119	2.407	15.411
Median	2.279	1.72	3.85	1.015	0.651	0.159	0.000	6.98	0.1495	0.806	1.566	4.109	3.226	15.165
Maximum	201.158	324.68	23.5	98.425	5.406	0.677	6.755	85.62	5.829	14.946	5.22	10.991	33.333	149.157
Minimum	-89.5	-32.15	0.000	0.01	0.0006	0.000	0.000	0.002	-1	-11.028	-1.083	-10.063	-50	-61.165
Std. Dev.	39.939	34.796	3.842	5.318	0.489	0.111	0.627	9.769	0.641	4.837	1.055	5.711	14.502	41.83
C.V	4.6	2.072	0.843	3.176	0.701	0.643	3.248	1.05	2.334	3.567	0.6	1.831	6.025	2.714
Sum	3108.435	6013.667	1631.28	599.483	249.769	61.876	69.13	3331.585	98.269	485.403	629.759	1116.502	861.759	5517.202
Sum Sq. Dev.	569453.7	432245.9	5268.748	10095.66	85.491	4.403	140.421	34072.77	146.499	8351.574	397.471	11643.14	75077.39	624656.6
Observations	358	358	358	358	358	358	358	358	358	358	358	358	358	358

ICSR: insurance companies' stock return, EPS: earnings per share, DY: dividend yield, LEV: leverage, LR: loss ratio, REID: reinsurance dependence, SM: solvency margin, AFFIN: affiliated investment, SUO: stability of underwriting operations, LNCPI: Natural Logarithm of Consumer Price Index, LNMS: Natural Logarithm of Money Supply, LNOP: Natural Logarithm of Oil Prices, UNMR: Unemployment Rate, SMR: stock market return.

Table 4.27 presents the number of cross-section in addition to the number of observations in each cross-section

Table 4.27
Number of Observations by Cross-Section (panel B)

Cross-section	N	%	Cross-section	N	%	Cross-section	N	%
1	9	2.51	21	2	0.56	41	9	2.51
2	10	2.79	22	3	0.84	42	8	2.23
3	6	1.68	23	3	0.84	43	8	2.23
4	10	2.79	24	2	0.56	44	10	2.79
5	8	2.23	25	3	0.84	45	9	2.51
6	10	2.79	26	3	0.84	46	8	2.23
7	8	2.23	27	3	0.84	47	9	2.51
8	8	2.23	28	2	0.56	48	9	2.51
9	1	0.28	29	6	1.68	49	9	2.51
10	1	0.28	30	2	0.56	50	5	1.40
11	2	0.56	31	2	0.56	51	8	2.23
12	2	0.56	32	2	0.56	52	6	1.68
13	3	0.84	33	1	0.28	53	9	2.51
14	2	0.56	34	9	2.51	54	8	2.23
15	1	0.28	35	8	2.23	55	10	2.79
16	2	0.56	36	6	1.68	56	10	2.79
17	2	0.56	37	8	2.23	57	10	2.79
18	1	0.28	38	10	2.79	58	10	2.79
19	1	0.28	39	10	2.79	59	10	2.79
20	1	0.28	40	10	2.79	60	10	2.79
total								358

4.2.2 Correlation Analysis

In this study correlation matrix was conducted**.** Correlation matrix of eight firm specific variables in addition to four macroeconomic variables and stock returns calculated for a period of 10 years are listed in Table 4.28. The hypothesis testing to test the correlation is:

H_0: ρ= 0, no relationship exists between the two variables

H_1: ρ≠ 0, a relationship exists between the two variables

Table 4.28 shows the results for Pearson correlation analysis for independent and dependent variables used in panel B. It shows that there is insignificant and positive correlation between ICSR and EPS and REID. ICSR is shown to have insignificant and negative correlation with DY, LEV, LR, AFFIN, SUO and DLNMS. ICSR also has a negative and significant correlation with SM and DUNMR at significant level 10%. A positive and significant correlation exists between ICSR and DLNOP and SMR at significant level 1%.

The correlation result measures the linear relation between the variables. As suggested by the table, the entire variables have a weak correlation among themselves. The highest correlation recorded is 0.382 which is obtained for relationship between ICSR and SMR. REID however has the weakest relationship with insurance companies' stock return.

Table 4.28

Pearson Correlation- panel B

	ICSR	EPS	DY	LEV	LR	REID	SM	AFFIN	SUO	DLNCPI	DLNMS	DLNOP	DUNMR	SMR
ICSR	1													
EPS	.014	1												
	.786													
DY	-.076	.314***	1											
	.152	.000												
LEV	-.042	-.039	-.070	1										
	.427	.463	.187											
LR	-.042	.034	.118**	.021	1									
	.430	.519	.026	.685										
REID	.004	.045	.008	-.073	-.145***	1								
	.942	.395	.882	.166	.006									
SM	-.091*	.070	-.018	-.054	-.078	-.233***	1							
	.084	.189	.735	.309	.140	.000								
AFFIN	-.046	.007	.019	.087*	.066	-.060	-.038	1						
	.388	.888	.726	.099	.212	.261	.473							
SUO	-.029	-.096*	-.178***	.010	-.041	.065	-.008	-.008	1					
	.588	.068	.001	.853	.437	.220	.878	.879						
DLNCPI	-.149***	-.028	-.031	-.018	.023	.005	.008	-.059	.042	1				
	.005	.597	.554	.741	.666	.926	.877	.267	.432					
DLNMS	-.048	.092*	-.054	.072	-.035	.064	.071	.056	.114**	.000	1			
	.366	.082	.307	.172	.506	.230	.180	.289	.030	.995				
DLNOP	.302***	.141***	-.090*	-.025	.022	-.010	.061	.000	.042	-.080	.286***	1		
	.000	.007	.090	.643	.674	.855	.250	.997	.430	.130	.000			
DUNMR	-.091*	.058	.072	-.053	.056	-.063	-.069	-.109**	-.055	.356***	-.247***	-.227***	1	
	.085	.272	.176	.316	.292	.233	.190	.040	.295	.000	.000	.000		
SMR	.382***	.111**	-.095*	-.037	.005	-.030	.069	-.043	.001	-.064	-.008	.746***	-.182***	1
	.000	.035	.074	.485	.922	.567	.195	.419	.988	.226	.885	.000	.001	

ICSR: insurance companies' stock return, EPS: earnings per share, DY: dividend yield, LEV: leverage, LR: loss ratio, REID: reinsurance dependence, SM: solvency margin, AFFIN: affiliated investment, SUO: stability of underwriting operations, LNCPI: Natural Logarithm of Consumer Price Index, LNMS: Natural Logarithm of Money Supply, LNOP: Natural Logarithm of Oil Prices, UNMR: Unemployment Rate, SMR: stock market return.***. Significant correlation exists at the level of 0.01 (2-tailed). **. Significant correlation exists at the level of 0.05 (2-tailed). * Significant correlation exists at the level of 0.1 (2-tailed).

4.2.3 Panel Data Estimation

Table 4.29 shows the results of second model in terms of pooled estimation, fixed effects and random effects.

In the next section diagnostic tests for panel data application are presented to choose the appropriate model in explaining the relationship between firm specific variables and insurance companies' stock return (*see appendix K*).

Table 4.29

Results of panel B (Pooled estimation, Fixed effects and Random effects)

Models / Variables	Pooled estimation		Fixed effects		Random effects
	OLS	GLS	PLS	GLS	
C	19.77977 (0.0436)	10.44337 (0.0068)	26.53392 (0.0321)	18.19718 (0.0077)	19.79579 (0.0436)
EPS	-0.009971 (0.8592)	0.062272 (0.0897)	-0.009892 (0.8104)	-0.003407 0.9433)	-0.011498 (0.8469)
DY	-0.484471 (0.3432)	-0.570584 (0.0709)	-0.650246 (0.2479)	-0.495834 0.3108)	-0.470963 (0.3453)
LEV	-0.257163 (0.0758)	-0.222103 (0.0557)	-0.149191 (0.2819)	-0.060086 (0.4434)	-0.234272 (0.0724)
LR	-4.024317 (0.0321)	-1.608692 (0.4299)	-4.290469 (0.0107)	-3.568724 (0.3194)	-3.966535 (0.0321)
REID	-7.176678 (0.6152)	7.428558 (0.4695)	-6.903030 (0.6644)	10.09212 (0.3686)	-9.498331 (0.5165)
AFFIN	-2.249034 (0.3485)	-0.123774 (0.9671)	-3.094775 (0.2047)	-3.612973 (0.0216)	-2.142420 (0.3836)
SM	-0.512195 (0.0016)	-0.365715 (0.0020)	-0.637608 (0.0001)	-0.572661 (0.0026)	-0.483465 (0.0036)
SUO	-1.980219 (0.1988)	-0.523185 (0.8164)	-1.102349 (0.5116)	-1.379481 (0.5870)	-2.220317 (0.1542)
DLNCPI	-1.022439 (0.0623)	-0.922411 (0.0020)	0.163803 (0.8970)	-0.026340 (0.9580)	-1.010455 (0.0538)
DLNMS	-1.953127 (0.4343)	-2.024675 (0.1827)	-5.142757 (0.0638)	-4.511228 (0.0337)	-1.898478 (0.4294)
DLNOP	0.514388 (0.3606)	0.821506 (0.0536)	-0.123963 (0.9572)	0.706885 (0.6916)	0.511020 (0.3430)
DUNMR	0.001600 (0.9947)	-0.053657 (0.5720)	0.009032 (0.9551)	0.144573 (0.2086)	-0.011196 (0.9614)
SMR	0.305955 (0.0003)	0.206482 (0.0012)	0.372294 (0.0007)	0.355114 (0.0006)	0.304370 (0.0002)
R^2	0.186142	0.285575	0.250782	0.231932	0.185971
Durbin-Watson	2.062765	2.062761	2.062937	2.021830	2.106536
Prob (F-statistic)	0.00000	0.000000	0.000000	0.000000	0.000000

EPS: earnings per share, DY: dividend yield, LEV: leverage, LR: loss ratio, REID: reinsurance dependence, SM: solvency margin, AFFIN: affiliated investment, SUO: stability of underwriting operations, LNCPI: Natural Logarithm of Consumer Price Index, LNMS: Natural Logarithm of Money Supply, LNOP: Natural Logarithm of Oil Prices, UNMR: Unemployment Rate, SMR: stock market return.

4.2.4 Diagnostic Tests for Panel Data Application (Panel Data B)

a- Tests of Multicollinearity

The multicollinearity results listed in Tables 4.30 indicate that the entire VIF for variables are lower than the 10. The tolerance indicators for the factors are higher than 0.10. The results do not indicate any multicollinearity issue. The multicollinearity results (through Tolerance & VIF analyses) for each hypothesis test are provided in the concerned section.

Table 4.30
VIF Tests for firm specific variables-panel B

Model		Unstandardized Coefficients		Collinearity Statistics	
		B	Std. Error	Tolerance	VIF
1	(Constant)	19.645	7.151		
	EPS	-.011	.061	.845	1.184
	DY	-.485	.551	.843	1.186
	LEV	-.256	.371	.968	1.034
	LR	-4.034	4.084	.945	1.059
	REID	-7.031	18.562	.888	1.126
	AFFIN	-2.220	3.153	.965	1.036
	SM	-.511	.209	.903	1.107
	SUO	-1.973	3.114	.948	1.055
	DLNCPI	-1.037	.435	.854	1.171
	DLNMS	-1.910	2.142	.739	1.353
	DLNOP	.516	.572	.354	2.823
	DUNMR	.015	.154	.755	1.324
	SMR	.307	.075	.381	2.622

a. Dependent Variable: ICSR
ICSR: insurance companies' stock return, EPS: earnings per share, DY: dividend yield, LEV: leverage, LR: loss ratio, REID: reinsurance dependence, SM: solvency margin, AFFIN: affiliated investment, SUO: stability of underwriting operations, LNCPI: Natural Logarithm of Consumer Price Index, LNMS: Natural Logarithm of Money Supply, LNOP: Natural Logarithm of Oil Prices, UNMR: Unemployment Rate, SMR: stock market return.

b- Heteroscedasticity

Table 4.31 presents the results of White's heteroscedasticity-corrected standard errors for panel B. The p-value is less than 0.05, which indicates that the null hypothesis of constant variances is rejected and hence there is problem of heteroscedasticity (*see appendix L*).

Table 4.31
White Heteroskedasticity Test-panel B

F-statistic	1.656604	Probability	0.024936
Obs*R-squared	41.22115	Probability	0.029480

4.2.4 Choosing between Fixed Effects, Random Effects and Pooled estimation

a- Choosing between Fixed and Random Effects (Hausman test)

Table 4.32 shows that the p-value is less than 0.05. Therefore, *H*0 (random effects model) is rejected. This means that there is a relationship between the estimated regression error and the independent variables. If there exist such relationship a fixed-effect model and if does not exist a random effect model will be applied. Based on that the fixed effects model is accepted for this model (*see appendix M*).

Table 4.32
Hausman Test of panel B

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	37.932852	13	0.0003

b- Testing the significance of the group effect to choose between Fixed Effects and Pooled Estimation

This test benefits to decide between pooled regression and fixed effect model.

Null Hypothesis; H_0: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \ldots\ldots\ldots\ldots\ldots\ldots = \alpha_p = \alpha$

Alternative Hypothesis; H_A: $\alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \ldots\ldots\ldots\ldots\ldots\ldots \neq \alpha_p$

Table 4.33

Testing the significance of the group effect

Residual variance: 380282/(358 - 72) = 1329.66	
Joint significance of differing group means:	
F(59, 286) = 1.16327	p-value 0.210921

As shown in table 4.33 the probability value under testing of the significance of the group effect insignificant. This indicates the absence of company specific effect in the model, so H_0 is accepted and Pooled Regression model is better than Fixed Effect model.

From the results of testing the significance of the group effect and Hausman test the pooled model appears to be the most appropriate method for parameters estimation and hypotheses testing.

Considering the results of white heteroskedasticity test, testing the significance of the group effect and Hausman test, the pooled estimation with GLS appears to be the most appropriate method for parameters estimation and hypotheses testing as shown in table 4.34.

Table 4.34

Results of panel B (pooled estimation with GLS)

Models / Variables	Pooled estimation
	GLS
C	10.44337 (0.0068)
EPS	0.062272 (0.0897)
DY	-0.570584 (0.0709)
LEV	-0.222103 (0.0557)
LR	-1.608692 (0.4299)
REID	7.428558 (0.4695)
AFFIN	-0.123774 (0.9671)
SM	-0.365715 (0.0020)
SUO	-0.523185 (0.8164)
DLNCPI	-0.922411 (0.0020)
DLNMS	-2.024675 (0.1827)
DLNOP	0.821506 (0.0536)
DUNMR	-0.053657 (0.5720)
SMR	0.206482 (0.0012)
R^2	0.285575
Durbin-Watson statistic	2.062761
Probe (F-statistic)	0.000000

EPS: earnings per share, DY: dividend yield, LEV: leverage, LR: loss ratio, REID: reinsurance dependence, SM: solvency margin, AFFIN: affiliated investment, SUO: stability of underwriting operations, LNCPI: Natural Logarithm of Consumer Price Index, LNMS: Natural Logarithm of Money Supply, LNOP: Natural Logarithm of Oil Prices, UNMR: Unemployment Rate, SMR: stock market return.

Table 4.34 presents the results for all the models examined in this study. The pooled estimation model with GLS examines the effect of microeconomic variables (general firm specific variables and insurance company variables) in addition to some of macroeconomic indicators and stock market return on insurance companies' stock return. This model suggests that:

The effect of dividend yield (DY), leverage (LEV) and solvency margin (SM) on insurance companies' stock return are negative and significant at significant level 0.1, 0.1 and 0.01 respectively.

The effect of earnings per share (EPS) on insurance companies' stock return is positive and significant at significant level 0.1.

The effect of loss ratio (LR), reinsurance dependence (REID), affiliated investment (AFFIN) and stability of underwriting operation (SUO) are insignificant.

The F-statistic less than 1% critical value and indicate that the model is highly adequate for predicting and estimating insurance companies' stock returns, using the twelve proposed independent variables.

The results, as shown in Table 4.34, indicate that there is no autocorrelation problem (1.818564< 2.062761 < 2.181436) at 1% significance level (*see appendix N*).

4.2.5 Hypothesis Testing and Discussions

The second objective of the study is to look into the relationship between firm specific variables and insurance companies' stock returns in GCC markets. This section has eight working hypotheses.

a- Earnings per Share (EPS)

The results, which are summarized in Table 4.34, present a significant positive relationship between EPS and stock returns. Hypothesis 7 predicts a positive relationship between EPS and stock returns for insurance companies in GCC Countries. From Table 4.34, the coefficient of EPS is 0.062 and statistically significant at 0.1 significant level, which means that hypothesis 7 is accepted.

Increasing EPS in generally is a good indicator to more and more investors investing in this sector. In addition, EPS of insurance company will be evaluate by costumers before buying the company's products as they want to be assured of the reward of their claims they will receive from the company (Kothari & Shanken, 1997).

This results are supported by Al-Tamimi (2007) who found positive effect of EPS on the UAE stock prices. Also in the Middle East context, Umar (2008) shows a positive association between stock returns and the earnings price ratios.

This is consistent also with the study conducted by Al-Shubiri (2010) on data from 14 commercial banks listed in Amman Stock Exchange and found a highly positive significant relationship between market price of stock and EPS. In the same direction Bhatt and Sumangala (2012) collected data about EPS and market value of equity share of 50 companies and concluded that EPS effects the market value of an equity share in the Indian context. Similarly Reaz Uddin, Rahman and Hossain (2013) study on financial sector (Bank, Insurance, Leasing Companies associated with financial) in Dhaka Stock Exchange, found that EPS has a positive relationship with stock price.

b- Dividend Yield

The results showed in Table 4.34 present a significant negative association between dividend yield (DY) and stock returns at significant level of 0.1. Hypothesis 8 predicts a relationship between dividend yield and stock returns for insurance companies in GCC countries. From Table 4.34, the coefficient of dividend yield (DY) is -0.57 and statistically significant, which means that hypothesis 8 is accepted.

The finding in this research is similar to Baskin (1989) who investigated U.S. common stocks totalling 2344 from 1967 to 1986 and revealed a significant negative association between dividend yield and stock price while Nishat and Irfan (2001) showed a significant effect of dividend payout ratio and dividend yield upon volatility of stock price in Pakistan, as emerging market.

Khan, Aamir, Qayyum, Nasir and Khan (2011) also examined the impact of dividend policy upon reactions of share prices among 55 non-financial firms listed in Karachi and revealed a negative association between dividends and stock prices. Nazir,

Hashemijoo, Ardekani andYounesi, (2012), examined the dividend policy-volatility of share price relationship in light of consumer product companies in the Malaysian stock market. The results revealed a significant negative association between volatility of share price and dividend yield.

c- Leverage

The results, which are summarized in Table 4.34, present a negative and significant relationship between leverage (LEV) and stock returns at significant level 0.1. Hypothesis 9 contends the presence of a relationship between leverage and stock returns for insurance companies in GCC Countries. From Table 4.34, the coefficient of LEV is -0.222 and statistically significant, which means that hypothesis 9 is accepted.

The result from this study matches with the debt overhang theory proposed by Myers (1977). According to the theory, higher leverage increases the firm's probability of forgoing positive NPV projects in the future of the payoff from investments to shareholders following their fulfilment of debt obligations is less compared to the initial investment shareholders have to pay for as an outlay. This evident under-investment decreases the firm's growth option value. Hence, an increase in the leverage ratio can lead to a decrease in stock price, with all other factors equal. The present findings match this argument.

According to George and Hwang (2007), there exists a significant negative association between returns and leverage in terms of raw returns as well as in terms of returns adjusted for risk through the Fama-French three model. Muradoglu and Sivaprasad (2008) found that in terms of utilities, returns increase in leverage is consistent with the results reported by Miller, Modigliani (1961) and Bhandari (1988). However, with respect to other sectors, the association is negative as consistent with the findings of Arditti (1967), Korteweg (2004), Dimitrov and Jain (2006) and Penman *et al*. (2007).

Dimitrov and Jain (2006) reported a negative association between the annual change in leverage and the current year's and the following year's stock returns. A negative relation between the change in leverage and future earnings were also noted. When underlying performance is expected to deteriorate, the firm may heighten its borrowing. They reached to the conclusion that the change of leverage comprises of value-relevant concerning future stock returns information.

More recent study by Cai and Zhang (2010) reported a significant and negative impact of the firm's leverage change upon its stock prices. They also revealed a negative impact is stronger in firms that have the potential to bring about debt overhang.

Additionally, Kose (2011) also revealed that stock returns increase with the short term debt while the long term debt is negatively related to stock returns.

d- Loss Ratio

The results presented in Table 4.34 show insignificant relationship between loss ratio (LR) and stock returns. According to hypothesis 10 there is a relationship between loss ratio and stock returns for insurance companies in GCC Countries which means that hypothesis 10 is rejected.

Loss ratio in the insurance company in GCC markets entails the ratio incurred in total losses, in claims, added to adjustment expenses divided by total premiums, which the insurance company has earned in the specified period (Bull, 2008). On the other hand, return on stock in the insurance company refers to the capital gains in the company, which simply represents the combinations of increases in the prices of stock and dividends (Sedik, 2011). The above aspects do not have any relationship, for they apply on different insurance aspects basing on the following analysis:

For insurance companies, loss ratio is the difference between the paid premium ratios and claims that the company has settled. Furthermore, it entails the total losses in the form of claims that an insurance company pays. It is used to reflect on the performance of an insurance company. The ratio is concerned with the premiums of the insurance company in relation to claims. For instance, in GCC stock markets, insurers are the one that experiences losses in case many claims are paid off a financial calendar by the company. The company also experiences high profitability margins in cases where few claims are serviced in the same calendar year. When claims are met by the insurance company, it results to either loss ratio/margin or profit ratio/margin (Berwick, 2007).

Conversely, to espouse on the differences in the relationship between stock return and loss ratio, stock return has a negative or positive effect on investors' financial well-being. It reflects on the financial welfare of investors that have invested in the stocks of the insurance company. The GCC stock market allows investors'; moreover, giving them a chance to participate in the ownership of the company by virtually taking part on the selling and buying of its stock.

Insurance profitability in GCC markets has improved over the past years. However, health insurance and motor insurance have seen a consistent rise in loss ratio. Due to high competition in the insurance industry and decreasing impact of compulsory insurance norms the relationship between loss ratio and stock return found to be insignificant in GCC insurance industry.

e- Reinsurance Dependence

The results showed in Table 4.34 present insignificant positive relationship between reinsurance dependence (REID) and stock returns. According to hypothesis 11 there is a relationship between reinsurance dependence and stock returns for insurance companies in GCC Countries which means that hypothesis 11 is rejected.

Total returns made on both assets and liabilities make up the theoretical meaning of stock returns of insurance companies. The combination of these two actually makes the discussion of total returns holistic. The implication to reinsurers is that their equity is best written as a weighted sum of the returns that they make on personalized exposures and investments.

Looking critically at the GCC as a regional market, it can be realized that the major motive behind ceding companies in their reinsurance bids have had to do with a need to exchange insurance risk for credit risk.

Meanwhile, Figure 4.4 shows that as far as the total gross written premiums of insurance companies for the past 4 years are concerned, there has been a significant rise across the entire GCC.

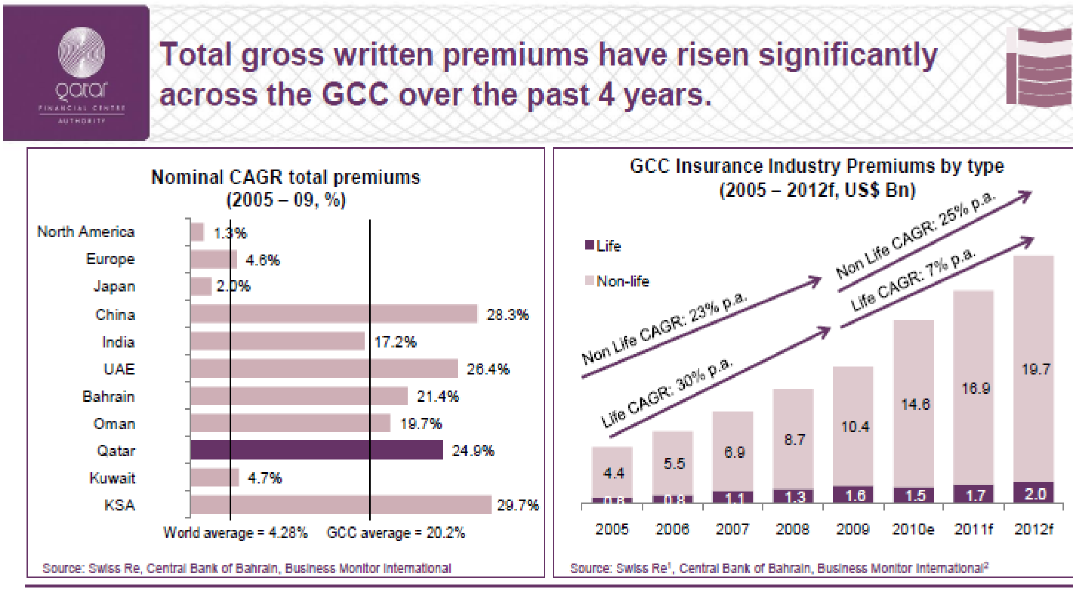

Figure 4.3

Total Gross Written Premiums from 2005-2012f

Source: *QFCA strategic plan*, 2011

Kramaric and Galetic (2013) tried to discover how reinsurance influence insurance markets profitability in Austria, Croatia and Romania in the five year period. They found that the share of reinsurance in total premium variable doesn't affect insurance companies' profitability in Romania. Based on this study and supported by previous studies, it is concluded that the relationship between reinsurance and stock return is insignificant perhaps due to the effect risk reduction through reinsurances activities being outweighed by the increasing expenses associated with higher reinsurance activities.

f- Affiliated Investment

The results showed in Table 4.34 present insignificant negative relationship between affiliated investment (AFFIN) and stock returns. According to hypothesis 12 there is a relationship between affiliated investment and stock returns for insurance companies in GCC Countries which means that hypothesis 12 is rejected.

A well-articulated discussion on the relationship that presently exists between affiliated investment and stock returns in GCC insurance companies could best be outlined if the discussion is taken from the theoretical perspective of existing affiliated investments available to GCC insurance companies, the choices made by these insurance companies and the outcomes secured by these companies in consonance with their stock returns.

In the first place, it is theoretically proven in section 2 of the 12 DE Code 3312 (1996 through 145th Gen Ass) that affiliated investment is described as an investment wherein the fiduciary or his affiliate becomes an adviser, administrator, distributor, placement agent, broker or in another role for it has obtained a fee from the investment, or it is an investment that is acquired/disposed of wherein the fiduciary or his affiliate has obtained a fee (Justia US Law, 2012).

In respect to the stock returns in GCC insurance companies, which are often on an upward position as the appreciation in prices of stock and dividends paid are always on a higher surge when divided by the original price of the stock, it can be clearly argued that the provisions of the affiliated investment may not result in a corresponding growth.

The reason for arguing that there may not be a corresponding growth of stock returns due to increase in affiliated investment is in the limitations that are placed on the mandates of affiliated investment. For most insurance companies in the GCC, affiliated investment is undertaken not as a coherent alternative to income gains but as auxiliary alternatives which offered premium services such as advisory and administration (Birkmaier & Helfenstein, 2000).

g- Solvency Margin

Solvency margin, as measured in this study by net assets divided by net premiums written, reflects the insurance company's capacity to satisfy its long-standing obligations. The results showed in Table 4.34 present a negative significant relationship between solvency margin (SM) and stock returns at significant level of 1%. From Table 4.34, the coefficient of Solvency Margin (SM) is -0.366 and statistically significant. According to hypothesis 13 there is a positive relationship between solvency margin and stock returns for insurance companies in GCC Countries which means that hypothesis 13 is rejected.

However, hypothesis 13 predicts a positive relationship between Solvency Margin (SM) and stock returns for insurance companies in GCC Countries based on Shiu's (2004) argument that insurance companies with high solvency margin is financially sound and are therefore able to attract potential policyholders and adhere to the specified underwriting guidelines. By adhering to the guidelines, the insurance companies can expect a better underwriting result. Therefore, it is expected that the relationship between performance and solvency margin would be positive and this will be reflected positively on insurance companies' stock return. The contradict results may be explained by the emphasis of the stock market investors in GCC on the efficiency of utilizing assets in generating new businesses rather than on ensuring low solvency levels. This could be because the average solvency margin of GCC insurance companies is relatively higher that the margin in other countries but this is yet to be investigated. The finding can also be due to the inefficiency of GCC stock markets.

a- Stability of Underwriting Operation

The results presented in Table 4.34 show insignificant relationship between stability of underwriting operation (SUO) and stock returns. Hypothesis 14 hypothesizes that there is a relationship between stability of underwriting operation and stock returns for insurance companies in GCC Countries, hence the hypothesis is rejected.

Stability of underwriting operation is measured as the difference of net premiums written between the current year and the prior year divided by net premiums written prior year.

"Huge fluctuations in net premiums written indicate a lack of stability in underwriting operation of an insurance company. An unusual increase in net premiums written might indicate that the company is engaging in the so-called "cash-flow underwriting" to attempt to survive its financial difficulty. However, this is not necessarily the case. An unusual increase in net premiums written could indicate favourable business expansion if it is accompanied by adequate reserving, profitable operations, and stable products mix (NAIC, 2001a). The indicator of annual change in net premiums written is similar to the NAIC Life/Health Insurance Regulatory Information System (IRIS) Ratio 10 (Change in premium) and the NAIC Property/Casualty IRIS Ratio 3 (Change in net writings). Its usual range of values is between −33% and 33% (NAIC, 2001b, 2001a). The wide and equal both positive and negative ranges of normal values indicate that the indicator is not a very sensitive predictor of performance. Based on the above discussion, there is no prior expectation about the direction of the relationship between performance and stability of underwriting operation" (Shiu, 2004; 6).

The insignificant relationship found between SUO and stock return can be justified as follows: the fluctuation of the underwriting premium might not be the indicator to reflect a favorable business expansion. In other words, the high increase in the premium might be coming from the adequate reserving, profitable operations, and stable products mix used by the company. On the other hand, this increase might also be generated due to the fact that the company might attempt to survive its financial difficulty. Therefore, the high or low fluctuation in the underwriting premium is not influencing the stock return. This justification has been argued by Shiu (2004) to justify the insignificant relationship between SOU and performance among U.K. general insurance companies. Another justification is that in GCC insurance companies are operating in an inefficient market where the stability of underwriting operation has not be adequately reflected in the stock price. Therefore, the fluctuation of the underwriting premium is not the dominant factor which influences the stock return.

CHAPTER FIVE

CONCLUSION

5.0 INTRODUCTION

This thesis examines the joint influence of macroeconomics and firm-related variables on stock returns of GCC insurance companies in the attempt to identify the determinants of these returns.

The importance of the insurance sector is reflected in the steady growth of the sector. However, previous literature shows that little has been done to identify what are the factors that influence its stock return performance. This is partly due to the focus of finance studies on non-financial companies attributed to methodological reasons, the non-sectorial approach of such studies and the lack of interest among researchers in this field on GCC stock market. This study was undertaken to fill this research gap.

Section 5.1 summarizes the research process followed by Section 5.2 and Section 5.3 which discuss the major findings of the study and their implications and contributions. Section 5.4 highlights topics for future research while Section 5.5 lists the research limitations. The final section provides recommendations for future studies.

5.1 OVERVIEW OF THE RESEARCH PROCESS

According to Rault and Arouri (2010), GCC markets represent promising areas for international portfolio diversification and current reforms have been carried out for the purpose of attracting global investors. Therefore, an in-depth look at the determinants of stock market returns in GCC stock market may assist GCC and foreign investors in making necessary investment decisions and may be useful to policy-makers' regulation of stock markets.

However, little is known on the factors that influence the stock returns in GCC stock markets. Most previous studies focus more on developed and emerging countries but their findings' generalization to GCC market is highly questionable given that GCC stock markets are characterized to be different from the stock markets existing in developed and emerging countries in a way that the former are not as ensconced within international markets and hence, are very sensitive to regional political event (Hammoudeh & Choi, 2006; Marashdeh & Shrestha, 2010).

Moreover, the high contribution of oil in the national economy makes the GCC countries the primary targets for exploring the relationship between the performance of their stock markets and oil prices. Arouri and Rault (2010) suggest for researchers to look into the relationship between oil and stock markets in GCC countries through the study of various economic sectors in the future.

Majority of the studies on stock returns determinants are not based on selected sectors and only provide general findings for the entire sectors, overlooking specific industry-related factors and hence, failing to include differences between sectors. As a result, some studies (Chen, 2007; Arouri & Rault, 2010) state that more detailed research is required to look into particular countries and markets.

Most of existing literature concerning stock market determinants exclude companies in the finance sectors in the sample due to methodological reasons, and hence, overlooking financial companies' returns determinants. The author's in-depth look through literature also found no existence of documented study regarding the determinants of GCC insurance sector stock returns.

Based on the arguments of the importance of targeting specific sectors for the investigation of the determinants of stock market performance, in addition to the growth of the insurance sector in GCC, this study aims to investigate the determinants of insurance companies' stock returns.

In achieving the research aim, the effect of several macroeconomic variables namely, inflation, interest rate, money supply, oil prices and rate of unemployment, on insurance index returns in GCC stock markets were investigated, followed by the analyses on the influence of firm specific variables, namely, earning per share, dividend yield and leverage, and insurance company specific variables, namely, loss ratio, reinsurance dependence, solvency margin, affiliated investment and underwriting operation stability, on stock returns of insurance companies, after controlling for macroeconomic factors and stock market returns.

The study objectives are provided in detail as follows; the first objective is to examine the macroeconomic factors comprising of inflation rate, interest rate, money supply and unemployment rate, and the GCC insurance companies stock returns; the second objective is to determine the oil prices impact upon the GCC insurance companies' stock returns; the third objective is to examine the effects of general firm-specific variables comprising of EPS, dividend yield and leverage upon the GCC insurance companies stock returns; the fourth objective is to examine the impact of insurance company specific variables comprising of loss ratio, solvency margin, affiliated investment, underwriting operations stability and reinsurance dependence, on the insurance companies stock returns in the GCC stock markets.

Two panel data sets are used in the study. The first set consists of monthly economic data on inflation, interest rate, money supply, oil prices and unemployment rate over the period of 2001-2010 for each of the GCC markets. The second data set consists of yearly data on firm specific variables (earning per share, dividend yield, leverage, loss ratio, reinsurance dependence, solvency margin, affiliated investment and stability of underwriting operation) and yearly economic data (inflation, money supply, oil prices and unemployment rate) from 2001-2010.

The first dataset was used to analyze the first model on the effect of macroeconomic variables' on the insurance index returns while the second model is used to analyze the second model on the effect of firm specific variables insurance companies' stock return after controlling macroeconomic variables and stock market return.

5.2 SUMMARY OF RESEARCH FINDINGS

From the five macroeconomic indicators mentioned, four are significant in affecting the insurance index returns in the GCC stock markets namely inflation, money supply, oil price and unemployment rate. On the other hand, interest rate is revealed to be statistically insignificant in affecting the stated insurance returns.

Moreover, stock market return as a control variable revealed to has statistically significant positive affect the insurance index returns in the GCC stock markets.

In addition, four out of eight firm-specific variables, namely, earnings per share, dividend yield, leverage and solvency margin are revealed to have a significant effect on the insurance companies stock returns while loss ratio, reinsurance dependence, affiliated investment and stability of underwriting operation, are revealed to have a insignificant effect on the insurance companies stock returns.

Table 5.1

Summary and key evidence of findings

Research Question	Hypothesis	To test / Findings	Conclusion	Key Evidence
1. What are the effects of macroeconomic factors (inflation rate, interest rate, money supply, oil prices and unemployment rate) on stock returns for GCC insurance companies?	H1	H1: There is a relationship between inflation rate and stock returns for insurance index in GCC countries.	H1 is accepted	There is a significant and negative relationship between inflation rate and stock returns for insurance index in GCC countries.
	H2	H2: Interest rate has a negative impact on stock returns for insurance index in GCC countries.	H2 is rejected	There is insignificant relationship between interest rate and stock returns for insurance index in GCC countries.
	H3	H3: The money supply has a positive impact on stock returns for insurance Index in GCC countries.	H3 is accepted	There is a significant and positive relationship between money supply and stock returns for insurance index in GCC countries.
	H4	H4: There is a relationship between oil prices and stock returns for insurance index in GCC countries.	H4 is accepted	There is a significant and positive relationship between oil prices and stock returns for insurance index in GCC countries.

Table 5.1 *(continued)*

Research Question	Hypothesis	To test / Findings	Conclusion	Key Evidence
	H5	H5: There is a relationship between unemployment rate and stock returns for insurance index in GCC countries.	H5 is accepted	There is a negative and significant relationship Between unemployment rate and stock returns for insurance index in GCC countries.
	H6	H6: Stock market return has positive impact on stock returns for insurance index in GCC countries.	H6 is accepted	There is a positive and significant relationship Between Stock market return and insurance index in GCC countries.
2. What are the effects associated with firm-specific variables (EPS, dividend yield, leverage loss ratio, affiliated investment, solvency margin and reinsurance dependence) on the stock returns for GCC insurance companies?	H7	H7: Earnings per share has a positive and significant impact on stock returns for insurance companies in GCC countries.	H7 is accepted	There is a positive and significant relationship Between Earnings per share and insurance companies in GCC countries.
	H8	H8: There is a relationship between dividend yield and stock returns for insurance companies in GCC countries.	H8 is accepted	There is a negative and significant relationship Between dividend yield and stock returns for insurance companies in GCC countries.

Table 5.1 *(continued)*

Research Question	Hypothesis	To test / Findings	Conclusion	Key Evidence
	H9	H9: There is a relationship between leverage and stock returns for insurance companies in GCC countries.	H9 is accepted	There is a negative and significant relationship Between leverage and stock returns for insurance companies in GCC countries.
	H10	H10: There is a relationship between the loss ratio and stock returns for insurance companies in GCC countries.	H10 is rejected	There is insignificant relationship between the loss ratio and stock returns for insurance companies in GCC countries.
	H11	H11: There is a relationship between the reinsurance dependence and stock returns for insurance companies in GCC countries.	H11 is rejected	There is insignificant relationship between the reinsurance dependence and stock returns for insurance companies in GCC countries.
	H12	H12: There is a relationship between the affiliated investments and stock returns for insurance companies in GCC countries.	H12 is rejected	There is insignificant relationship between the affiliated investments and stock returns for insurance companies in GCC countries.

Table 5.1 *(continued)*

Research Question	Hypothesis	To test / Findings	Conclusion	Key Evidence
	H13	H13: There is a positive relationship between the solvency margin and stock returns for insurance companies in GCC countries.	H13 is rejected	There is a negative and significant relationship between the solvency margin and stock returns for insurance companies in GCC countries.
	H14	H14: There is a relationship between stability of underwriting operation and stock returns for insurance companies in GCC countries.	H14 is rejected	H14: There is insignificant relationship between stability of underwriting operation and stock returns for insurance companies in GCC countries.

Table 5.1 summaries the results for the first and second models. In the first model four out of five macroeconomic indicators mentioned are significant in affecting the insurance index returns in the GCC stock markets namely inflation, money supply, oil prices and unemployment rate. Stock market return as a control variable revealed to have a positive and significant effect on the insurance index returns in the GCC stock markets.

From the second model three out of eight firm-specific variables are revealed to have a negative and significant effect on the insurance companies stock returns namely dividend yield, leverage and solvency margin while earnings per share is revealed to be statistically positive and significant in its effect on the said insurance companies stock returns. Loss ratio, reinsurance dependence, affiliated investment and stability underwriting are revealed to be statistically insignificant in their effect on the insurance companies' stock returns in the GCC markets.

5.3 STUDY CONTRIBUTIONS

This study highlights the stock return determinants of GCC insurance companies. In general, the study contributes to literature, methodology and practice areas. On the basis of the objectives reached, the contributions can be detailed as follows;

5.3.1 Contribution to Literature

The primary contribution of the study to financial literature is the provision of empirical analysis that deals with the query of whether or not macro and micro-economic variables affect the stock returns of insurance companies in GCC stock markets.

The present study contributed to literature by examining the stock returns determinants in the GCC stock markets through the testing of several extant hypotheses linked with the stock returns determinants. It entails the study of macroeconomic factors influence on the insurance companies' stock returns. This is followed by the examination of firm specific variables influence on the stock returns of insurance companies. In sum, the study managed to extend the body of knowledge in light of the following;

1. Examination of the impact of macro-economic factors upon stock returns in developing nations.
2. Focus on the insurance companies' specific factors and their stock returns in GCC countries by using data from various markets and countries as recommended by Chen (2007).
3. A pioneering study that combined macroeconomic factors, oil prices, firm-specific variables and insurance company specific variables as stock returns determinants in the context of GCC stock markets.
4. Provided the distinction in the study's findings in the context of the emerging markets various sectors.

5.3.2 Contribution to Methodology

The main contribution of the present study to methodology is the fact that it is conducted in six countries and seven markets through the development of a conceptual framework that combined macroeconomic factors and firm-specific variables of insurance companies.

The study’s first model consisting of macroeconomic indicators and insurance index returns facilitates the extension of its application to other sectors and the model flexibility makes it significant for all times and various markets. This research also addresses several important firm specific variables after controlling the significant macroeconomic variables from the first model and stock market return for each market to explore the effect of these variables on GCC insurance company’s stock return.

The analyses conducted involve panel data estimation method and to the best of the researcher’s knowledge, this is the pioneering study to use the model with data gathered from GCC stock markets.

5.3.3 Contribution to Practice

In practice, the findings of this thesis will provide a well knowledge for external investors to recognize the macroeconomic factors and firm specific variables that affect insurance companies’ stock market in GCC so as to guide their investment decisions. The findings from this research will be useful to financial managers in insurance companies. This will provides some information for managers on the reaction of insurance’s stock return to macroeconomic factors and firm specific variables changes especially for GCC insurance companies. This study also suggests that the managers focus on inflation, money supply, oil price, unemployment rate, earnings per share, dividend yield, leverage and solvency margin.in their strategic decisions since these factors can influence insurance companies’ stock returns.

Finally, the findings of this study will benefit to stock analysts, who will get new empirical evidences of stocks in insurance industry. They could make use of these findings to evaluate insurance stock return, prediction the insurance stocks' movements and hence advise the investors on selection of insurance stocks.

5.4 STUDY IMPLICATIONS

The study's empirical findings have significant implications for financial analysis, fund managers, actuaries, insurance company managers and policy makers.

The findings are valuable for investors to be used as a guide in developing forecasts of stock market viability and to decide which companies to invest in based on the significant variables such as inflation, money supply, oil price, unemployment rate, earnings per share, dividend yield, leverage and solvency margin.

The findings are also beneficial to the development of actuarial models to cater to insurance companies underwriting operations. In 1994 the U.S. Casualty Actuarial Society has been developing Dynamic Financial Analysis (DFA) as a model that actuaries use to model the complicated and interrelated underwriting and investment operations of insurance companies. The first step in create Dynamic Financial Analysis is to identify the determinants of insurance company performance. The findings from this research suggest that actuaries should add earnings per share, dividend yield, leverage and solvency margin to Dynamic Financial Analysis which have an impact on the company's performance and stock return.

Based on the results, four macroeconomic indicators mentioned are significant in affecting the insurance index returns in the GCC stock markets namely inflation, money supply, oil price and unemployment rate. Dividend yield, leverage and solvency margin revealed to have a negative and significant effect upon the insurance companies stock returns. Earnings per share revealed to have a positive and significant effect upon the insurance companies stock returns thus, it is important to focus more on these variables to control insurance companies' stock return.

The study may also offer insights at the policy level as to the formulation and implementation of suitable monetary and fiscal policies that could assist in the financial market's stability by focus on the macroeconomic variables that effect stock market return. They can control the stability of the economy by adjusting the significant macroeconomic variables from this study (inflation, money supply, oil price and unemployment rate) if the relationship between stock returns and economic activity has predictive power to stimulate the growth of the economy.

For investors, the effect of oil prices on insurance stock return implies some degree of predictability in the GCC stock markets. In particular, speculation, arbitrage, portfolio diversification, and hedging strategies have to be built differently when one expects decrease or increase in oil prices. This research extends the understanding of the relationship between oil prices and insurance index return in GCC countries. Since GCC countries are major oil exporting markets, their stock markets are expected to be susceptible to oil price shocks, so the influence of oil price on insurance stock return in GCC markets should be of interest to regulators, researchers and market participants. In particular, GCC countries as policy makers in OPEC should keep an eye on the influence of oil price movements on their stock markets.

5.5 RESEARCH LIMITATIONS

This study has its own limitations. One of these limitations is data scarcity. Data from the relevant market is scarce to get, particularly the monthly data on GDP and industrial production. This study has another limitation in terms of the generalization of findings. It limits the sample to only insurance sector in the GCC markets.

Additionally, in the GCC insurance sector, a challenge lies in differentiating between Islamic and conventional insurance companies owing to the ambiguity of the concepts and the market regulations.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

This study has several recommendations to make for future research. It is suggested that an in-depth investigation over the determinants of GCC insurance companies' stock returns is done for a deeper understanding by obtain new variables through the interview method with internal managers and fund managers and include tthese variables in empirical study. Also similar research can be conducted in other countries to support or reject the findings.

Secondly, a comparison between the behavior of GCC insurance company's stock returns and that of other countries can be conducted for future research. Furthermore, a comparison of the findings with various sectors in light of macroeconomic variables can be conducted as well.

Despite the inclusion of a robust set of macroeconomic variables in this study, the macroeconomic variable set utilized is in-exhaustive. In other words, future studies may include other macroeconomic variables which could shed more light on stock returns-economic activity relation. Therefore, future studies may use the impact of GDP, IP, exchange rate and GCC government spending – variables that are excluded in the present study owing to the scarcity of monthly data. Future studies that include these variables would greatly contribute to the understanding of the impact of real activity and the public sector upon the behavior of GCC markets, considering that oil revenues are owned by the GCC government. Future study may compare the relationship between oil price and insurance index return in GCC countries and other oil exporting countries. Another study can be conducted to look at the acceptable solvency margin by comparing with other countries.

This research has focused only on the insurance sector in GCC market. Therefore more studies can be conducted focusing on other sectors in GCC markets and on different countries to explore the different in the results.

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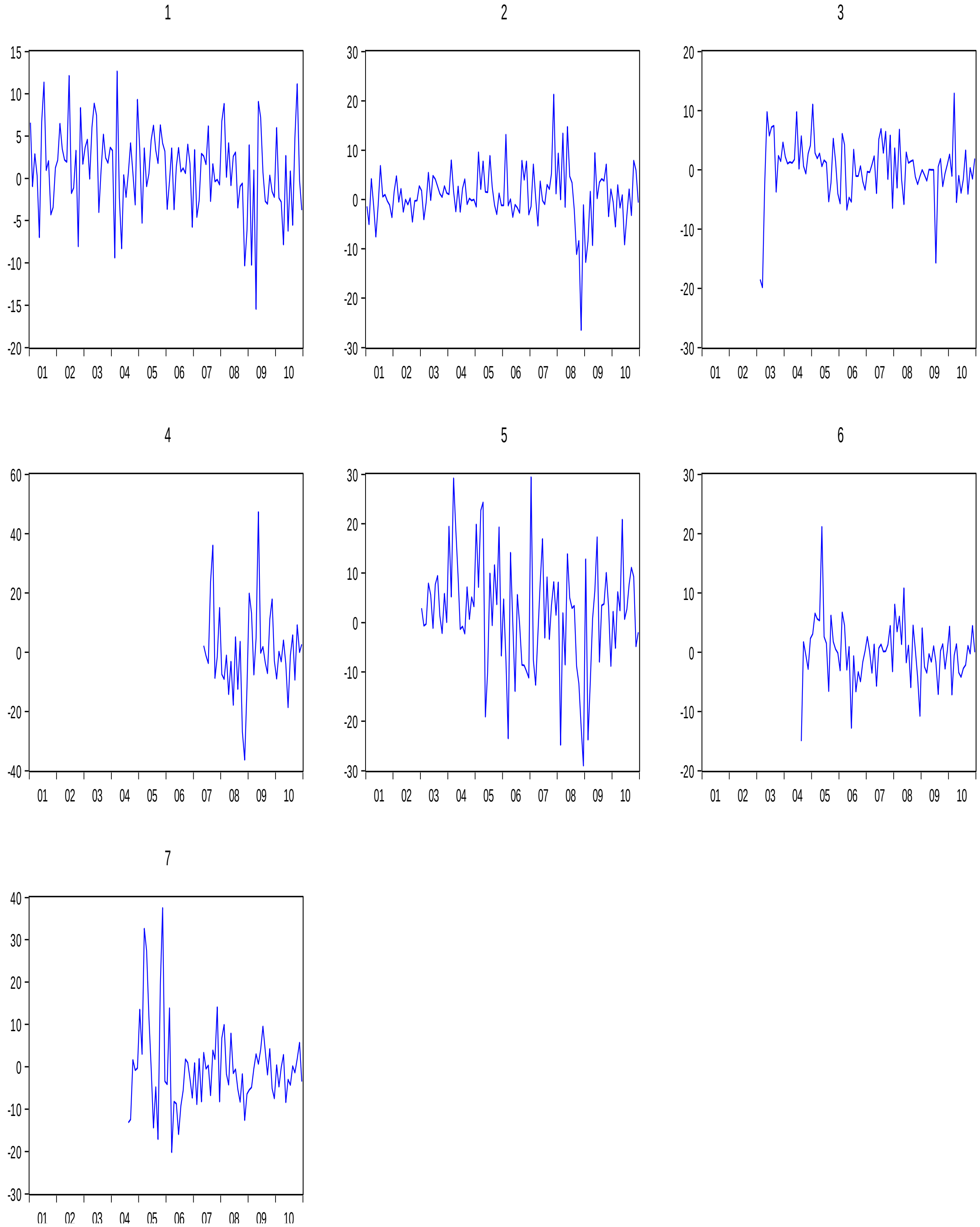
APPENDICES

Appendix A (Summary Statistics of All Variables- First Model)

INSURANCE STOCK RETURNS (ISR)



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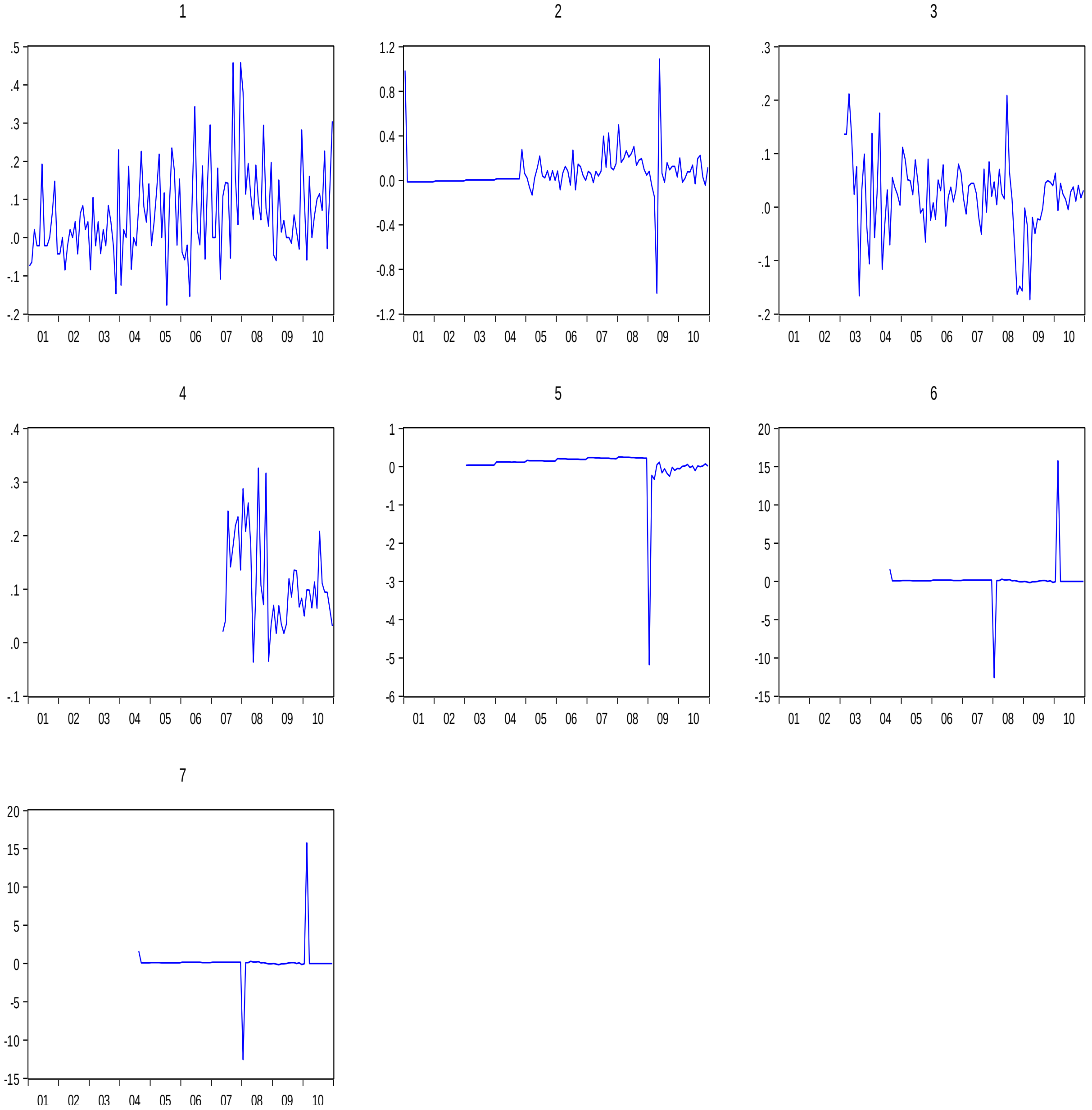

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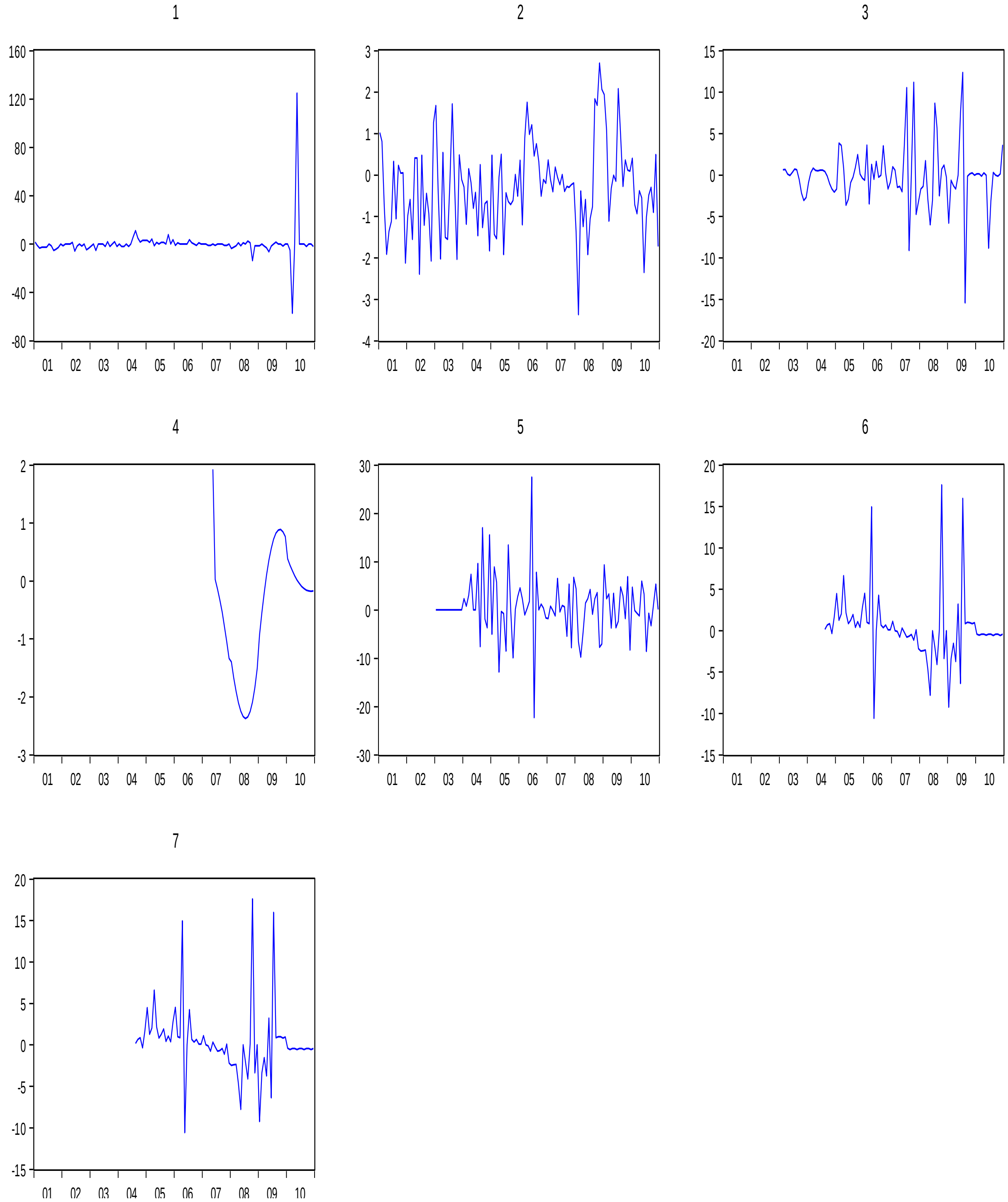

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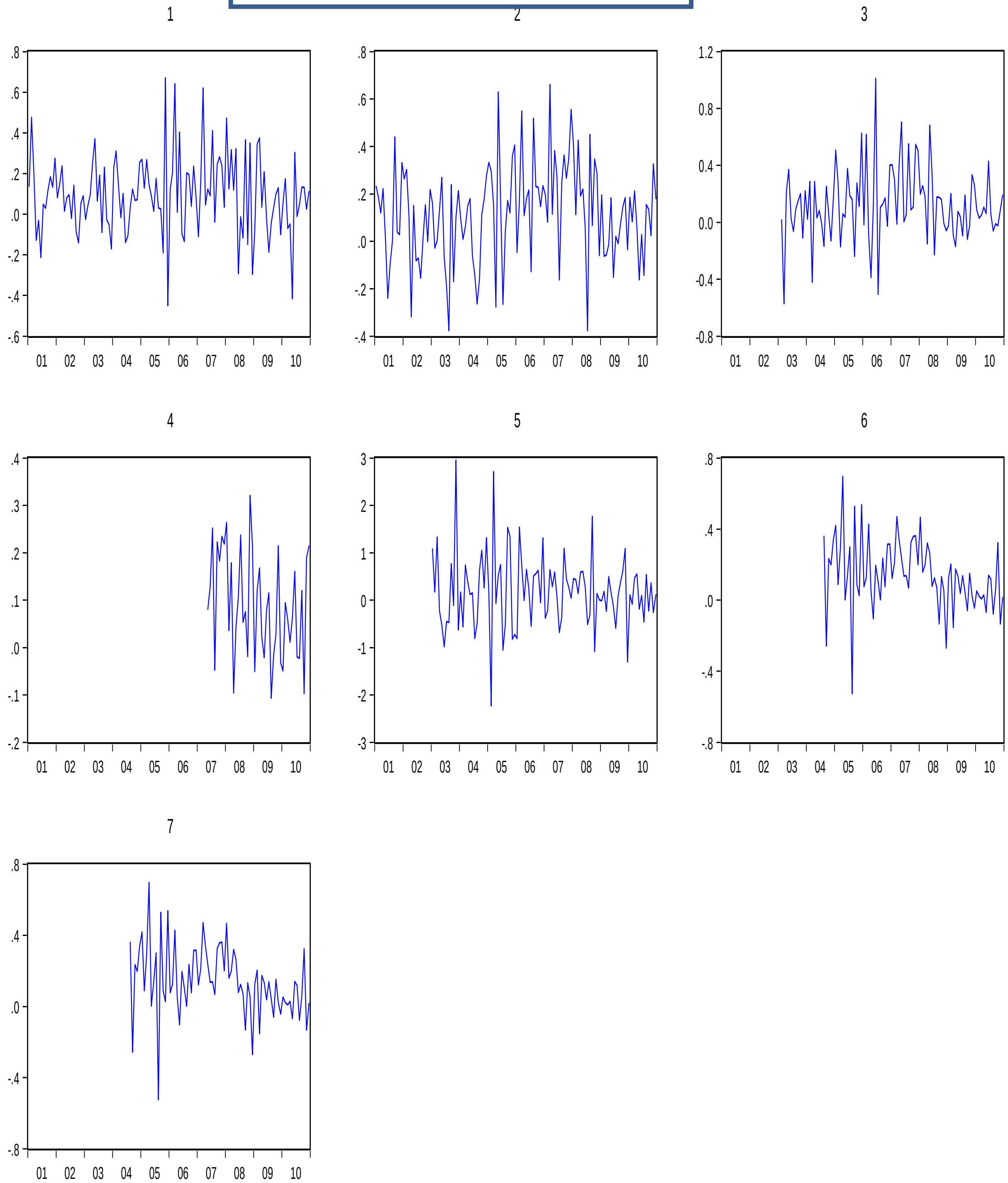

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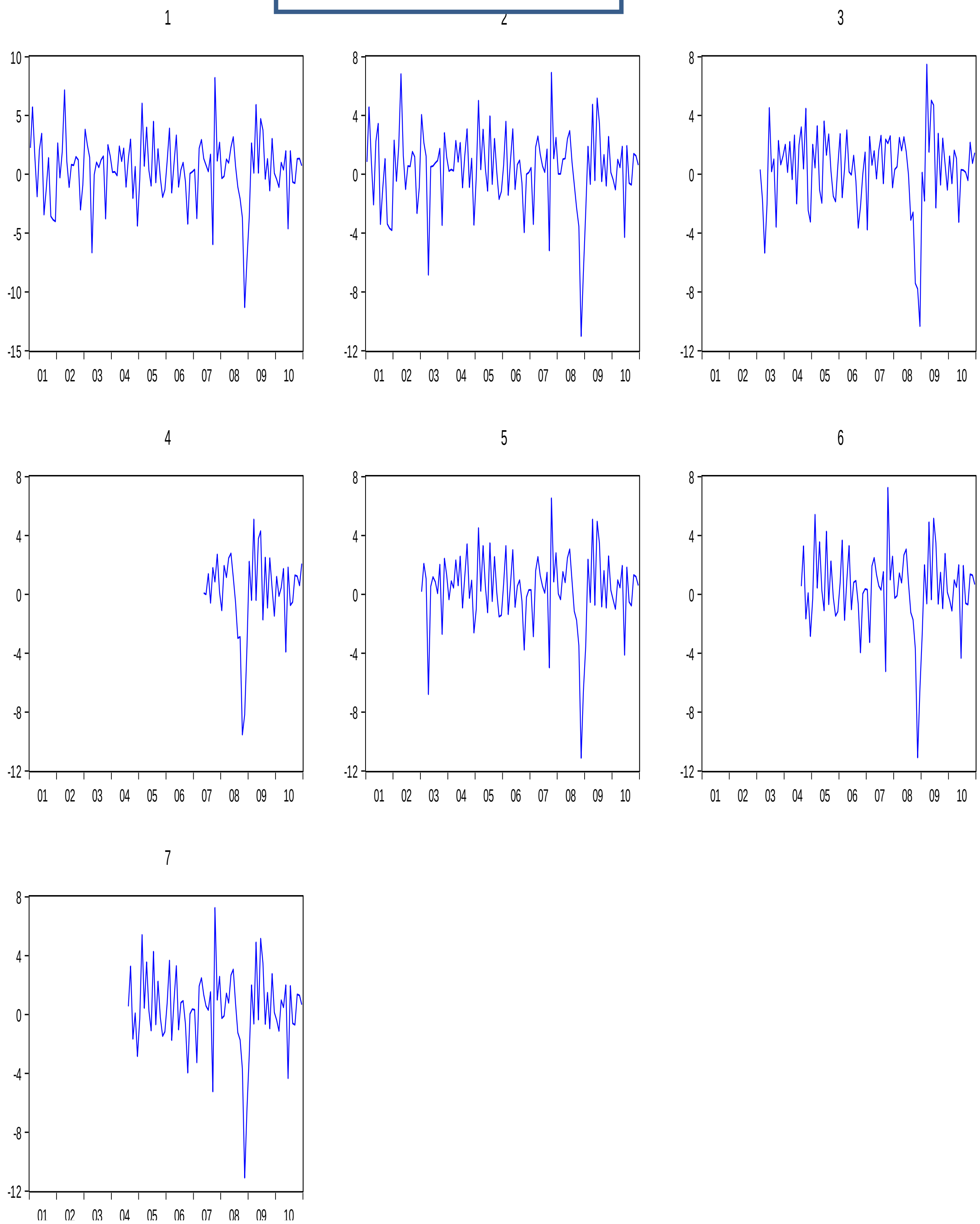
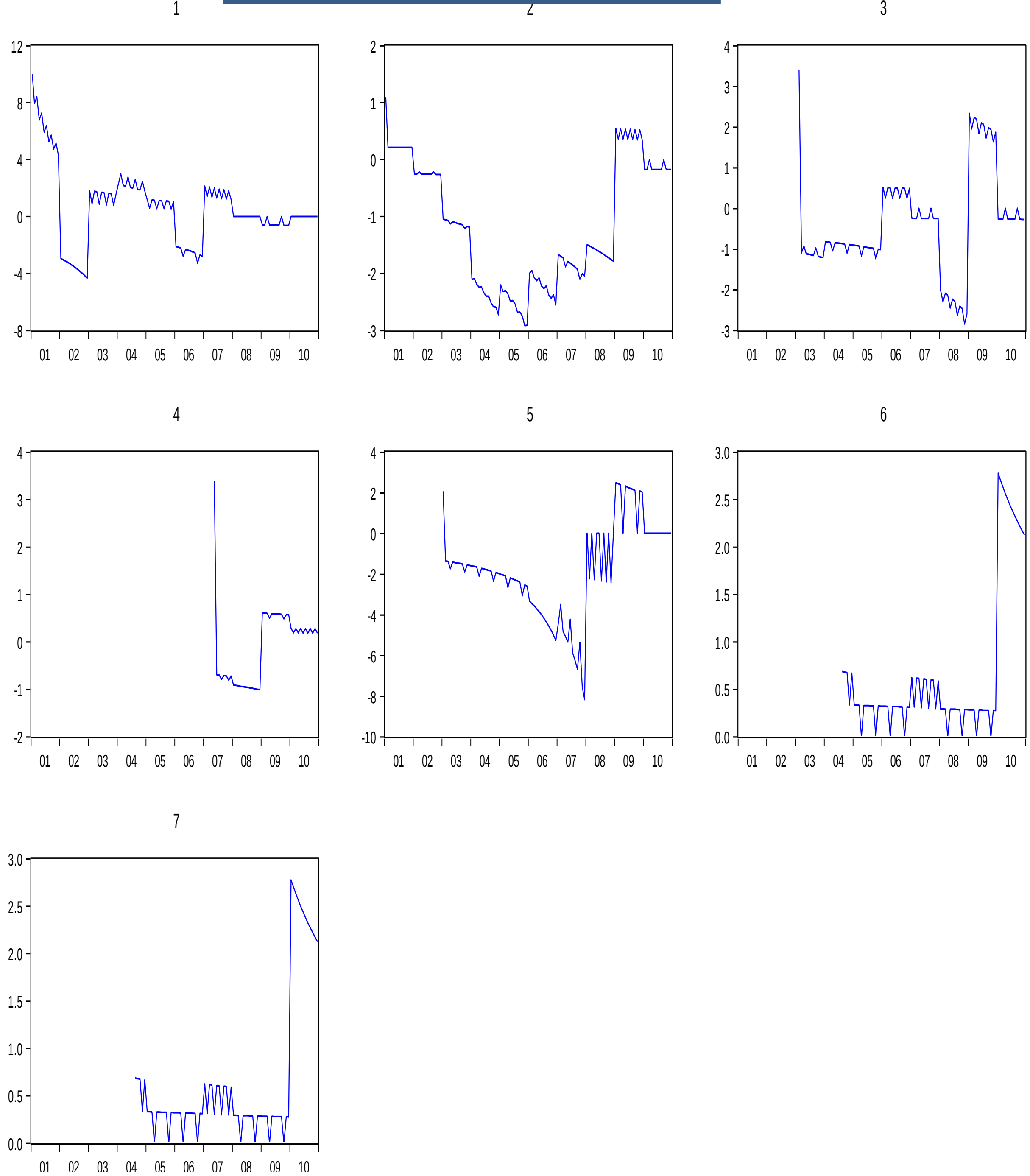
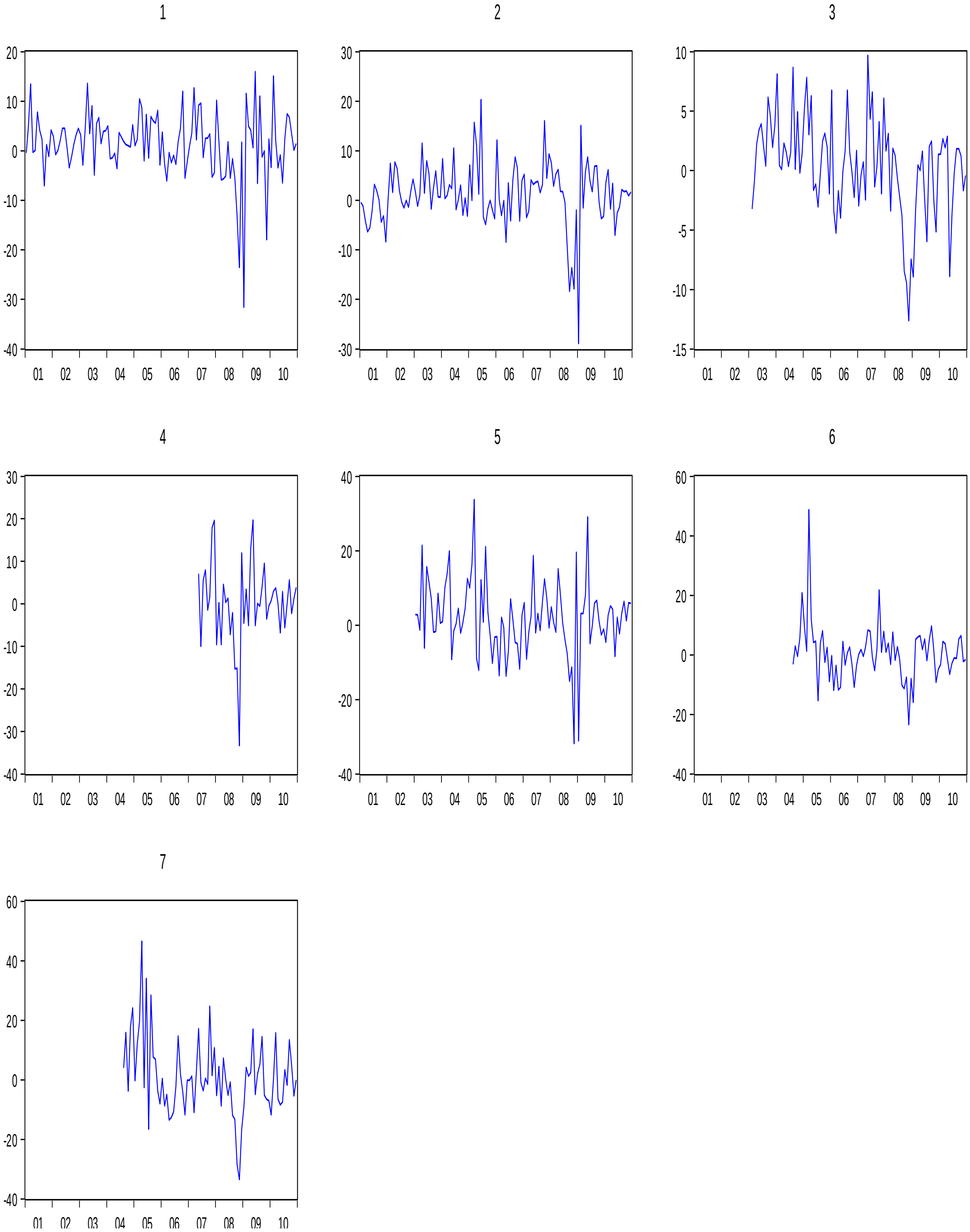


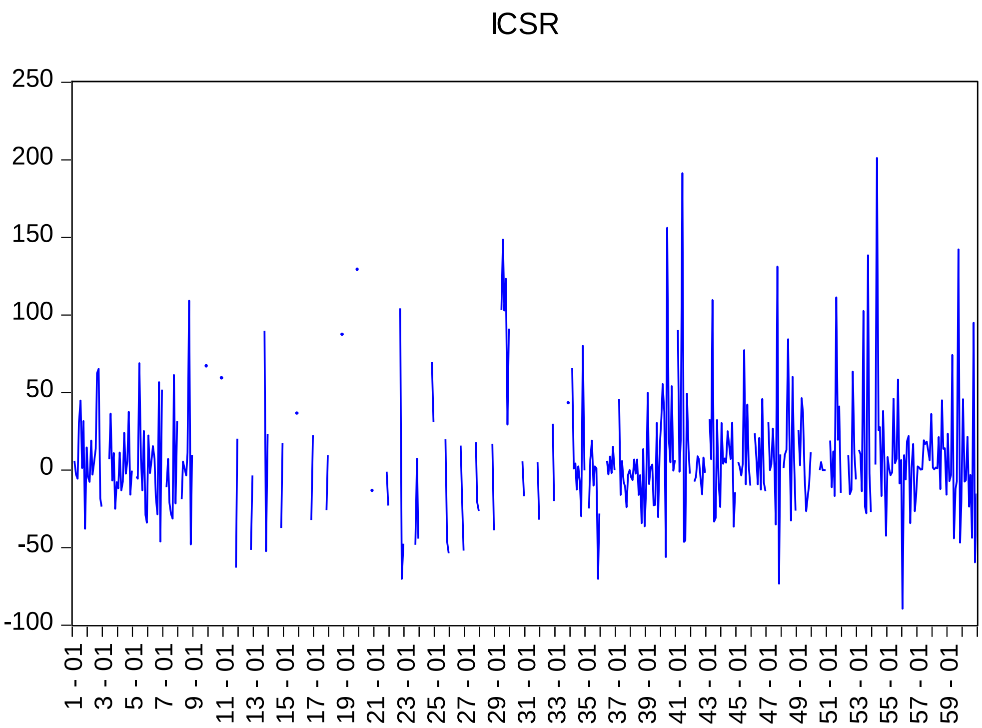
UNEMPLOYMENT RATE (DUNMR)

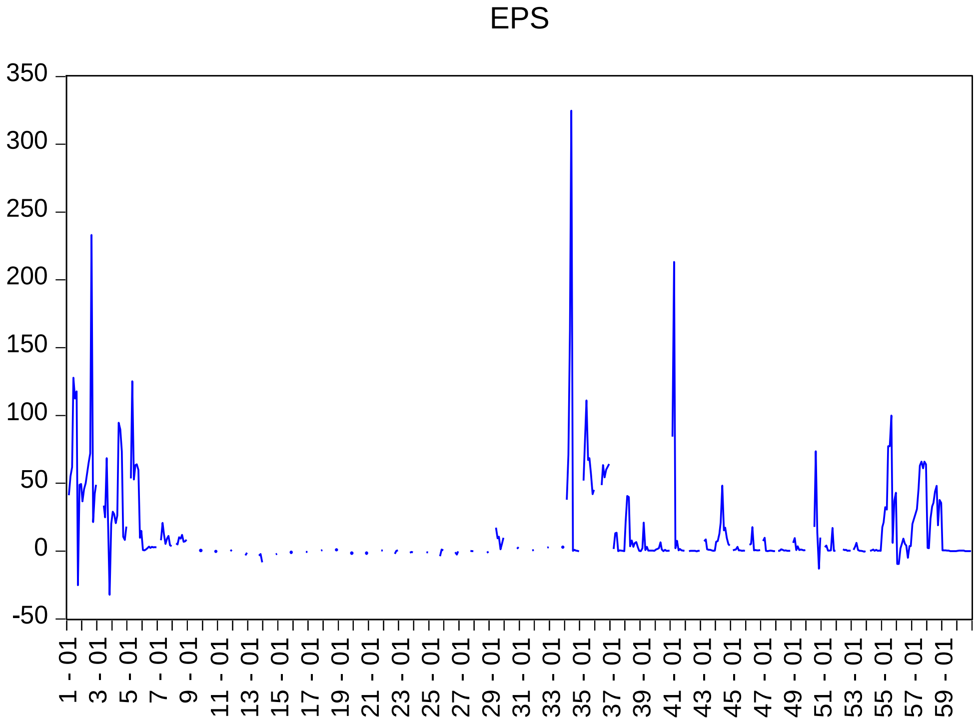


STOCK MARKET RETURN (SMR)



Appendix B (Summary Statistics of All Variables- Second Model)





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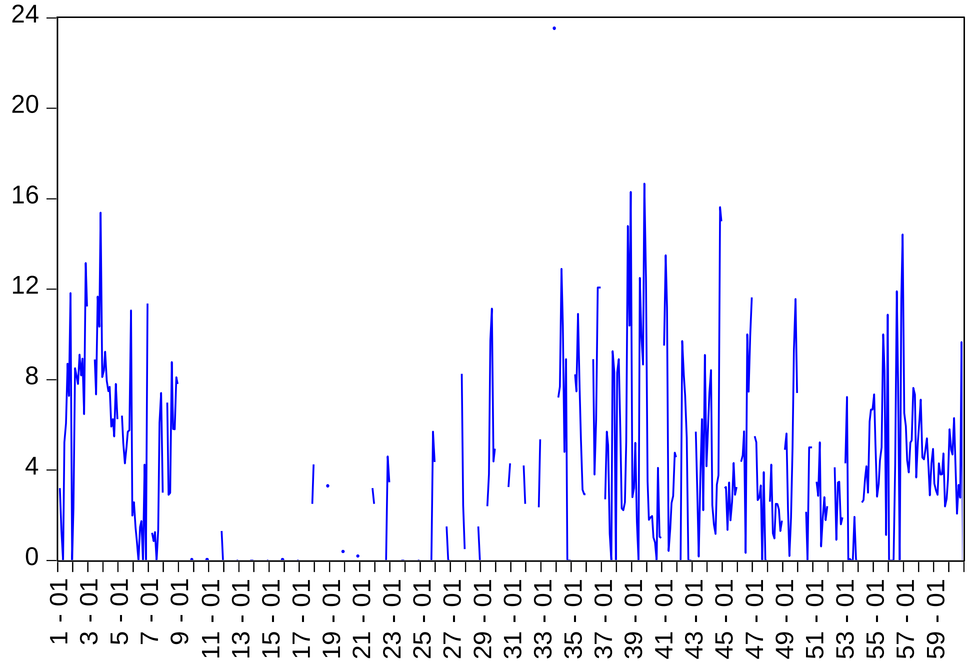

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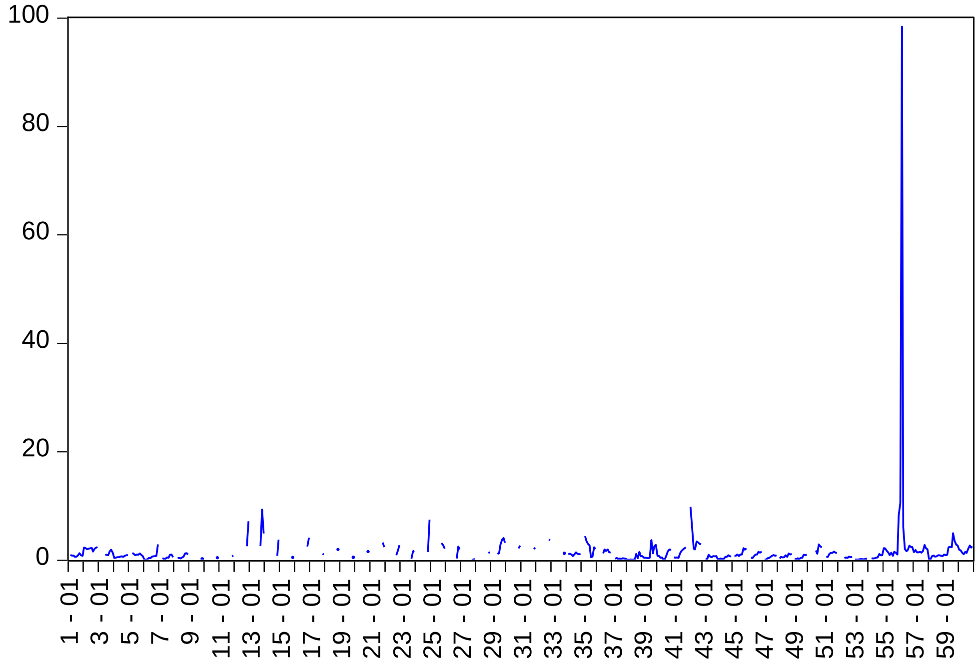

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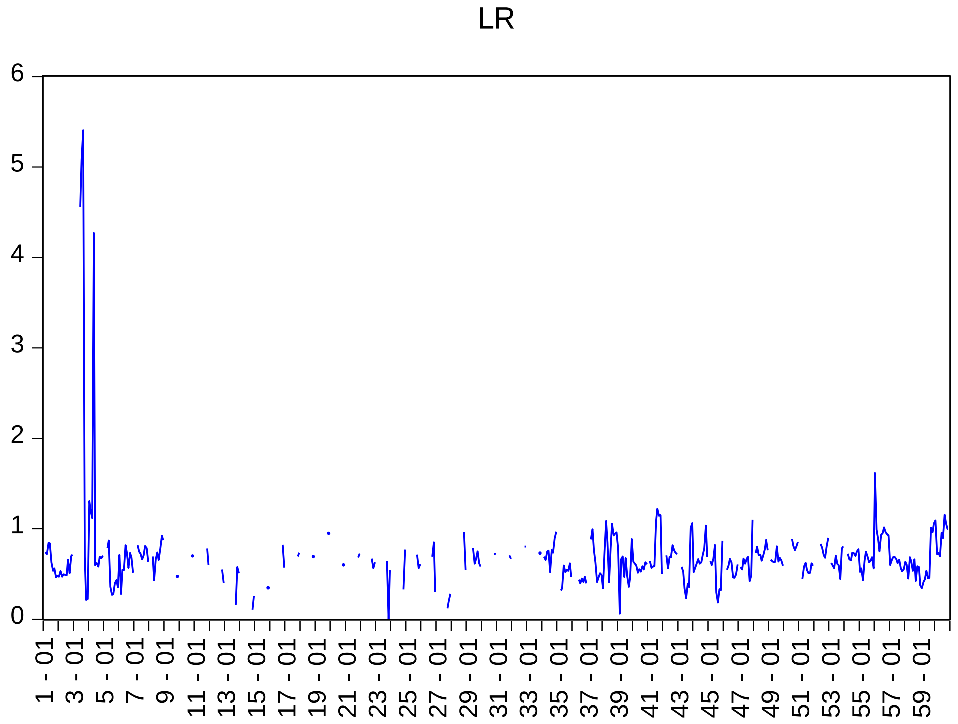
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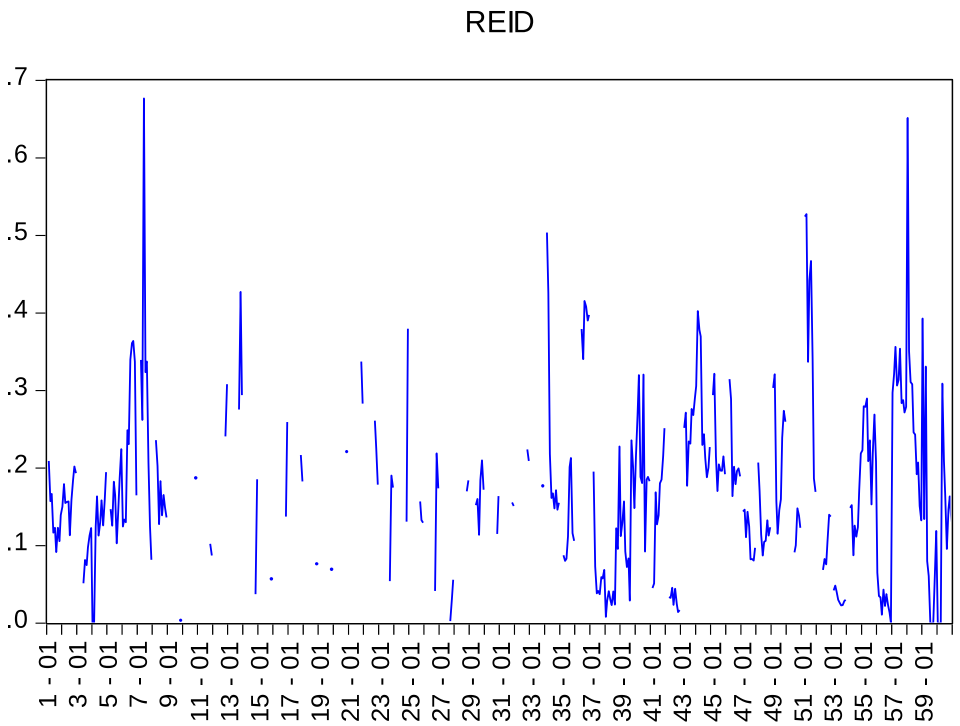
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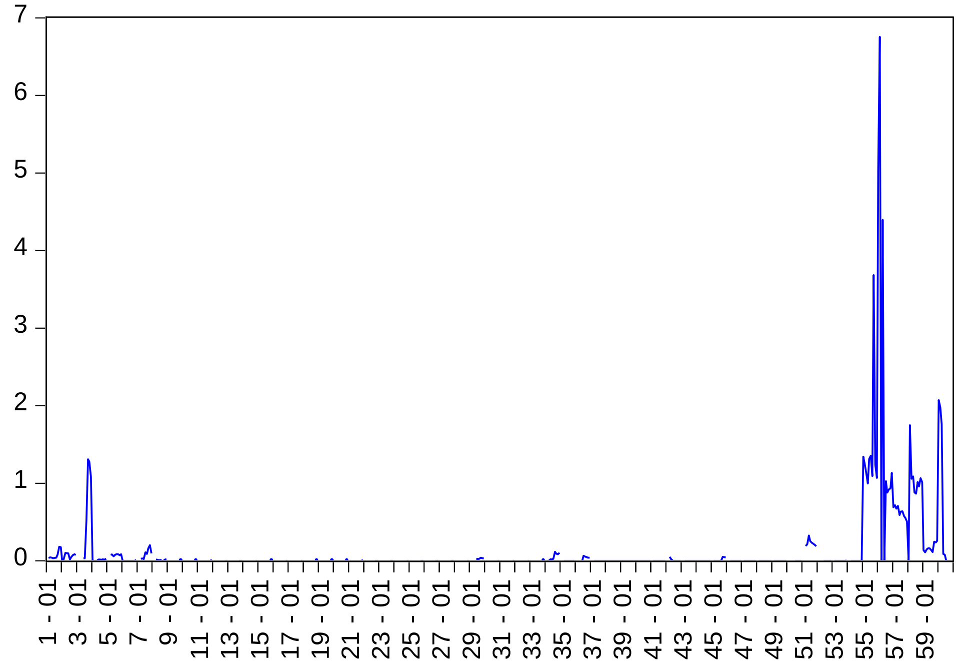

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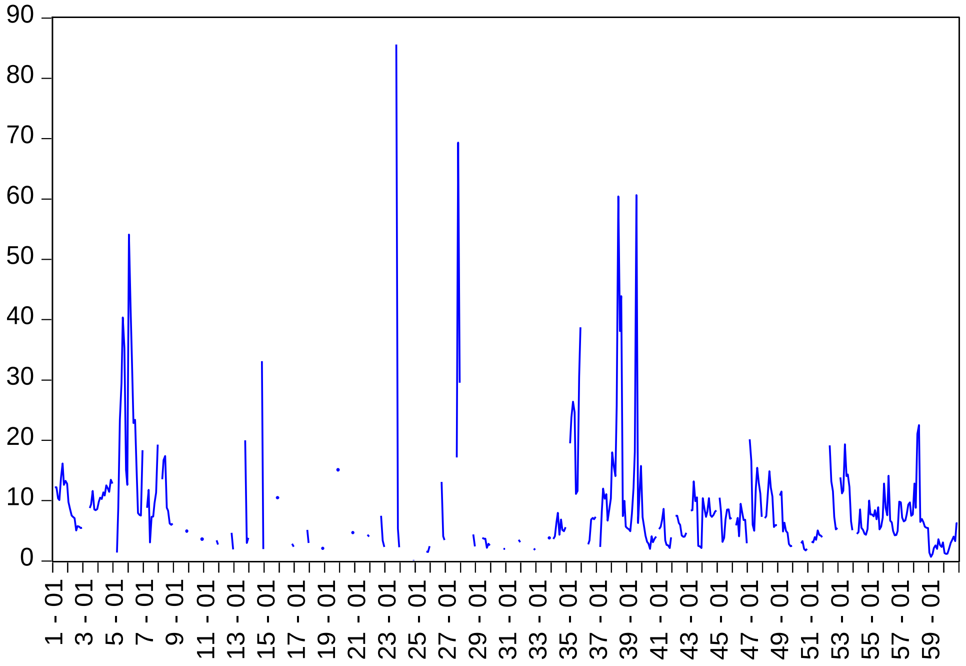

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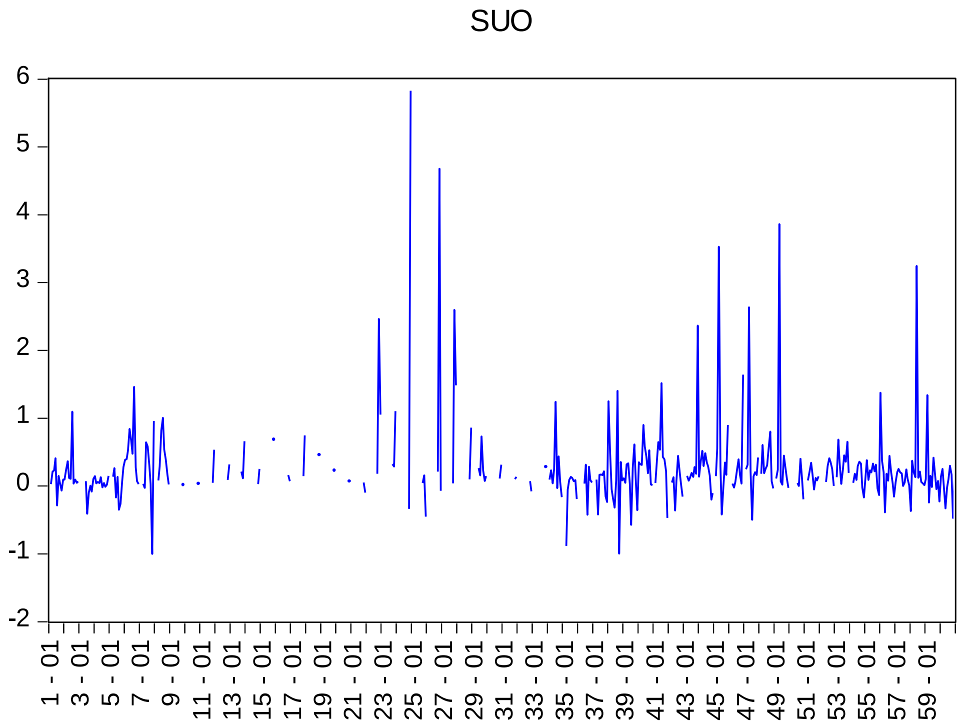
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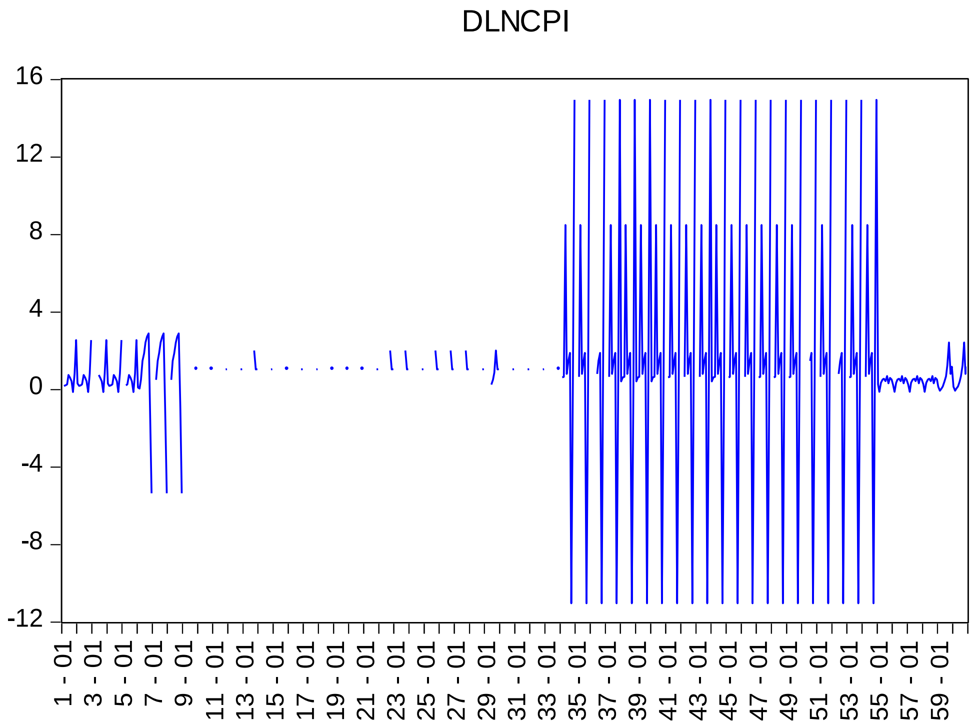
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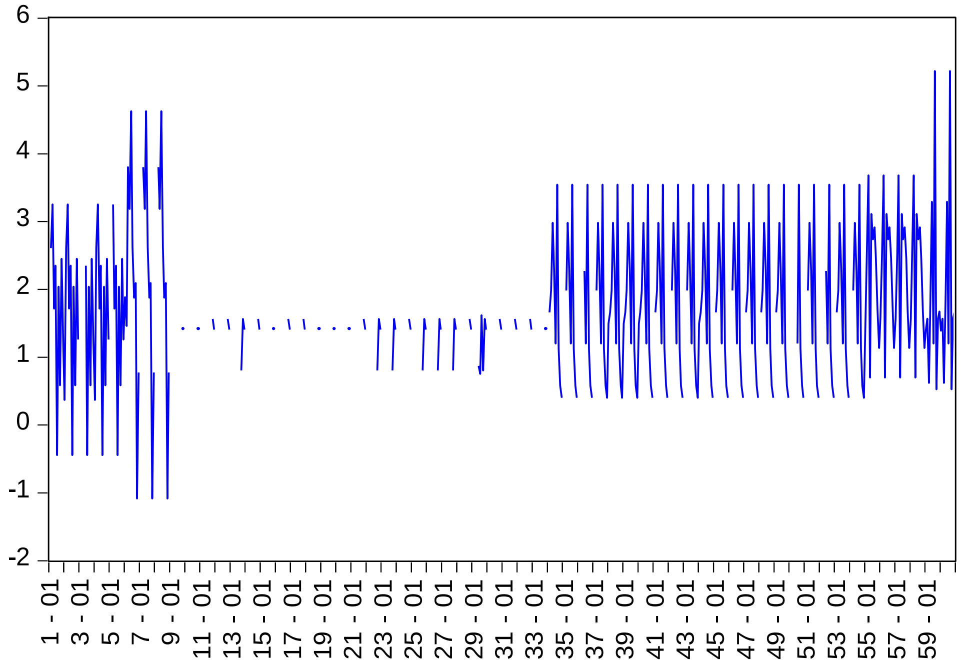
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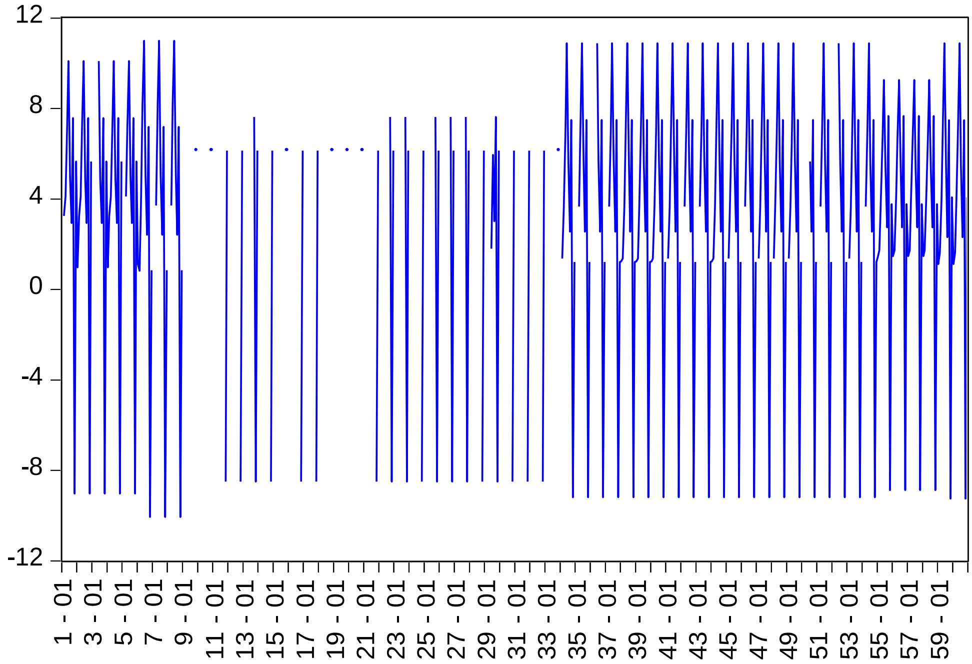
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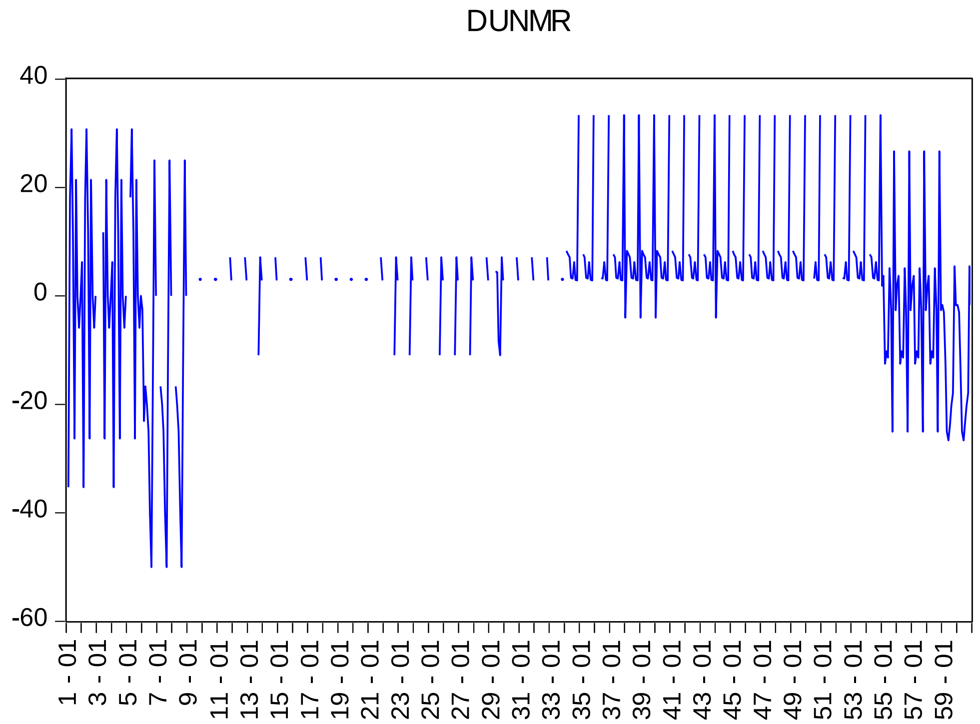
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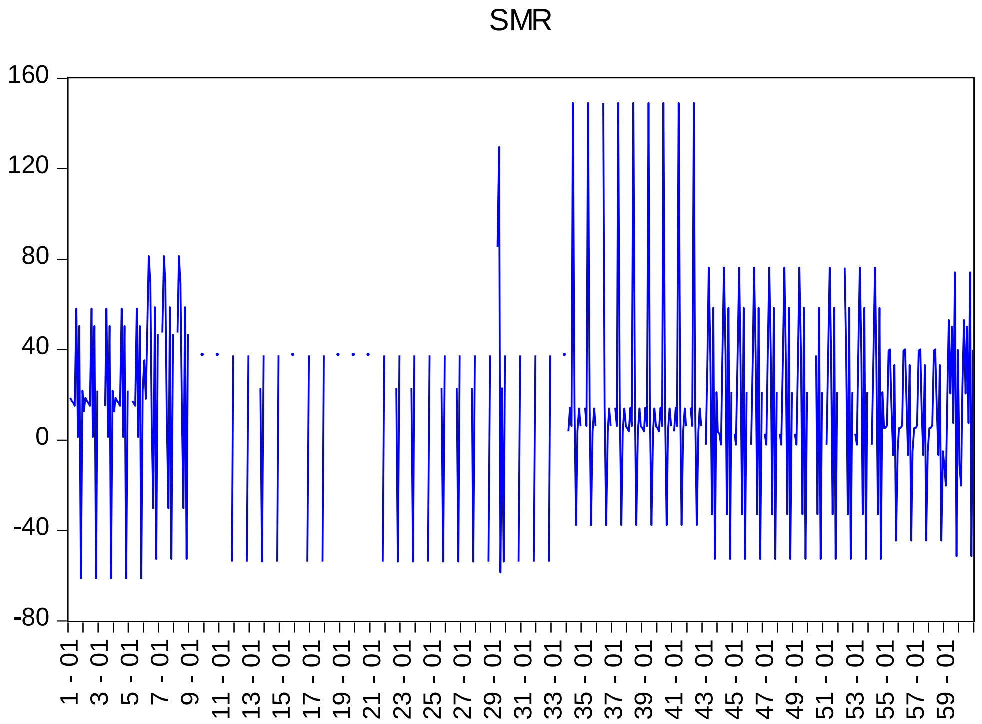
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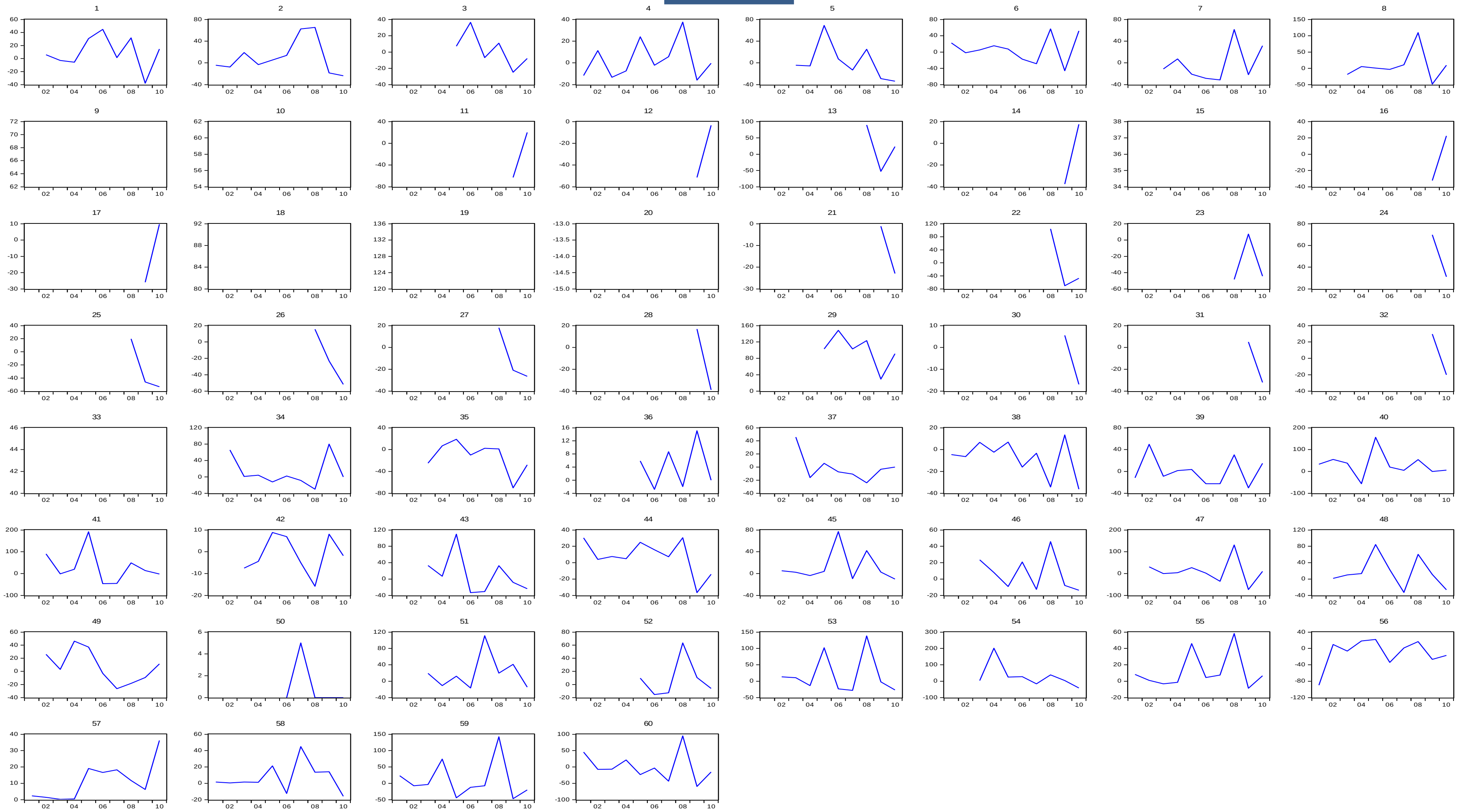
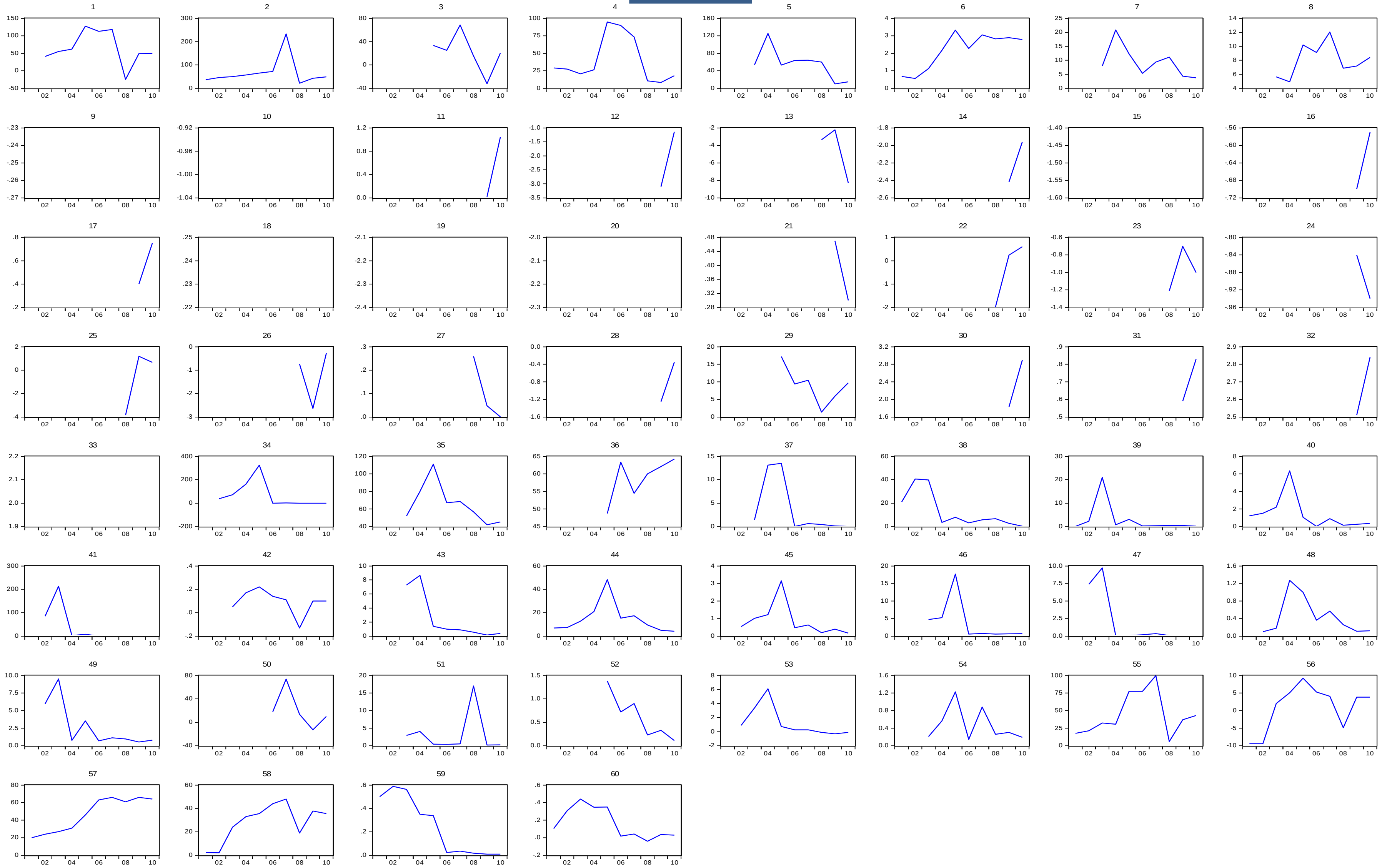
Appendix C (Summary Statistics of All Variables- Second Model by Cross Section)

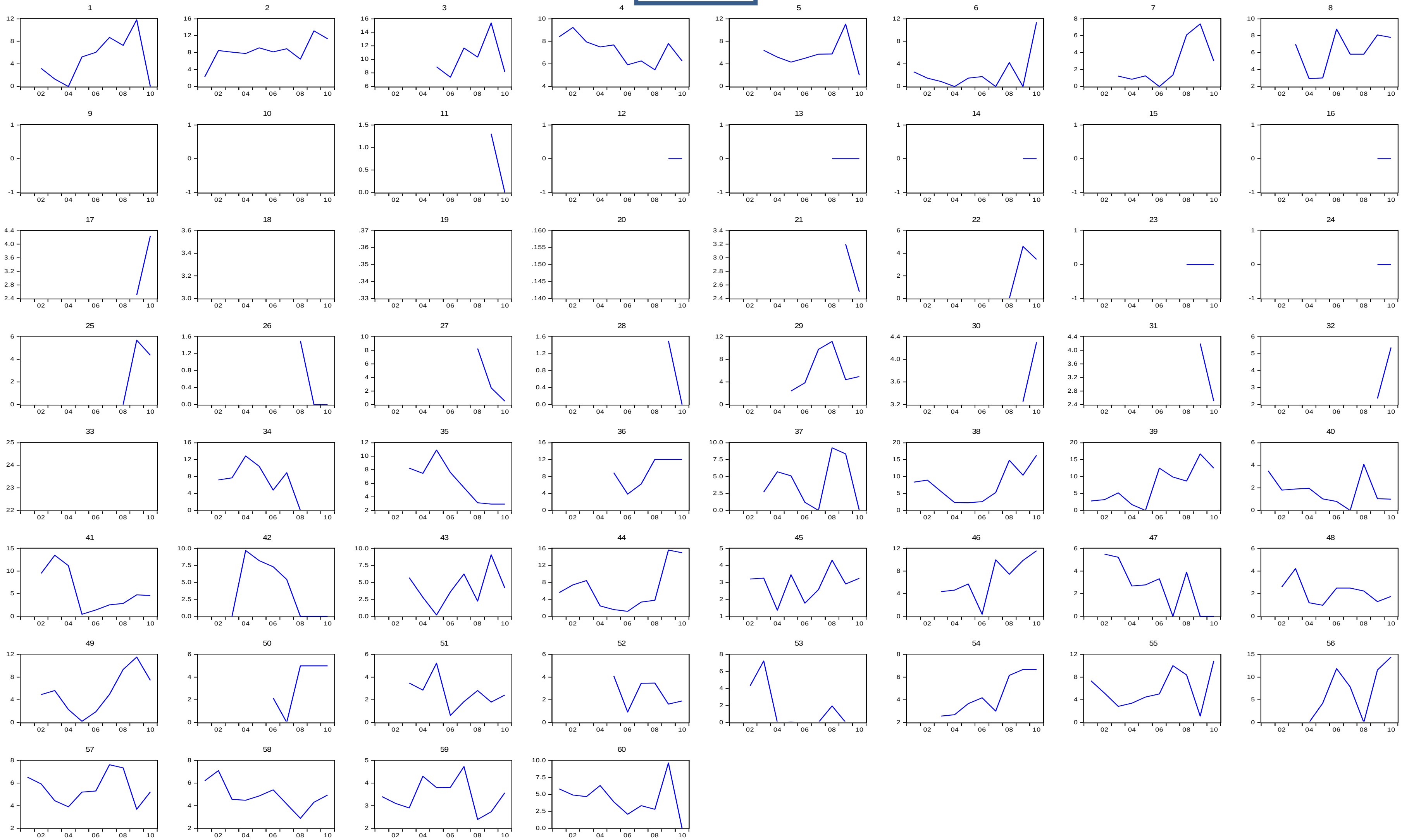
ICSR



EPS



DY



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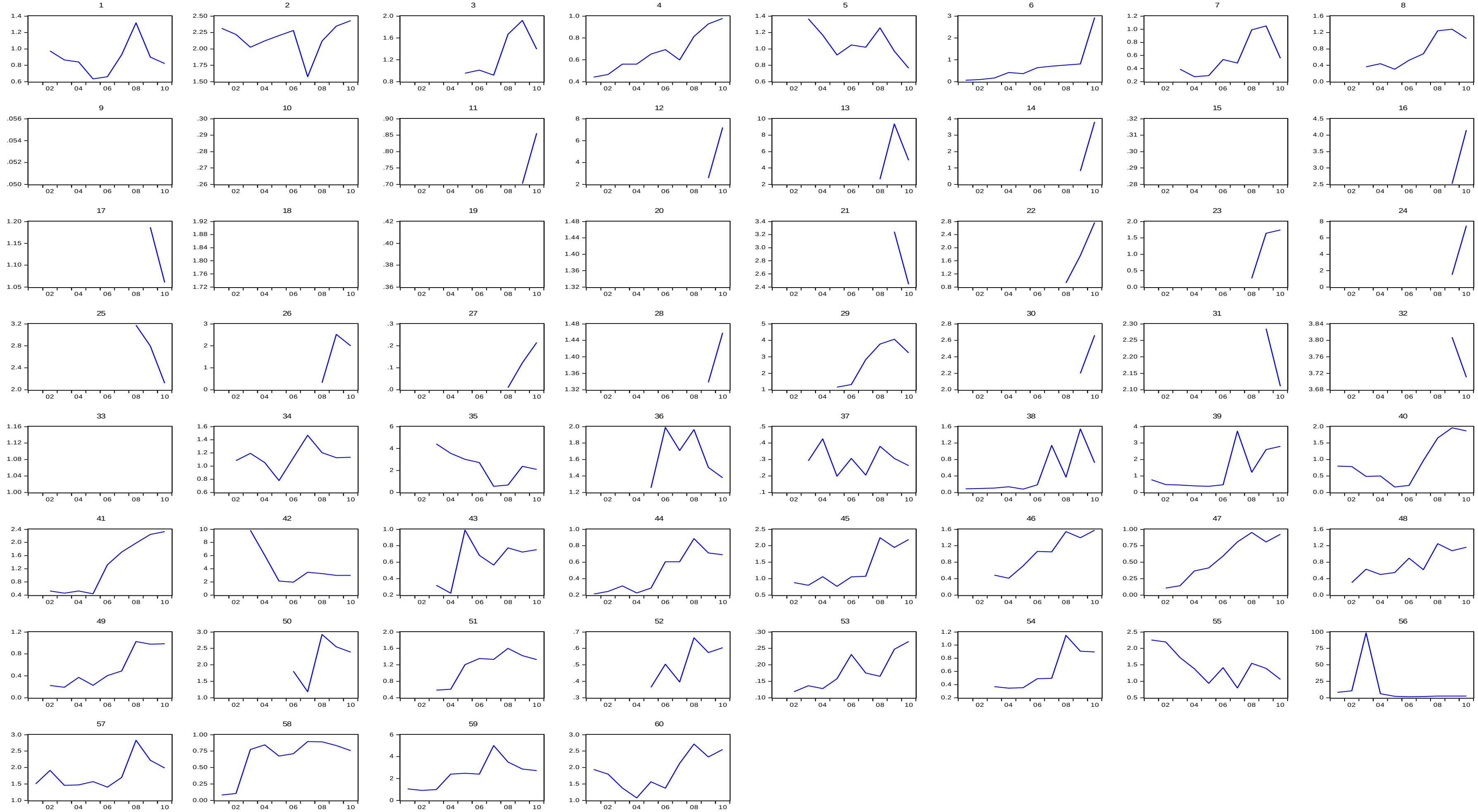

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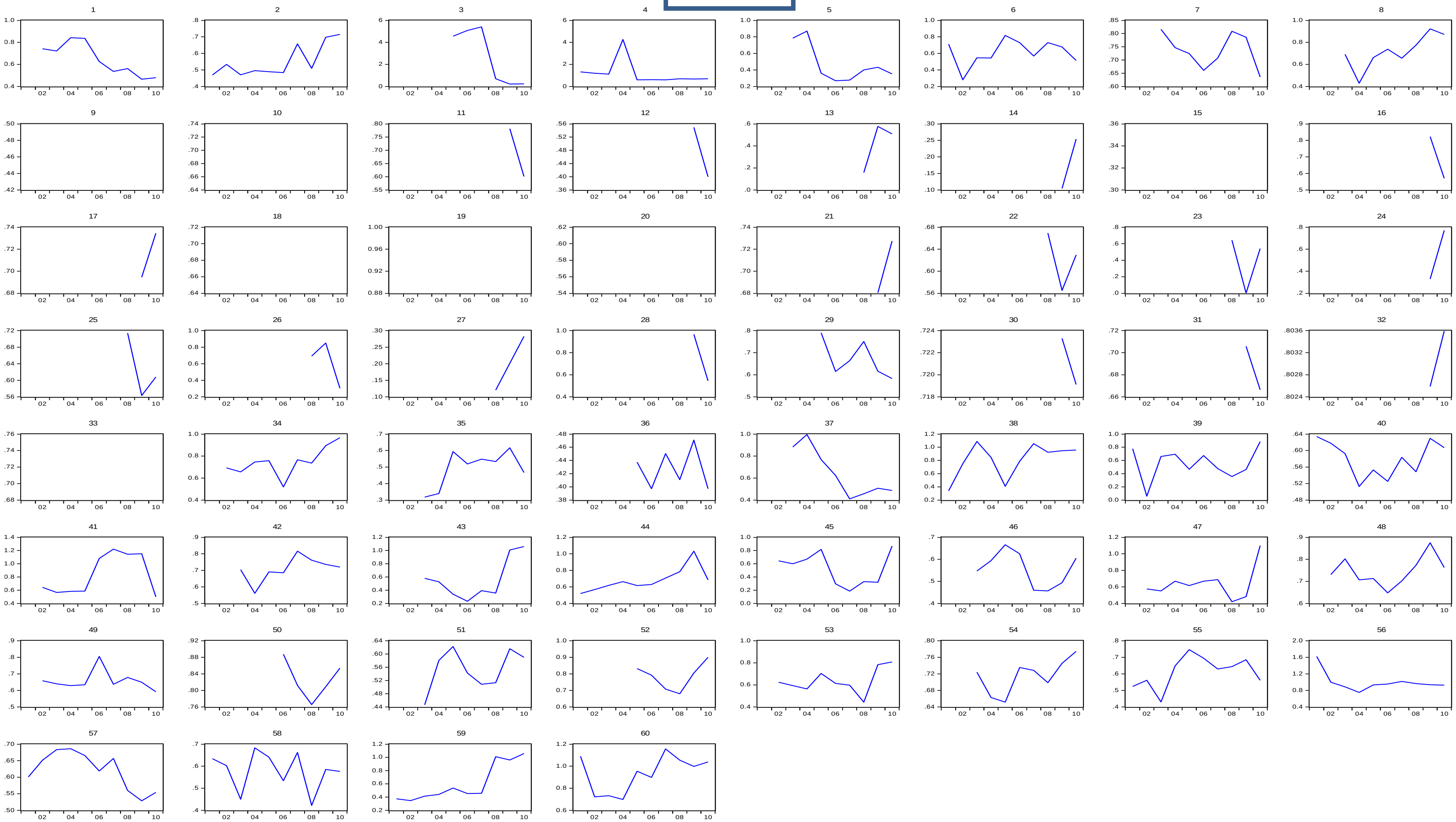

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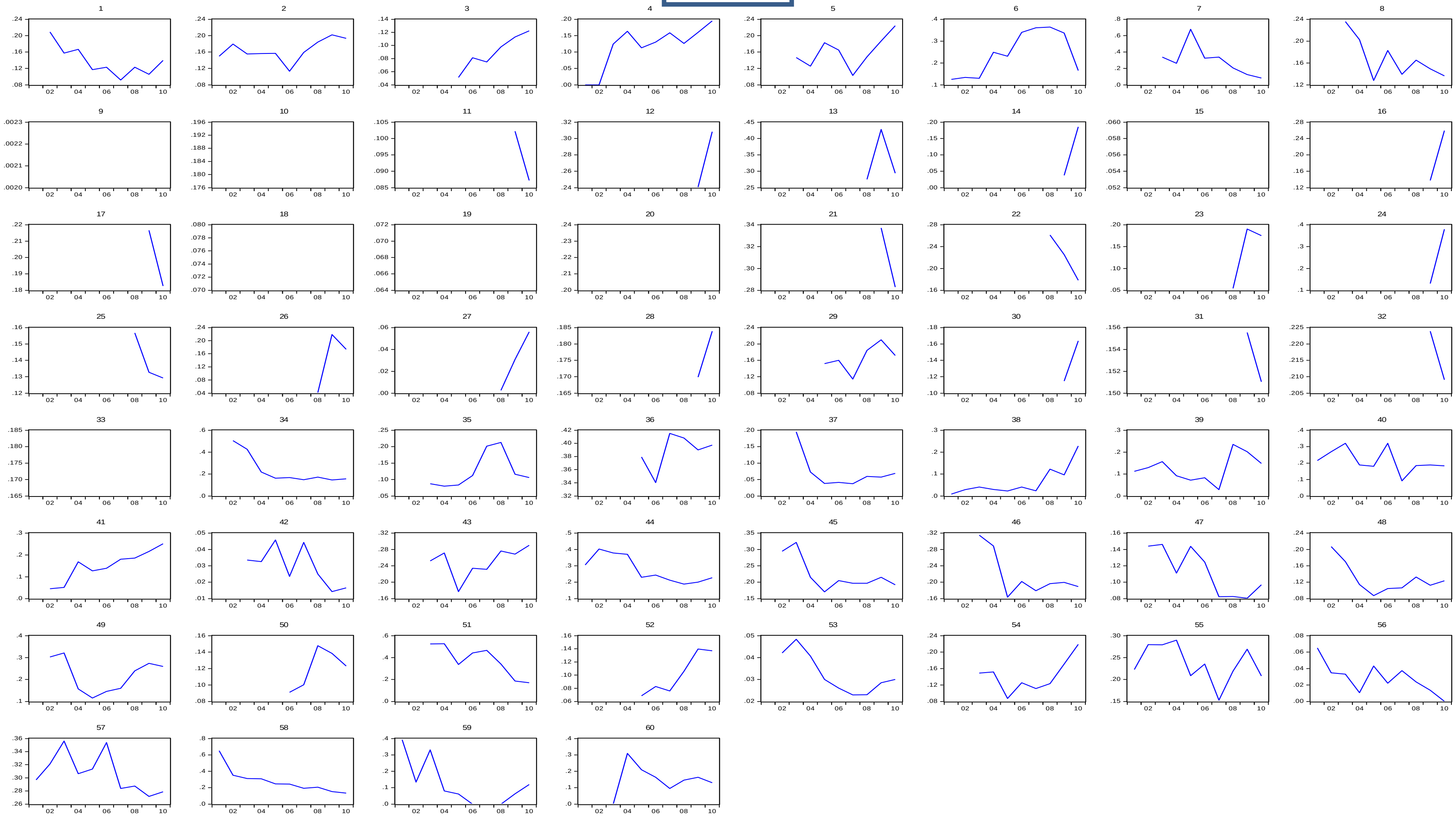

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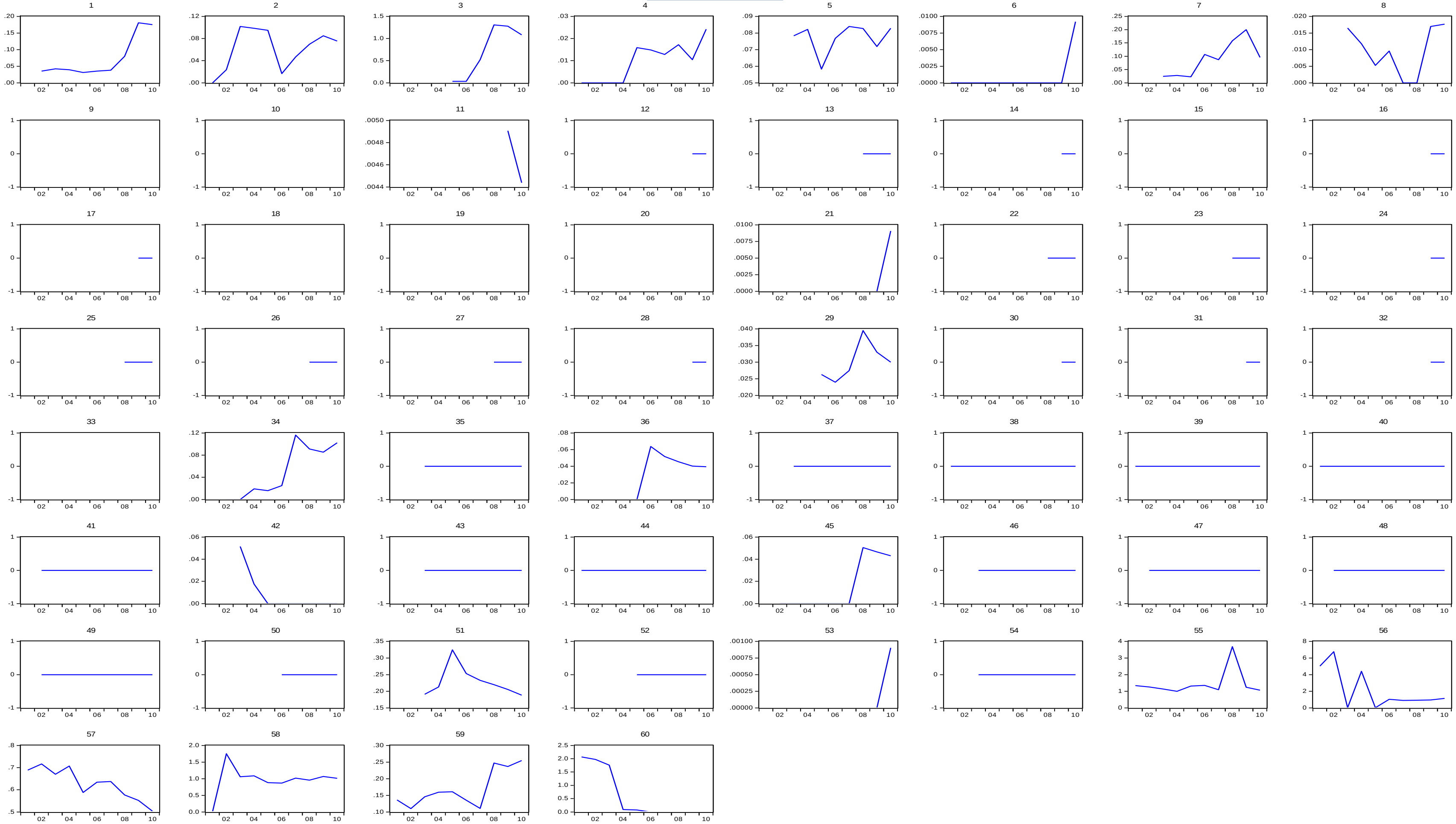

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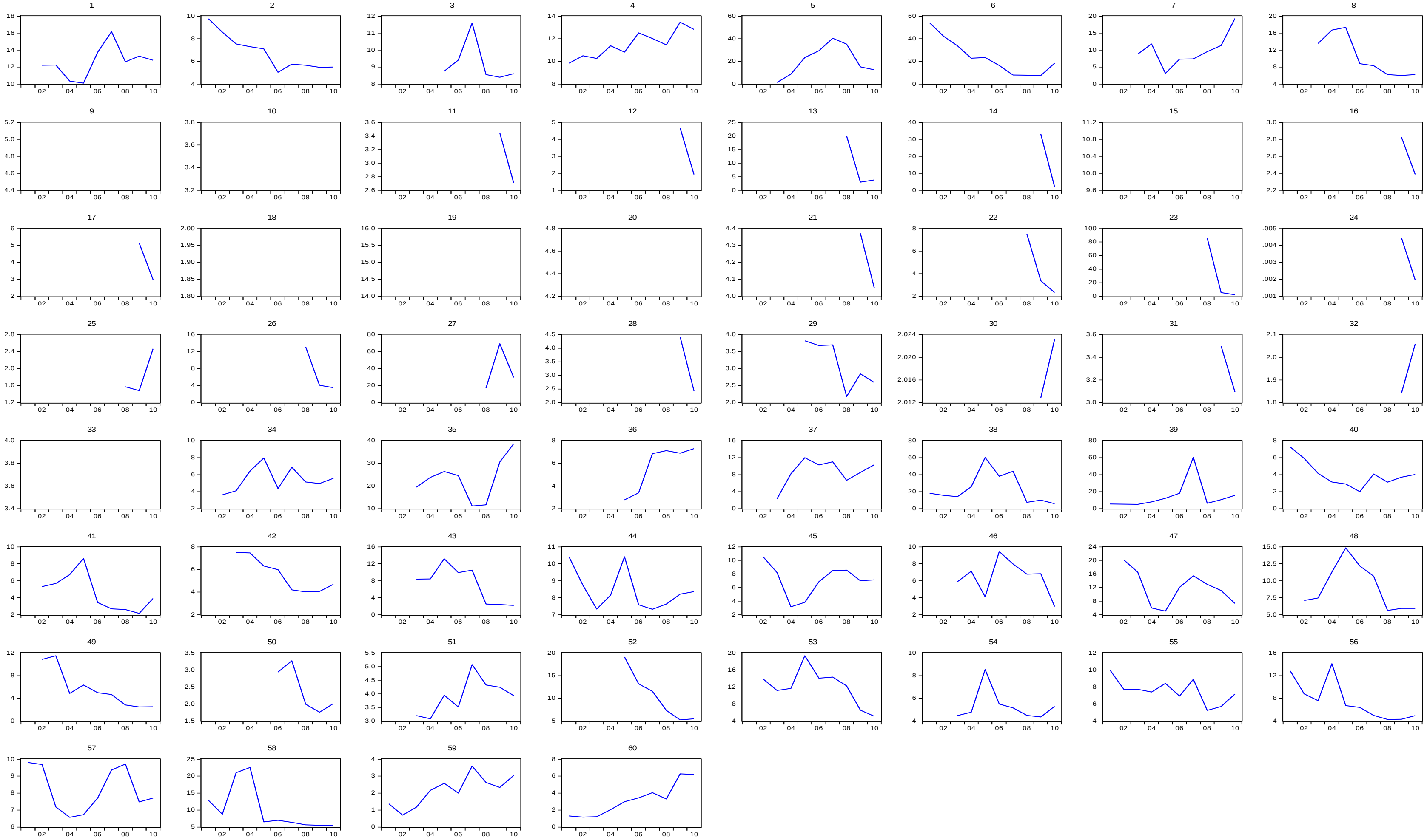
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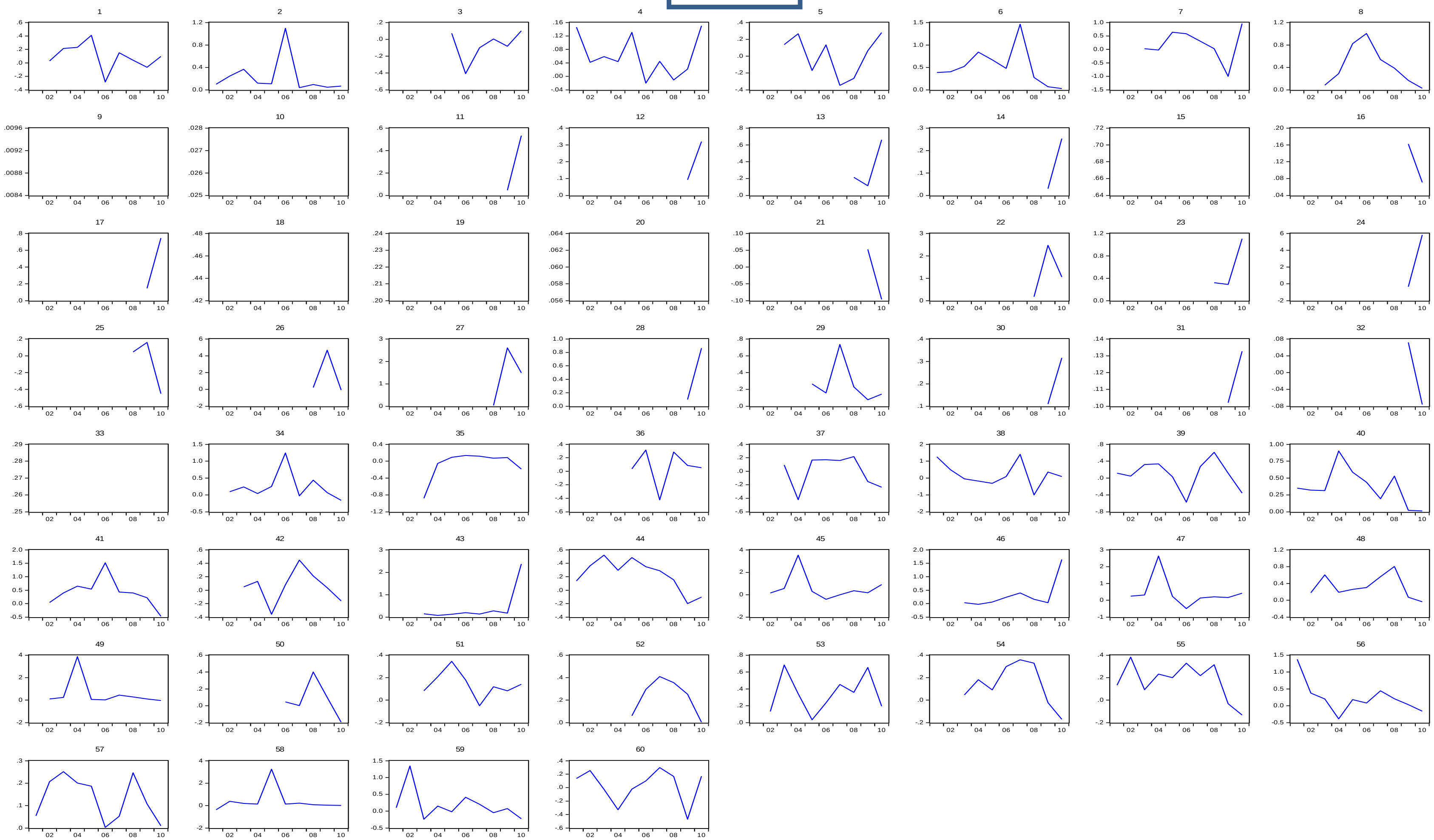
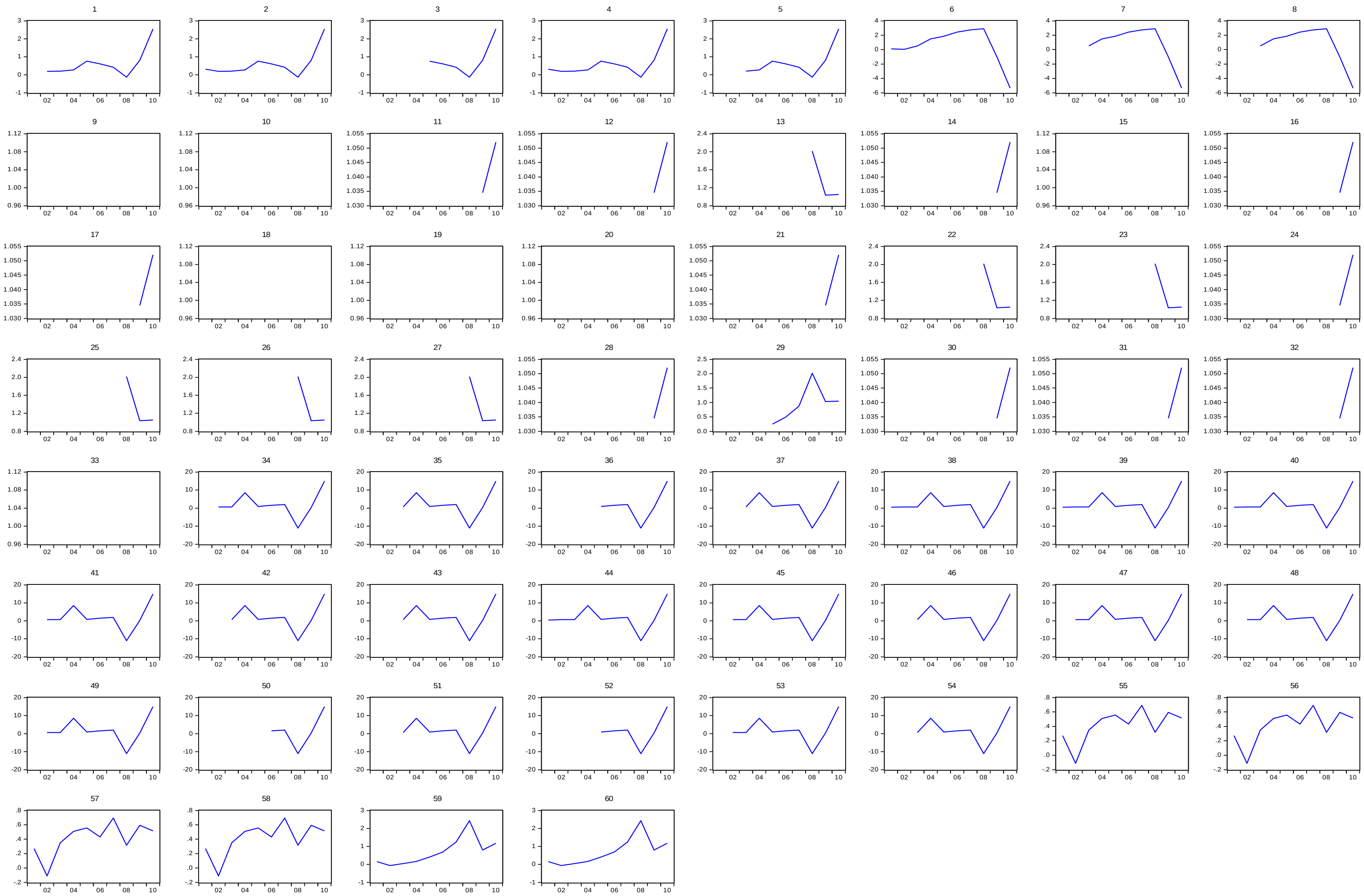
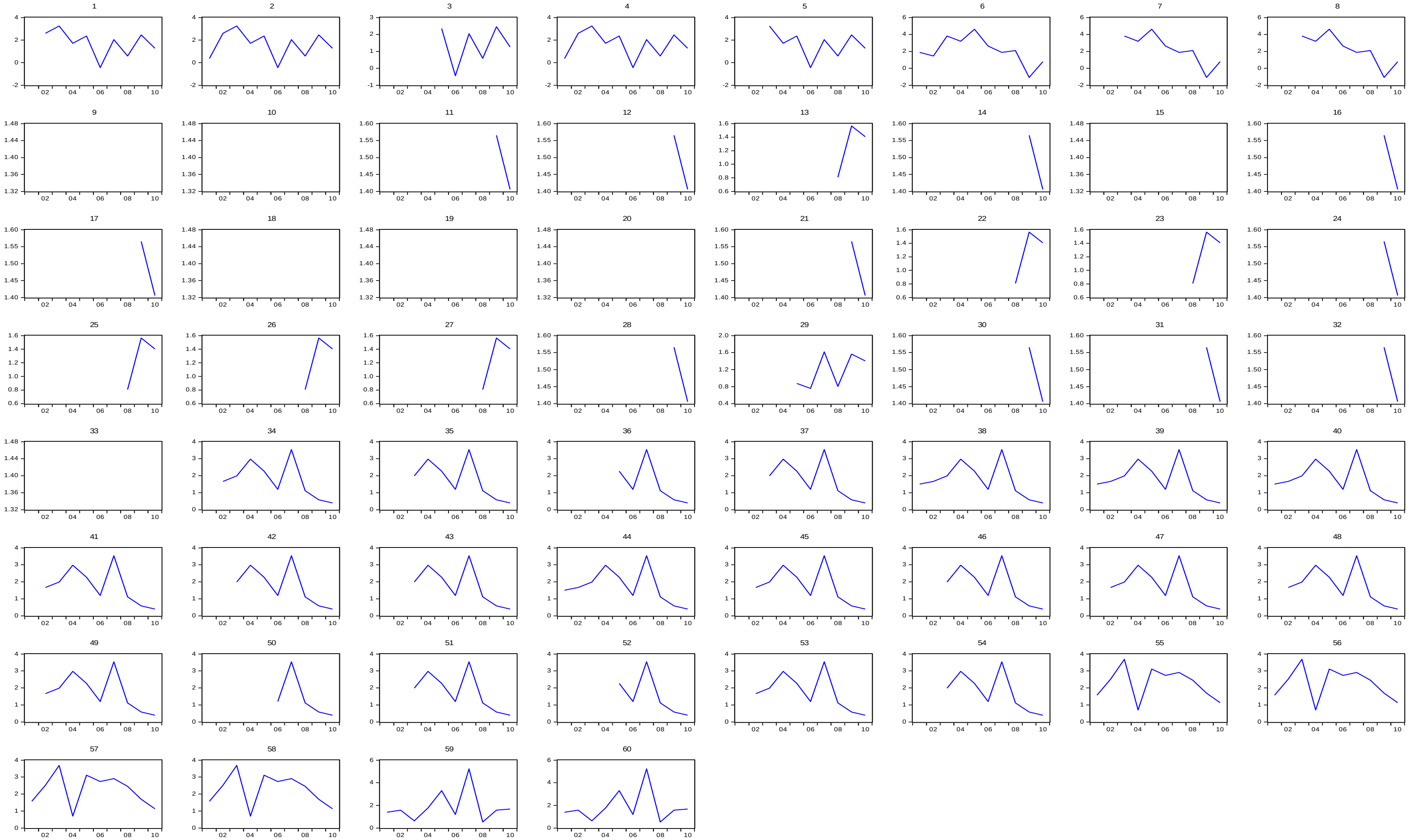
SUO



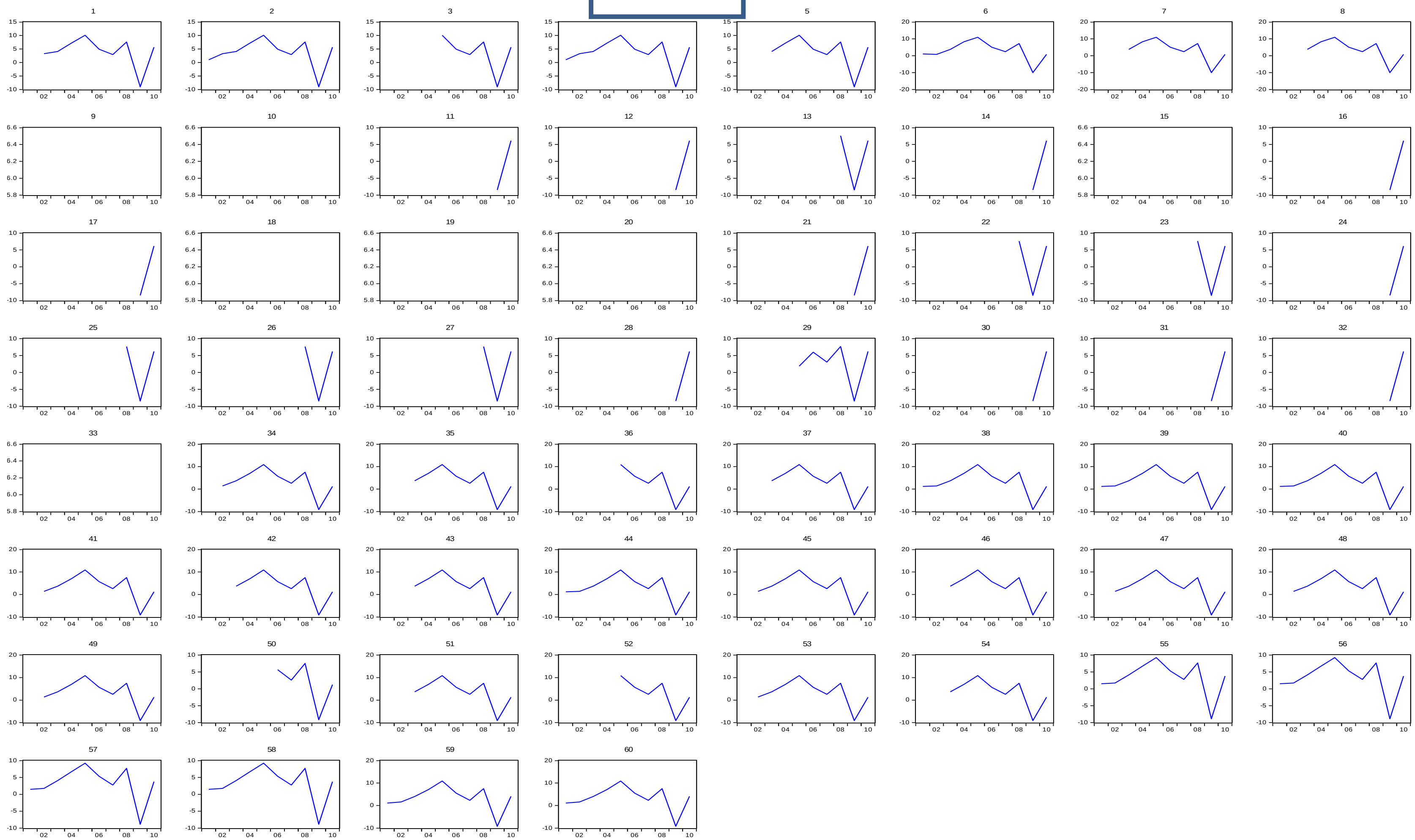
DLNCP



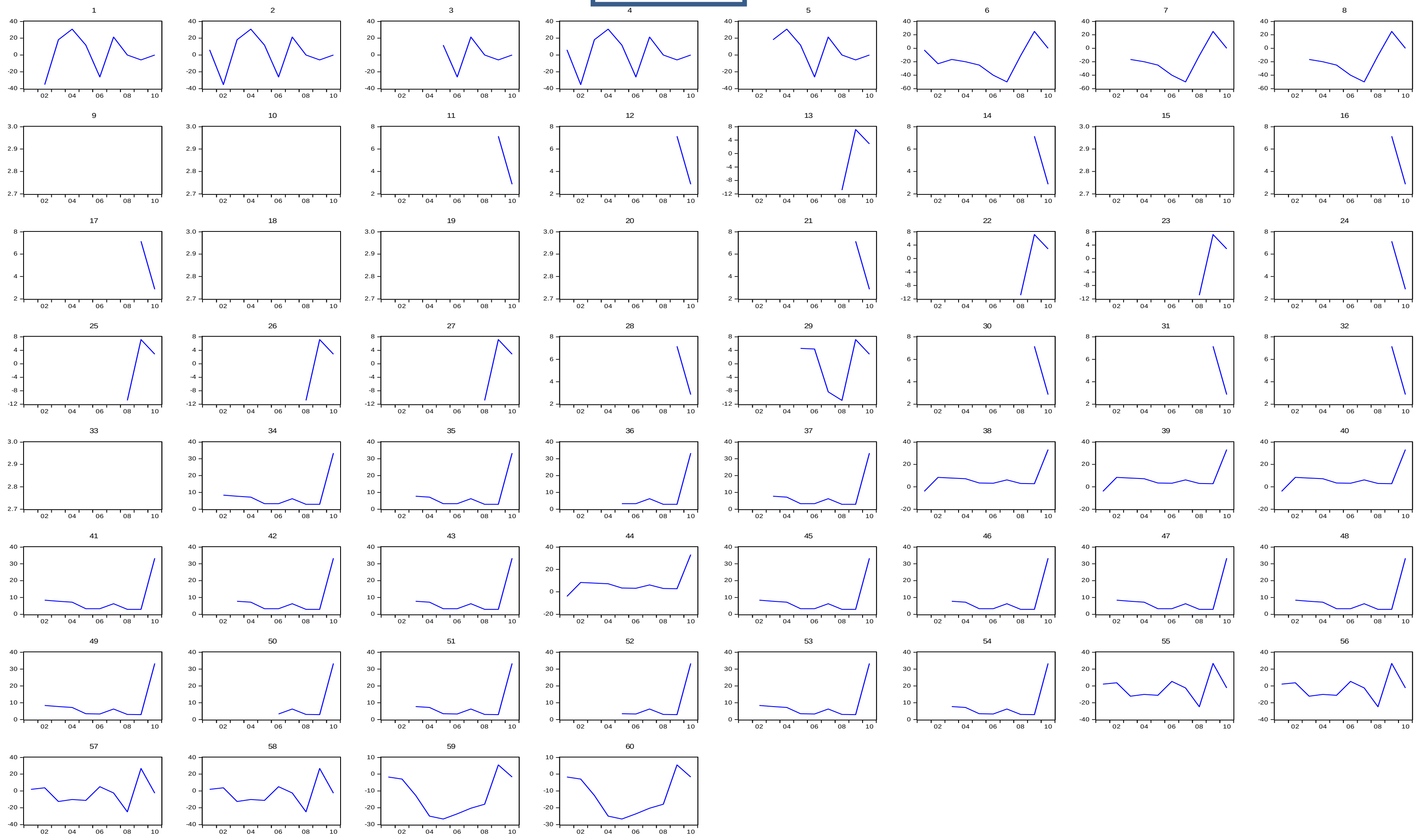
DLNMS



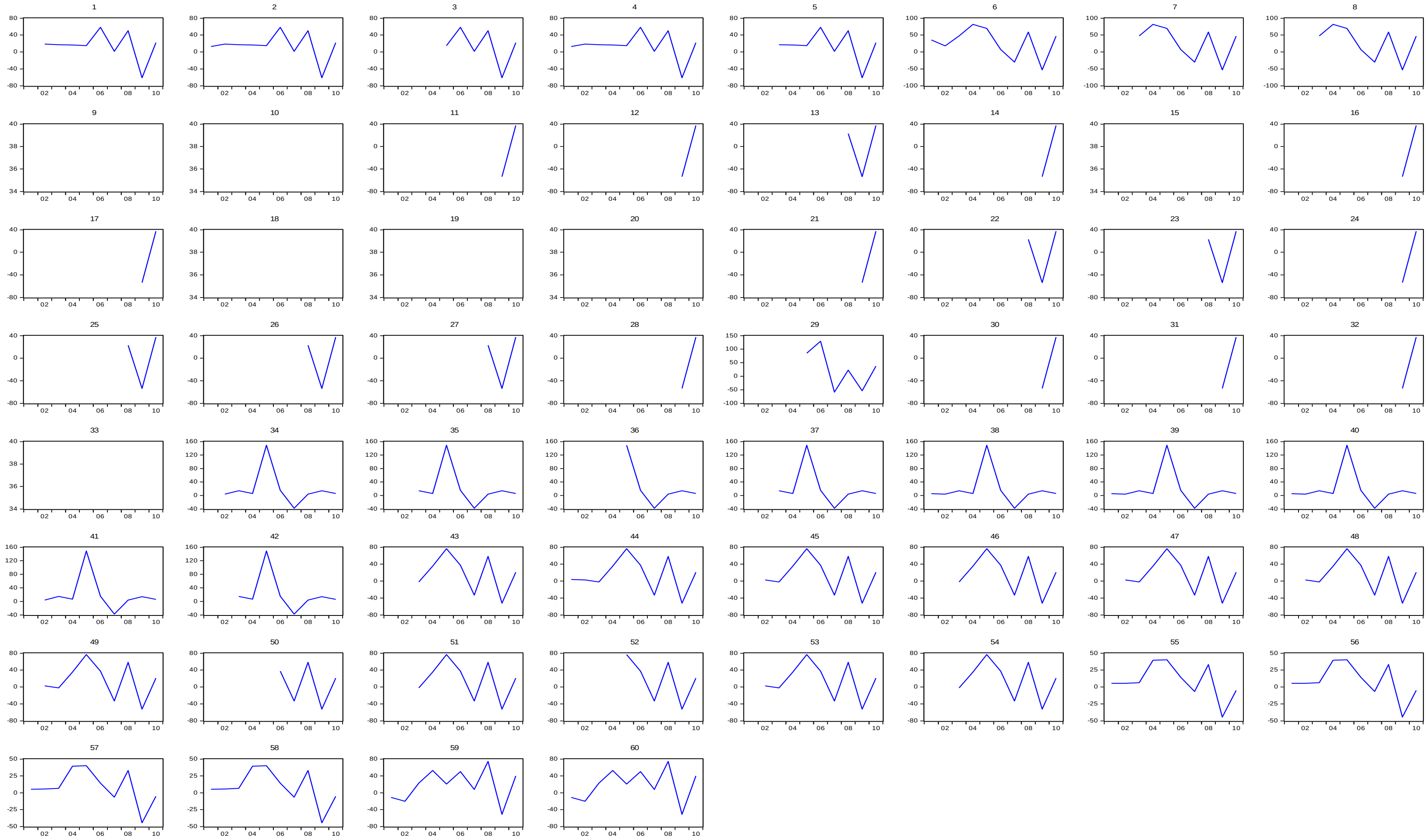
DLNOP



DUNMR



SMR



Appendix D (Pearson Correlation by Stock Market)-First Model

Kuwait stock market

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.002	.062	.033	-.019	.030	.177
	Sig. (2-tailed)		.983	.502	.719	.833	.742	.053
	N	120	120	120	120	120	120	120
DLNCPI	Pearson Correlation	-.002	1	-.023	-.032	-.107	-.051	.045
	Sig. (2-tailed)	.983		.802	.732	.245	.581	.629
	N	120	120	120	120	120	120	120
DINTR	Pearson Correlation	.062	-.023	1	-.205*	.056	-.010	-.015
	Sig. (2-tailed)	.502	.802		.025	.545	.910	.872
	N	120	120	120	120	120	120	120
DLNMS	Pearson Correlation	.033	-.032	-.205*	1	-.060	.046	.080
	Sig. (2-tailed)	.719	.732	.025		.512	.621	.388
	N	120	120	120	120	120	120	120
DLNOP	Pearson Correlation	-.019	-.107	.056	-.060	1	-.008	.176
	Sig. (2-tailed)	.833	.245	.545	.512		.935	.055
	N	120	120	120	120	120	120	120
DUNMR	Pearson Correlation	.030	-.051	-.010	.046	-.008	1	.117
	Sig. (2-tailed)	.742	.581	.910	.621	.935		.204
	N	120	120	120	120	120	120	120
SMR	Pearson Correlation	.177	.045	-.015	.080	.176	.117	1
	Sig. (2-tailed)	.053	.629	.872	.388	.055	.204	
	N	120	120	120	120	120	120	120

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

Muscat securities market

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	.160	-.224*	.014	.278**	-.143	.404**
	Sig. (2-tailed)		.080	.014	.881	.002	.119	.000
	N	120	120	120	120	120	120	120
DLNCPI	Pearson Correlation	.160	1	.069	.134	-.157	-.022	.017
	Sig. (2-tailed)	.080		.451	.144	.086	.812	.855
	N	120	120	120	120	120	120	120
DINTR	Pearson Correlation	-.224*	.069	1	.086	-.095	.012	-.206*
	Sig. (2-tailed)	.014	.451		.351	.303	.893	.024
	N	120	120	120	120	120	120	120
DLNMS	Pearson Correlation	.014	.134	.086	1	-.148	-.202*	-.051
	Sig. (2-tailed)	.881	.144	.351		.107	.027	.583
	N	120	120	120	120	120	120	120
DLNOP	Pearson Correlation	.278**	-.157	-.095	-.148	1	.033	.289**
	Sig. (2-tailed)	.002	.086	.303	.107		.720	.001
	N	120	120	120	120	120	120	120
DUNMR	Pearson Correlation	-.143	-.022	.012	-.202*	.033	1	-.114
	Sig. (2-tailed)	.119	.812	.893	.027	.720		.215
	N	120	120	120	120	120	120	120
SMR	Pearson Correlation	.404**	.017	-.206*	-.051	.289**	-.114	1
	Sig. (2-tailed)	.000	.855	.024	.583	.001	.215	
	N	120	120	120	120	120	120	120

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

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

Bahrain stock exchange

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.038	-.049	.110	.124	-.266**	.195
	Sig. (2-tailed)		.713	.638	.290	.232	.009	.058
	N	95	95	95	95	95	95	95
DLNCPI	Pearson Correlation	-.038	1	-.038	.041	.132	.024	.264**
	Sig. (2-tailed)	.713		.712	.694	.203	.817	.010
	N	95	95	95	95	95	95	95
DINTR	Pearson Correlation	-.049	-.038	1	-.221*	-.061	-.005	.033
	Sig. (2-tailed)	.638	.712		.032	.554	.963	.750
	N	95	95	95	95	95	95	95
DLNMS	Pearson Correlation	.110	.041	-.221*	1	-.060	-.082	.040
	Sig. (2-tailed)	.290	.694	.032		.563	.431	.704
	N	95	95	95	95	95	95	95
DLNOP	Pearson Correlation	.124	.132	-.061	-.060	1	.294**	.399**
	Sig. (2-tailed)	.232	.203	.554	.563		.004	.000
	N	95	95	95	95	95	95	95
DUNMR	Pearson Correlation	-.266**	.024	-.005	-.082	.294**	1	-.036
	Sig. (2-tailed)	.009	.817	.963	.431	.004		.728
	N	95	95	95	95	95	95	95
SMR	Pearson Correlation	.195	.264**	.033	.040	.399**	-.036	1
	Sig. (2-tailed)	.058	.010	.750	.704	.000	.728	
	N	95	95	95	95	95	95	95

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

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

Saudi Stock Market (Tadawul)

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.092	.324*	-.141	.434**	.260	.450**
	Sig. (2-tailed)		.554	.032	.360	.003	.088	.002
	N	44	44	44	44	44	44	44
DLNCPI	Pearson Correlation	-.092	1	-.333*	.133	-.131	-.429**	-.062
	Sig. (2-tailed)	.554		.027	.391	.398	.004	.687
	N	44	44	44	44	44	44	44
DINTR	Pearson Correlation	.324*	-.333*	1	-.235	.292	.832**	.306*
	Sig. (2-tailed)	.032	.027		.124	.054	.000	.044
	N	44	44	44	44	44	44	44
DLNMS	Pearson Correlation	-.141	.133	-.235	1	-.109	-.287	-.137
	Sig. (2-tailed)	.360	.391	.124		.480	.059	.374
	N	44	44	44	44	44	44	44
DLNOP	Pearson Correlation	.434**	-.131	.292	-.109	1	.256	.504**
	Sig. (2-tailed)	.003	.398	.054	.480		.093	.000
	N	44	44	44	44	44	44	44
DUNMR	Pearson Correlation	.260	-.429**	.832**	-.287	.256	1	.237
	Sig. (2-tailed)	.088	.004	.000	.059	.093		.121
	N	44	44	44	44	44	44	44
SMR	Pearson Correlation	.450**	-.062	.306*	-.137	.504**	.237	1
	Sig. (2-tailed)	.002	.687	.044	.374	.000	.121	
	N	44	44	44	44	44	44	44

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

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

Qatar Exchange

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.104	.027	-.010	.304**	.026	.207*
	Sig. (2-tailed)		.315	.792	.924	.003	.803	.043
	N	96	96	96	96	96	96	96
DLNCPI	Pearson Correlation	-.104	1	-.146	.044	.124	-.335**	.309**
	Sig. (2-tailed)	.315		.155	.673	.228	.001	.002
	N	96	96	96	96	96	96	96
DINTR	Pearson Correlation	.027	-.146	1	.071	.043	.026	.055
	Sig. (2-tailed)	.792	.155		.491	.680	.802	.596
	N	96	96	96	96	96	96	96
DLNMS	Pearson Correlation	-.010	.044	.071	1	.019	-.097	.082
	Sig. (2-tailed)	.924	.673	.491		.854	.347	.426
	N	96	96	96	96	96	96	96
DLNOP	Pearson Correlation	.304**	.124	.043	.019	1	.004	.151
	Sig. (2-tailed)	.003	.228	.680	.854		.966	.141
	N	96	96	96	96	96	96	96
DUNMR	Pearson Correlation	.026	-.335**	.026	-.097	.004	1	.026
	Sig. (2-tailed)	.803	.001	.802	.347	.966		.803
	N	96	96	96	96	96	96	96
SMR	Pearson Correlation	.207*	.309**	.055	.082	.151	.026	1
	Sig. (2-tailed)	.043	.002	.596	.426	.141	.803	
	N	96	96	96	96	96	96	96

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

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

Abu Dhabi Securities Exchange

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.260*	-.064	.211	.241*	-.083	.132
	Sig. (2-tailed)		.022	.581	.065	.035	.474	.252
	N	77	77	77	77	77	77	77
DLNCPI	Pearson Correlation	-.260*	1	.029	-.152	-.023	.253*	.035
	Sig. (2-tailed)	.022		.801	.187	.840	.027	.761
	N	77	77	77	77	77	77	77
DINTR	Pearson Correlation	-.064	.029	1	.066	-.041	-.118	.031
	Sig. (2-tailed)	.581	.801		.571	.723	.307	.786
	N	77	77	77	77	77	77	77
DLNMS	Pearson Correlation	.211	-.152	.066	1	.129	-.205	.235*
	Sig. (2-tailed)	.065	.187	.571		.265	.074	.040
	N	77	77	77	77	77	77	77
DLNOP	Pearson Correlation	.241*	-.023	-.041	.129	1	-.022	.262*
	Sig. (2-tailed)	.035	.840	.723	.265		.852	.022
	N	77	77	77	77	77	77	77
DUNMR	Pearson Correlation	-.083	.253*	-.118	-.205	-.022	1	.007
	Sig. (2-tailed)	.474	.027	.307	.074	.852		.955
	N	77	77	77	77	77	77	77
SMR	Pearson Correlation	.132	.035	.031	.235*	.262*	.007	1
	Sig. (2-tailed)	.252	.761	.786	.040	.022	.955	
	N	77	77	77	77	77	77	77

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

Dubai Financial Market

Correlations

		ISR	DLNCPI	DINTR	DLNMS	DLNOP	DUNMR	SMR
ISR	Pearson Correlation	1	-.101	.126	.153	.115	-.079	.290*
	Sig. (2-tailed)		.380	.273	.185	.320	.495	.011
	N	77	77	77	77	77	77	77
DLNCPI	Pearson Correlation	-.101	1	.029	-.152	-.023	.253*	.036
	Sig. (2-tailed)	.380		.801	.187	.840	.027	.754
	N	77	77	77	77	77	77	77
DINTR	Pearson Correlation	.126	.029	1	.066	-.041	-.118	.032
	Sig. (2-tailed)	.273	.801		.571	.723	.307	.781
	N	77	77	77	77	77	77	77
DLNMS	Pearson Correlation	.153	-.152	.066	1	.129	-.205	.137
	Sig. (2-tailed)	.185	.187	.571		.265	.074	.235
	N	77	77	77	77	77	77	77
DLNOP	Pearson Correlation	.115	-.023	-.041	.129	1	-.022	.352**
	Sig. (2-tailed)	.320	.840	.723	.265		.852	.002
	N	77	77	77	77	77	77	77
DUNMR	Pearson Correlation	-.079	.253*	-.118	-.205	-.022	1	-.021
	Sig. (2-tailed)	.495	.027	.307	.074	.852		.855
	N	77	77	77	77	77	77	77
SMR	Pearson Correlation	.290*	.036	.032	.137	.352**	-.021	1
	Sig. (2-tailed)	.011	.754	.781	.235	.002	.855	
	N	77	77	77	77	77	77	77

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

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

Appendix E: Panel Data Estimation (First Model with Oman)

Dependent Variable: ISR

Method: Panel Least Squares

Date: 03/26/14 Time: 19:23

Sample: 2001M01 2010M12

Cross-sections included: 7

Total panel (unbalanced) observations: 629

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.276426	0.330555	0.836248	0.4033
DLNCPI	-0.613366	0.262469	-2.336912	0.0198
DINTR	0.028605	0.045964	0.622346	0.5339
DLNMS	0.101628	0.861059	0.118027	0.9061
DLNOP	0.414672	0.117762	3.521279	0.0005
DUNMR	-0.179848	0.158925	-1.131654	0.2582
SMR	0.219673	0.037499	5.858046	0.0000

R-squared	0.099044	Mean dependent var	0.657963
Adjusted R-squared	0.090353	S.D. dependent var	8.027897
S.E. of regression	7.656641	Akaike info criterion	6.920090
Sum squared resid	36464.22	Schwarz criterion	6.969548
Log likelihood	-2169.368	F-statistic	11.39626
Durbin-Watson stat	1.995939	Prob(F-statistic)	0.000000

Dependent Variable: ISR
Method: Panel EGLS
Date: 03/26/14 Time: 19:28
Sample: 2001M01 2010M12
Cross-sections included: 7
Total panel (unbalanced) observations: 629
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.275370	0.145367	1.894306	0.0586
DLNCPI	-0.517615	0.095025	-5.447120	0.0000
DINTR	0.013787	0.027753	0.496772	0.6195
DLNMS	0.887752	0.197095	4.504173	0.0000
DLNOP	0.324196	0.061941	5.233927	0.0000
DUNMR	-0.119015	0.075323	-1.580072	0.1146
SMR	0.189942	0.033753	5.627452	0.0000

Weighted Statistics

R-squared	0.211752	Mean dependent var	0.940517
Adjusted R-squared	0.204148	S.D. dependent var	8.504983
S.E. of regression	7.587339	Sum squared resid	35807.12
F-statistic	27.84863	Durbin-Watson stat	2.013806
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.095103	Mean dependent var	0.657963
Sum squared resid	36623.72	Durbin-Watson stat	1.952526

Dependent Variable: ISR
Method: Panel Least Squares
Date: 03/24/14 Time: 17:43
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 7
Total panel (unbalanced) observations: 629
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.301958	0.081283	3.714894	0.0002
DLNCPI	-0.605709	0.135349	-4.475155	0.0000
DINTR	0.027149	0.017122	1.585609	0.1133
DLNMS	0.102320	0.460279	0.222301	0.8242
DLNOP	0.413832	0.194652	2.126006	0.0339
DUNMR	-0.098195	0.135065	-0.727022	0.4675
SMR	0.216416	0.041242	5.247434	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.102923	Mean dependent var	0.657963
Adjusted R-squared	0.085447	S.D. dependent var	8.027897
S.E. of regression	7.677259	Akaike info criterion	6.934853
Sum squared resid	36307.23	Schwarz criterion	7.026703
Log likelihood	-2168.011	Hannan-Quinn criter.	6.970533
F-statistic	5.889541	Durbin-Watson stat	1.998359
Prob(F-statistic)	0.000000		

Dependent Variable: ISR
Method: Panel EGLS (Cross-section weights)
Date: 03/24/14 Time: 17:48
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 7
Total panel (unbalanced) observations: 629
Linear estimation after one-step weighting matrix
White period standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.276994	0.116864	2.370218	0.0181
DLNCPI	-0.534571	0.064098	-8.339951	0.0000
DINTR	0.013638	0.013683	0.996683	0.3193
DLNMS	0.798585	0.562359	1.420062	0.1561
DLNOP	0.244106	0.122286	1.996183	0.0464
DUNMR	-0.187888	0.182314	-1.030574	0.3031
SMR	0.179515	0.045819	3.917934	0.0001

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.089345	Mean dependent var	0.777603
Adjusted R-squared	0.071605	S.D. dependent var	7.919647
S.E. of regression	7.629419	Sum squared resid	35856.15
F-statistic	5.036355	Durbin-Watson stat	2.005899
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.095361	Mean dependent var	0.657963
Sum squared resid	36613.29	Durbin-Watson stat	1.937780

Dependent Variable: ISR
Method: Panel EGLS (Cross-section random effects)
Date: 03/24/14 Time: 17:37
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 7
Total panel (unbalanced) observations: 629
Swamy and Arora estimator of component variances
White period standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.276426	0.239998	1.151785	0.2499
DLNCPI	-0.613366	0.140526	-4.364797	0.0000
DINTR	0.028605	0.016638	1.719289	0.0861
DLNMS	0.101628	0.424214	0.239569	0.8107
DLNOP	0.414672	0.193334	2.144846	0.0324
DUNMR	-0.179848	0.125601	-1.431894	0.1527
SMR	0.219673	0.040603	5.410297	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	3.78E-07	0.0000
Idiosyncratic random	7.677259	1.0000

Weighted Statistics

R-squared	0.099044	Mean dependent var	0.657963
Adjusted R-squared	0.090353	S.D. dependent var	8.027897
S.E. of regression	7.656641	Sum squared resid	36464.22
F-statistic	11.39626	Durbin-Watson stat	1.995939
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.099044	Mean dependent var	0.657963
Sum squared resid	36464.22	Durbin-Watson stat	1.995939

Appendix F: Panel Data Estimation (First Model without Oman)

Dependent Variable: ISR

Method: Panel Least Squares

Date: 03/26/14   Time: 19:25

Sample: 2001M01 2010M12

Cross-sections included: 6

Total panel (unbalanced) observations: 509

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.305171	0.386192	0.790205	0.4298
DLNCPI	-0.642526	0.280287	-2.292387	0.0223
DINTR	0.032819	0.049106	0.668338	0.5042
DLNMS	0.044893	0.947603	0.047376	0.9622
DLNOP	0.417450	0.138234	3.019880	0.0027
DUNMR	-0.151437	0.179367	-0.844286	0.3989
SMR	0.209749	0.042381	4.949112	0.0000

R-squared	0.090821	Mean dependent var	0.618407
Adjusted R-squared	0.079955	S.D. dependent var	8.500599
S.E. of regression	8.153688	Akaike info criterion	7.048475
Sum squared resid	33374.28	Schwarz criterion	7.106681
Log likelihood	-1786.837	F-statistic	8.357790
Durbin-Watson stat	1.957121	Prob(F-statistic)	0.000000

Dependent Variable: ISR

Method: Panel EGLS

Date: 03/26/14 Time: 19:27

Sample: 2001M01 2010M12

Cross-sections included: 6

Total panel (unbalanced) observations: 509

Linear estimation after one-step weighting matrix

White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.158918	0.192527	0.825429	0.4095
DLNCPI	-0.505148	0.090705	-5.569099	0.0000
DINTR	-0.007254	0.026280	-0.276011	0.7827
DLNMS	0.757205	0.260933	2.901915	0.0039
DLNOP	0.330747	0.066024	5.009499	0.0000
DUNMR	-0.130884	0.034166	-3.830845	0.0001
SMR	0.209148	0.028707	7.285538	0.0000

Weighted Statistics

R-squared	0.193080	Mean dependent var	0.960578
Adjusted R-squared	0.183435	S.D. dependent var	9.645840
S.E. of regression	8.085084	Sum squared resid	32815.03
F-statistic	20.01974	Durbin-Watson stat	2.031944
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.087238	Mean dependent var	0.618407
Sum squared resid	33505.83	Durbin-Watson stat	1.948240

Dependent Variable: ISR
Method: Panel Least Squares
Date: 03/24/14 Time: 17:49
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 6
Total panel (unbalanced) observations: 509
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.316525	0.066055	4.791831	0.0000
DLNCPI	-0.634658	0.139973	-4.534152	0.0000
DINTR	0.031419	0.017653	1.779824	0.0757
DLNMS	0.043151	0.477657	0.090338	0.9281
DLNOP	0.416373	0.239474	1.738696	0.0827
DUNMR	-0.051336	0.130714	-0.392736	0.6947
SMR	0.205578	0.043806	4.692955	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.095521	Mean dependent var	0.618407
Adjusted R-squared	0.075502	S.D. dependent var	8.500599
S.E. of regression	8.173395	Akaike info criterion	7.062939
Sum squared resid	33201.78	Schwarz criterion	7.162722
Log likelihood	-1785.518	Hannan-Quinn criter.	7.102064
F-statistic	4.771582	Durbin-Watson stat	1.959532
Prob(F-statistic)	0.000001		

Dependent Variable: ISR
Method: Panel EGLS (Cross-section weights)
Date: 03/24/14 Time: 17:50
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 6
Total panel (unbalanced) observations: 509
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.329971	0.090927	3.628975	0.0003
DLNCPI	-0.575428	0.053921	-10.67158	0.0000
DINTR	0.019763	0.009878	2.000622	0.0460
DLNMS	0.863659	0.718915	1.201337	0.2302
DLNOP	0.190952	0.138330	1.380409	0.1681
DUNMR	-0.124281	0.172627	-0.719941	0.4719
SMR	0.148235	0.041122	3.604798	0.0003

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.071580	Mean dependent var	0.712564
Adjusted R-squared	0.051031	S.D. dependent var	8.301568
S.E. of regression	8.087025	Sum squared resid	32503.79
F-statistic	3.483461	Durbin-Watson stat	1.927439
Prob(F-statistic)	0.000105		

Unweighted Statistics

R-squared	0.082834	Mean dependent var	0.618407
Sum squared resid	33667.50	Durbin-Watson stat	1.874293

Dependent Variable: ISR
Method: Panel EGLS (Period random effects)
Date: 03/24/14 Time: 17:51
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 6
Total panel (unbalanced) observations: 509
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (no d.f. correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.405170	0.454952	0.890578	0.3736
DLNCPI	-0.584289	0.192471	-3.035732	0.0025
DINTR	0.034041	0.027070	1.257516	0.2092
DLNMS	-0.211132	0.994493	-0.212301	0.8320
DLNOP	0.394601	0.151164	2.610413	0.0093
DUNMR	-0.177105	0.163888	-1.080649	0.2804
SMR	0.205398	0.060283	3.407241	0.0007

Effects Specification

	S.D.	Rho
Period random	2.383347	0.0852
Idiosyncratic random	7.809064	0.9148

Weighted Statistics

R-squared	0.074612	Mean dependent var	0.542332
Adjusted R-squared	0.063551	S.D. dependent var	8.037972
S.E. of regression	7.776046	Sum squared resid	30354.38
F-statistic	6.745826	Durbin-Watson stat	1.939355
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	0.090423	Mean dependent var	0.618407
Sum squared resid	33388.91	Durbin-Watson stat	1.950645

Appendix G: White Heteroskedasticity Test-panel A (All GCC stock markets)

White Heteroskedasticity Test:

F-statistic	1.564129	Probability	0.035589
Obs*R-squared	41.29711	Probability	0.038555

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/09/14 Time: 03:01
Sample: 1 840
Included observations: 629
Excluded observations: 211

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-60.61157	159.0959	-0.380975	0.7034
DLNCPI	152.6593	186.7312	0.817535	0.4139
DLNCPI^2	6.927893	2.700405	2.565501	0.0105
DLNCPI*DINTR	-9.163715	24.66089	-0.371589	0.7103
DLNCPI*DLNMS	64.81889	132.0652	0.490810	0.6237
DLNCPI*DLNOP	-26.72351	13.74365	-1.944427	0.0523
DLNCPI*DUNMR	-84.49202	21.52239	-3.925772	0.0001
DLNCPI*SMR	-0.112846	1.783815	-0.063261	0.9496
DINTR	33.00148	44.69722	0.738334	0.4606
DINTR^2	-2.448479	3.134071	-0.781246	0.4350
DINTR*DLNMS	-14.65929	15.50150	-0.945669	0.3447
DINTR*DLNOP	0.707017	2.349567	0.300914	0.7636
DINTR*DUNMR	4.168104	3.770339	1.105498	0.2694
DINTR*SMR	-1.057001	0.812909	-1.300269	0.1940
DLNMS	89.06474	110.7679	0.804066	0.4217
DLNMS^2	-13.76780	13.48319	-1.021109	0.3076
DLNMS*DLNOP	-1.806362	7.832821	-0.230614	0.8177
DLNMS*DUNMR	-2.494447	10.02963	-0.248708	0.8037
DLNMS*SMR	1.397729	1.521947	0.918382	0.3588
DLNOP	-3.469504	17.69072	-0.196120	0.8446
DLNOP^2	0.211138	0.525008	0.402161	0.6877
DLNOP*DUNMR	0.591081	1.194896	0.494671	0.6210
DLNOP*SMR	0.162197	0.238400	0.680357	0.4965
DUNMR	-28.32710	28.24116	-1.003043	0.3162
DUNMR^2	-1.725578	0.803488	-2.147608	0.0321
DUNMR*SMR	0.494923	0.476939	1.037707	0.2998
SMR	8.472644	5.951352	1.423650	0.1551
SMR^2	0.058676	0.040543	1.447247	0.1483

R-squared	0.065655	Mean dependent var	58.03549
Adjusted R-squared	0.023680	S.D. dependent var	148.7413
S.E. of regression	146.9697	Akaike info criterion	12.86182
Sum squared resid	12981659	Schwarz criterion	13.05965
Log likelihood	-4017.044	F-statistic	1.564129
Durbin-Watson stat	1.850951	Prob(F-statistic)	0.035589

Appendix H: White Heteroskedasticity Test-panel A (All GCC stock markets without Oman).

White Heteroskedasticity Test:

F-statistic	1.744819	Probability	0.012422
Obs*R-squared	45.40538	Probability	0.014730

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/11/14 Time: 11:34
Sample: 1 720
Included observations: 509
Excluded observations: 211

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.69958	187.4309	-0.073091	0.9418
DLNCPI	256.4359	240.1118	1.067985	0.2861
DLNCPI^2	1.161081	3.626444	0.320171	0.7490
DLNCPI*DINTR	-35.34422	36.21739	-0.975891	0.3296
DLNCPI*DLNMS	205.3447	182.1138	1.127562	0.2601
DLNCPI*DLNOP	-14.29312	18.12672	-0.788511	0.4308
DLNCPI*DUNMR	-11.80906	26.79780	-0.440673	0.6596
DLNCPI*SMR	1.892542	1.978002	0.956795	0.3392
DINTR	38.10788	55.22586	0.690037	0.4905
DINTR^2	-3.051518	4.202523	-0.726116	0.4681
DINTR*DLNMS	-11.63648	17.84152	-0.652213	0.5146
DINTR*DLNOP	1.014188	2.884259	0.351628	0.7253
DINTR*DUNMR	2.120891	3.765373	0.563262	0.5735
DINTR*SMR	-1.381053	0.957149	-1.442882	0.1497
DLNMS	47.08692	128.9085	0.365274	0.7151
DLNMS^2	-6.599019	14.31125	-0.461107	0.6449
DLNMS*DLNOP	-1.561750	8.909341	-0.175294	0.8609
DLNMS*DUNMR	5.776843	15.49723	0.372766	0.7095
DLNMS*SMR	1.019258	1.656510	0.615304	0.5386
DLNOP	-7.046887	21.10907	-0.333832	0.7387
DLNOP^2	-0.021784	0.625907	-0.034803	0.9723
DLNOP*DUNMR	0.242422	1.218669	0.198924	0.8424
DLNOP*SMR	0.132381	0.279579	0.473504	0.6361
DUNMR	-45.32525	27.09636	-1.672743	0.0950
DUNMR^2	3.480020	0.900781	3.863336	0.0001
DUNMR*SMR	0.280788	0.368561	0.761850	0.4465
SMR	9.286361	6.780190	1.369631	0.1714
SMR^2	0.076166	0.046111	1.651824	0.0992

R-squared	0.089205	Mean dependent var	65.52990
Adjusted R-squared	0.038079	S.D. dependent var	163.7471
S.E. of regression	160.5992	Akaike info criterion	13.04914
Sum squared resid	12405996	Schwarz criterion	13.28197
Log likelihood	-3293.006	F-statistic	1.744819
Durbin-Watson stat	1.864779	Prob(F-statistic)	0.012422

Appendix I: Hausman Test (First Model with Oman)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	5.362408	6	0.4982

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DLNCPI	-0.373744	-0.531646	0.014601	0.1913
DINTR	0.035854	0.029840	0.000258	0.7081
DLNMS	-0.628420	-0.158216	0.156822	0.2351
DLNOP	0.305697	0.380094	0.034845	0.6902
DUNMR	-0.250378	-0.196831	0.008020	0.5499
SMR	0.164068	0.211911	0.001115	0.1520

Period random effects test equation:
Dependent Variable: ISR
Method: Panel Least Squares
Date: 03/27/14 Time: 16:24
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 7
Total panel (unbalanced) observations: 629

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.425401	0.331791	1.282136	0.2004
DLNCPI	-0.373744	0.291575	-1.281810	0.2005
DINTR	0.035854	0.048166	0.744372	0.4570
DLNMS	-0.628420	0.946844	-0.663700	0.5072
DLNOP	0.305697	0.228796	1.336114	0.1821
DUNMR	-0.250378	0.181681	-1.378116	0.1688
SMR	0.164068	0.052222	3.141719	0.0018

Effects Specification

Period fixed (dummy variables)

R-squared	0.340469	Mean dependent var	0.657963
Adjusted R-squared	0.176570	S.D. dependent var	8.027897
S.E. of regression	7.284759	Akaike info criterion	6.986541
Sum squared resid	26693.06	Schwarz criterion	7.876780
Log likelihood	-2071.267	Hannan-Quinn criter.	7.332358
F-statistic	2.077306	Durbin-Watson stat	1.913999
Prob(F-statistic)	0.000000		

Appendix J: Hausman Test (First Model without Oman)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	5.567632	6	0.4733

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DLNCPI	-0.408044	-0.584289	0.024214	0.2574
DINTR	0.043422	0.034041	0.000407	0.6420
DLNMS	-0.908731	-0.211132	0.229363	0.1452
DLNOP	0.318435	0.394601	0.041548	0.7087
DUNMR	-0.348106	-0.177105	0.022360	0.2528
SMR	0.153869	0.205398	0.001620	0.2004

Period random effects test equation:
Dependent Variable: ISR
Method: Panel Least Squares
Date: 03/27/14 Time: 16:26
Sample: 2001M01 2010M12
Periods included: 120
Cross-sections included: 6
Total panel (unbalanced) observations: 509

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.483650	0.387143	1.249282	0.2123
DLNCPI	-0.408044	0.324713	-1.256629	0.2097
DINTR	0.043422	0.052767	0.822902	0.4111
DLNMS	-0.908731	1.059503	-0.857696	0.3916
DLNOP	0.318435	0.253170	1.257792	0.2092
DUNMR	-0.348106	0.232328	-1.498336	0.1349
SMR	0.153869	0.060084	2.560919	0.0108

Effects Specification

Period fixed (dummy variables)

R-squared	0.363741	Mean dependent var	0.618407
Adjusted R-squared	0.156085	S.D. dependent var	8.500599
S.E. of regression	7.809064	Akaike info criterion	7.159123
Sum squared resid	23355.91	Schwarz criterion	8.206841
Log likelihood	-1695.997	Hannan-Quinn criter.	7.569932
F-statistic	1.751649	Durbin-Watson stat	1.887541
Prob(F-statistic)	0.000027		

Appendix K: Panel Data Estimation for Panel B (Second model)

Dependent Variable: ICSR
Method: Panel Least Squares
Date: 04/03/14 Time: 18:49
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.77977	9.766348	2.025298	0.0436
EPS	-0.009971	0.056159	-0.177556	0.8592
DY	-0.484471	0.510447	-0.949110	0.3432
LEV	-0.257163	0.144379	-1.781175	0.0758
LR	-4.024317	1.870541	-2.151419	0.0321
REID	-7.176678	14.26292	-0.503170	0.6152
SM	-0.512195	0.161253	-3.176334	0.0016
AFFIN	-2.249034	2.395738	-0.938765	0.3485
SUO	-1.980219	1.538060	-1.287479	0.1988
DLNCPI	-1.022439	0.546646	-1.870388	0.0623
DLNMS	-1.953127	2.495011	-0.782813	0.4343
DLNOP	0.514388	0.561849	0.915527	0.3606
DUNMR	0.001600	0.238449	0.006709	0.9947
SMR	0.305955	0.084137	3.636380	0.0003

R-squared	0.186142	Mean dependent var	8.682778
Adjusted R-squared	0.155386	S.D. dependent var	39.93881
S.E. of regression	36.70492	Akaike info criterion	10.08202
Sum squared resid	463454.3	Schwarz criterion	10.23377
Log likelihood	-1790.681	Hannan-Quinn criter.	10.14237
F-statistic	6.052174	Durbin-Watson stat	2.062765
Prob(F-statistic)	0.000000		

Dependent Variable: ICSR
Method: Panel EGLS (Cross-section weights)
Date: 04/05/14 Time: 00:25
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358
Linear estimation after one-step weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.44337	3.831834	2.725423	0.0068
EPS	0.062272	0.036591	1.701834	0.0897
DY	-0.570584	0.314974	-1.811528	0.0709
LEV	-0.222103	0.115687	-1.919852	0.0557
LR	-1.608692	2.035473	-0.790328	0.4299
REID	7.428558	10.25895	0.724105	0.4695
SM	-0.365715	0.117617	-3.109356	0.0020
AFFIN	-0.123774	3.001888	-0.041232	0.9671
SUO	-0.523185	2.251873	-0.232333	0.8164
DLNCPI	-0.922411	0.296799	-3.107862	0.0020
DLNMS	-2.024675	1.516421	-1.335167	0.1827
DLNOP	0.821506	0.424119	1.936969	0.0536
DUNMR	-0.053657	0.094850	-0.565697	0.5720
SMR	0.206482	0.062987	3.278184	0.0012

Weighted Statistics

R-squared	0.285575	Mean dependent var	8.694061
Adjusted R-squared	0.258577	S.D. dependent var	41.62473
S.E. of regression	35.89122	Sum squared resid	443133.8
F-statistic	10.57742	Durbin-Watson stat	2.062761
Prob(F-statistic)	0.000000		

Dependent Variable: ICSR
Method: Panel Least Squares
Date: 04/03/14 Time: 19:01
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358
White cross-section standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.53392	12.32619	2.152646	0.0321
EPS	-0.009892	0.041191	-0.240142	0.8104
DY	-0.650246	0.561832	-1.157368	0.2479
LEV	-0.149191	0.138433	-1.077706	0.2819
LR	-4.290469	1.672103	-2.565912	0.0107
REID	-6.903030	15.89736	-0.434225	0.6644
SM	-0.637608	0.163117	-3.908898	0.0001
AFFIN	-3.094775	2.435274	-1.270812	0.2047
SUO	-1.102349	1.677585	-0.657105	0.5116
DLNCPI	0.163803	1.264926	0.129496	0.8970
DLNMS	-5.142757	2.765270	-1.859767	0.0638
DLNOP	-0.123963	2.305522	-0.053768	0.9572
DUNMR	0.009032	0.160139	0.056401	0.9551
SMR	0.372294	0.108622	3.427438	0.0007

Effects Specification

Period fixed (dummy variables)

R-squared	0.250782	Mean dependent var	8.682778
Adjusted R-squared	0.201580	S.D. dependent var	39.93881
S.E. of regression	35.68706	Akaike info criterion	10.04954
Sum squared resid	426644.8	Schwarz criterion	10.29885
Log likelihood	-1775.868	Hannan-Quinn criter.	10.14869
F-statistic	5.096958	Durbin-Watson stat	2.062937
Prob(F-statistic)	0.000000		

Dependent Variable: ICSR
Method: Panel EGLS (Period weights)
Date: 04/03/14 Time: 19:02
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358
Linear estimation after one-step weighting matrix
White period standard errors & covariance (no d.f. correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.19718	6.790464	2.679814	0.0077
EPS	-0.003407	0.047894	-0.071131	0.9433
DY	-0.495834	0.488438	-1.015142	0.3108
LEV	-0.060086	0.078299	-0.767389	0.4434
LR	-3.568724	3.578906	-0.997155	0.3194
REID	10.09212	11.20996	0.900281	0.3686
SM	-0.572661	0.189003	-3.029902	0.0026
AFFIN	-3.612973	1.564942	-2.308695	0.0216
SUO	-1.379481	2.537409	-0.543657	0.5870
DLNCPI	-0.026340	0.499532	-0.052730	0.9580
DLNMS	-4.511228	2.116077	-2.131883	0.0337
DLNOP	0.706885	1.780536	0.397007	0.6916
DUNMR	0.144573	0.114766	1.259717	0.2086
SMR	0.355114	0.102296	3.471433	0.0006

Effects Specification

Period fixed (dummy variables)

Weighted Statistics

R-squared	0.231932	Mean dependent var	7.663563
Adjusted R-squared	0.181492	S.D. dependent var	39.07438
S.E. of regression	35.54037	Sum squared resid	423144.4
F-statistic	4.598152	Durbin-Watson stat	2.021830
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.246126	Mean dependent var	8.682778
Sum squared resid	429296.5	Durbin-Watson stat	2.072797

Dependent Variable: ICSR
Method: Panel EGLS (Cross-section random effects)
Date: 04/03/14 Time: 19:05
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.79579	9.772739	2.025614	0.0436
EPS	-0.011498	0.059493	-0.193271	0.8469
DY	-0.470963	0.498387	-0.944974	0.3453
LEV	-0.234272	0.129988	-1.802251	0.0724
LR	-3.966535	1.842725	-2.152537	0.0321
REID	-9.498331	14.62715	-0.649363	0.5165
SM	-0.483465	0.165158	-2.927294	0.0036
AFFIN	-2.142420	2.455949	-0.872339	0.3836
SUO	-2.220317	1.554673	-1.428157	0.1542
DLNCPI	-1.010455	0.522277	-1.934711	0.0538
DLNMS	-1.898478	2.399765	-0.791110	0.4294
DLNOP	0.511020	0.538204	0.949490	0.3430
DUNMR	-0.011196	0.231218	-0.048423	0.9614
SMR	0.304370	0.080789	3.767455	0.0002

Effects Specification

	S.D.	Rho
Cross-section random	5.247708	0.0220
Idiosyncratic random	35.00039	0.9780

Weighted Statistics

R-squared	0.185971	Mean dependent var	7.996332
Adjusted R-squared	0.155208	S.D. dependent var	39.47661
S.E. of regression	36.28456	Sum squared resid	452899.7
F-statistic	6.045319	Durbin-Watson stat	2.106536
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.185971	Mean dependent var	8.682778
Sum squared resid	463552.0	Durbin-Watson stat	2.058129

Appendix L: White Heteroskedasticity Test-panel B

White Heteroskedasticity Test:

F-statistic	1.656604	Probability	0.024936
Obs*R-squared	41.22115	Probability	0.029480

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/31/14 Time: 16:01
Sample: 2 600
Included observations: 358
Excluded observations: 241
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2272.946	737.2522	3.082996	0.0022
EPS	-5.359713	6.653442	-0.805555	0.4211
EPS^2	0.015560	0.033389	0.466020	0.6415
DY	-126.4526	83.44576	-1.515387	0.1306
DY^2	5.286666	4.855010	1.088909	0.2770
LEV	48.53616	140.6249	0.345146	0.7302
LEV^2	-0.643069	1.382486	-0.465154	0.6421
LR	133.5740	754.6761	0.176995	0.8596
LR^2	-28.39000	137.7816	-0.206051	0.8369
REID	-1574.574	2849.989	-0.552484	0.5810
REID^2	1168.955	6136.505	0.190492	0.8490
SM	-62.05438	39.54724	-1.569120	0.1176
SM^2	0.491173	0.518492	0.947311	0.3442
AFFIN	-429.8870	332.8434	-1.291560	0.1974
AFFIN^2	71.34476	83.93111	0.850040	0.3959
SUO	149.8354	416.9161	0.359390	0.7195
SUO^2	-94.57800	83.54974	-1.131996	0.2585
DLNCPI	40.35671	56.77265	0.710848	0.4777
DLNCPI^2	0.716929	3.723084	0.192563	0.8474
DLNMS	-26.38020	352.7168	-0.074791	0.9404
DLNMS^2	-41.30209	55.01392	-0.750757	0.4533
DLNOP	73.05547	61.67557	1.184512	0.2371
DLNOP^2	-1.398144	5.044903	-0.277140	0.7818
DUNMR	-15.00295	12.41882	-1.208082	0.2279
DUNMR^2	-0.892036	0.492020	-1.813006	0.0707
SMR	-4.242746	10.62880	-0.399175	0.6900
SMR^2	0.193490	0.113034	1.711777	0.0879

R-squared	0.115143	Mean dependent var	1294.565
Adjusted R-squared	0.045637	S.D. dependent var	2952.166
S.E. of regression	2884.014	Akaike info criterion	18.84418
Sum squared resid	2.75E+09	Schwarz criterion	19.13684
Log likelihood	-3346.108	F-statistic	1.656604
Durbin-Watson stat	1.979292	Prob(F-statistic)	0.024936

Appendix M: Hausman Test (Second Model)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	37.932852	13	0.0003

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EPS	-0.006773	-0.011498	0.002060	0.9171
DY	-0.682074	-0.470963	0.172365	0.6111
LEV	-0.077487	-0.234272	0.027627	0.3455
LR	-3.377457	-3.966535	8.790398	0.8425
REID	-29.308345	-9.498331	464.027044	0.3578
SM	-0.172291	-0.483465	0.030949	0.0769
AFFIN	-0.615463	-2.142420	9.812372	0.6259
SUO	-5.017515	-2.220317	2.609440	0.0833
DLNCPI	-0.935734	-1.010455	0.003441	0.2027
DLNMS	-1.466279	-1.898478	0.301327	0.4311
DLNOP	0.419092	0.511020	0.017618	0.4886
DUNMR	-0.113216	-0.011196	0.007739	0.2462
SMR	0.276147	0.304370	0.000255	0.0770

Cross-section random effects test equation:
Dependent Variable: ICSR
Method: Panel Least Squares
Date: 03/29/14 Time: 17:43
Sample: 2001 2010
Periods included: 10
Cross-sections included: 60
Total panel (unbalanced) observations: 358

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.11353	9.083918	2.324275	0.0208
EPS	-0.006773	0.075017	-0.090282	0.9281
DY	-0.682074	0.677380	-1.006930	0.3148
LEV	-0.077487	0.395133	-0.196104	0.8447
LR	-3.377457	4.964062	-0.680382	0.4968
REID	-29.30835	28.38887	-1.032388	0.3028
SM	-0.172291	0.270467	-0.637013	0.5246
AFFIN	-0.615463	4.432423	-0.138855	0.8897
SUO	-5.017515	3.404086	-1.473968	0.1416
DLNCPI	-0.935734	0.419368	-2.231294	0.0264
DLNMS	-1.466279	2.120613	-0.691441	0.4899
DLNOP	0.419092	0.562660	0.744841	0.4570
DUNMR	-0.113216	0.173925	-0.650945	0.5156
SMR	0.276147	0.073640	3.749930	0.0002

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.386899	Mean dependent var	8.682778
Adjusted R-squared	0.232010	S.D. dependent var	39.93881
S.E. of regression	35.00039	Akaike info criterion	10.12837
Sum squared resid	349132.7	Schwarz criterion	10.91965
Log likelihood	-1739.979	Hannan-Quinn criter.	10.44307
F-statistic	2.497914	Durbin-Watson stat	2.713502
Prob(F-statistic)	0.000000		

Appendix N: Critical Values for the Durbin-Watson Test: 1% significance level: Panel B