Chapter I
CHAPTER I
INTRODUCTION

In the globalised era, financial markets had undergone continuous and significant changes. These changes have affected growing and grown economies, especially in terms of eliminating restrictions with regard to capital movements. Further, due to technological advances, individual and institutional investors are allowed to trade in worldwide financial and commodity markets on a twenty-four hour basis. The liberalised and technically advanced markets have become more integrated over time and it is particularly true in the case of financial markets. In many developing countries like India, there has been marked change in the principles of the government towards integration of Indian economy with the world economy. When the markets experience an increase in their level of integration, shocks and events that happen in one market immediately affects the other interlinked financial markets and it has an impact upon the benefits that investors obtain from diversifying their portfolios internationally. If this is the case, and the markets are highly integrated, these benefits will get eradicated in the long-term and investors with long horizons may not benefit from their portfolios. There will be a direct effect on the stability of the financial market since the negative and positive effects will spread among the co-integrated capital markets.

On the other hand, there is a common belief that the prices of commodities tend to move in unison since they are influenced by common macroeconomic factors like interest rate, exchange rate and inflation. Among other macroeconomic factors, oil and gold are the two strategic commodities which have received close attention recently due to the
surge in their prices and the increase in economic usage. In the world, the most commonly traded commodity is crude oil and its price is volatile in its market. Gold is considered as the leader in the precious metal market and an investment asset commonly known as ‘safe heaven’ which offsets the risks in the financial markets. Investors from both developing and developed markets, often switch between oil and gold or combine them to diversify their portfolios.

In the year 2009, oil prices had risen while the dollar continued to crash down but before oil’s price surge, the dollar was strong. Many of the economists and researchers believe that the oil and dollar exchange prices are inversely correlated since oil is driving down the value of the dollar. Prior to 2007, oil and dollar were believed to be positively correlated, oil is bought and sold in US dollars, therefore as oil price goes up, so does the global demand for dollars.

The above features describing capital market, US Dollar exchange rate, oil and gold justify the economic importance of investigating the relationship between these. Further, their special features make these not only influenced by ordinary forces of supply and demand but also by other forces. Hence, there is a need for expanding and shedding light for a better understanding of the true nature of relationships between the markets around the world, and especially with regard to the inter-linkages among these market variables.

1.1 Theoretical Background of the Study

During the 1990s, there have been important and continuous changes in the world’s financial markets. These changes have affected emerging and developed economies alike, especially in terms of eliminating restrictions with regard to capital
movements. Technological advances also played a crucial role allowing individual and institutional investors to trade worldwide on a twenty-four hour basis in many asset classes and markets. The liberalisation of capital markets and these technological advances suggest that markets particularly financial markets, have become more integrated over time; when markets experience an increase in their level of integration, shocks and events that take place in one market can immediately affect other interlinked markets, and can impact directly upon the benefits that investors derive from diversifying their portfolios internationally. If this is the case, and the markets are highly integrated, these benefits will be eradicated in the long-term and investors with long horizons may not benefit from their portfolios. As a consequence, this research is going to focus on examining the levels of connection and integration between the financial markets of developing and the developed countries represented by International Development Association (IDA) and commodity markets. An important reason for attempting this investigation is based on the researcher’s interest in improving her knowledge on markets’ spillover effects, and especially in examining whether financial markets have a different behaviour during times of crisis and uncertainty, in the background of globalisation. In order to illustrate these situations, it is considered as appropriate to analyse what happened in these markets during the Asian Financial Crisis in 1997, 9/11 (World Trade Center attack) in 2001, Iraq War in 2003 and Global Financial Crisis in 2007. These four time periods are taken for study as they represent particular shocks that had an impact on most of the world economies. The current economic situation demonstrates that governments, academics and practitioners need to devote more attention to the study and to understand how their economies behave during times of
economic and financial distress, so as to be better prepared to formulate policies that minimise the effects of crisis, thereby allowing their economies to recover at a faster pace.

The stock markets are getting more integrated with financial markets as well as financial indices. Generally, stock market is influenced by several interconnected economic, social and political factors and these factors interact with each other in a very intricate approach and stock prices are determined by few macroeconomic variables like crude oil price, gold price and the exchange rate. For example, precariousness of very high oil prices sometimes has serious impact on other economic variables\(^5\). The reviews of literatures have established significant effects of oil price change on economic activity in several developed and developing countries\(^6\). Likewise, international crude oil price and exchange rates are greatly influenced by the stock market. It is particularly true in the case of Indian stock market; number of studies (Amlendu Bhunia\(^7\) and Vivek Sharma\(^8\)) states that any significant change in the price of oil makes an impact on inflation numbers which in turn have an impact on the stock market.

As world economy is not steady due to various businesses, political, social and more importantly globalised economic environments, Indian economy also face the same kind of problem, which in recent times has resulted in the decline in the GDP growth and increase in inflation rate. In many developing countries like India, there has been a marked change in the principles of the government towards integration of Indian economy with the world economy. Volatility in gold price, international crude oil price, and US Dollar exchange rate is likely to stimulate uncertainty in stock market condition. In this regard, the study of relationship between Indian stock market indices and gold, oil
and exchange rates shall help the investors in making adjustments in the organisation and management of their portfolios with a view to achieve optimum levels of return. Further the study of period-wise relationship shall help the investors in diversifying their investment portfolios according to the nature of relationship between economic variables. Such a study at macro levels shall help the policy makers to evolve macro level policies to redress the various problems encountered by the Indian stock market and investors. Hence the present study, ‘An Empirical study on the Influence of Gold, Crude Oil & US Dollar Rates on Stock Price Movement in India’ emerged.

1.3 Objectives of the Study

The present study has the following objectives

1. To examine the interrelationship between S&P BSE 100, Standard Gold, Brent Crude Oil and US Dollar indices.

2. To estimate the individual influences of Standard Gold, Brent Crude Oil and US Dollar indices on S&P BSE 100.

3. To examine the combined influence of Standard Gold, Brent Crude Oil price and US Dollar on S&P BSE 100.

1.4 Hypotheses Tested

Based on the earlier studies in the field, researcher has framed hypotheses and discussed in appropriate places in the Thesis which are tested with appropriate econometric techniques. Some important hypotheses are listed below.

1. The S&P BSE 100 index, Gold Price, Crude Oil Price and US Dollar Exchange Rate are not non-stationary indexes;
2. There is no short run relationship between S&P BSE 100 index, Gold Price, Crude Oil Price and US Dollar Exchange Rate.


4. There is no impact on stock price movement due to economic shocks.

5. Liberalisation of Indian economy do not influence the stock price movement in India and selected factors viz., Gold Price, Crude Oil Price and US Dollar Exchange Rate.

6. Asian Financial Crisis does not influence the stock price movement in India as well as the Gold Price, Crude Oil Price and US Dollar Exchange Rate.

7. 9/11 Attack does not have an impact either on the Gold Price, Crude Oil Price and US Dollar Exchange Rate nor on the Stock Price Movement in India.

8. The Stock Movement, Gold Price, Crude Oil Price and US Dollar Exchange Rate are not influenced by Iraq War.


10. The S&P BSE 100, Gold Price, Crude Oil Price and US Dollar Exchange Rate does not granger cause each other.

1.5 Research Methodology

For the present study, the researcher studied the linkages between the stock index and other important economic variables. In line with this objective, the researcher has
used both quantitative and qualitative methodology. For the qualitative analysis, the researcher has used the empirical evidences from literature review regarding the macroeconomic factors affecting the stock market. The preliminary variables identified for the basic model are variables that have been derived from the previous studies and theories. Theories and previous studies suggest that macroeconomic variables such as exchange rates, oil price and gold price influence each other. The exchange rate considered was the RBI reference rate of daily nominal spot rate i.e., rupee per US dollar price as available for each foreign exchange market day under the study period. For oil prices, OPEC prices are taken into consideration. The gold price taken for consideration is the monthly average price obtained from the World Gold Council. S&P BSE 100 Index is considered as the benchmark index since this index is comprehensive and the data are available for analyses and is used to measure the market price movements of Indian securities. The main objective of this Thesis is to perform an in-depth research that leads to the outcome of adding relevant empirical evidence to the analysis of relevance of macroeconomic factors for the Indian Stock Market. Therefore, the initial hypothesis of this research postulates a lack of integration between financial markets and selected macroeconomic variable in emerging economies.

This research approach differs in a number of aspects from previous studies. First, the data used for the study covers a longer period and further up to recent years (1990 to 2015) than existing studies in the area. Second, the research focuses on studying the inter relationship; inter dependence and volatility spillovers between equity, dollar, gold and oil markets in a combined manner which is a clear distinctive feature of this study. Third, the relationship between these economic variables will be analysed, with a particular emphasis on the emerging market i.e. India.
1.6. Key Factors taken for study

For the present study the researcher selected four variables namely, S&P BSE 100 index, US Dollar Exchange rate index, Gold Price index and BRENT Crude Oil Price index. The preliminary indexes acknowledged for the basic model are variables that have been identified from the review of literature and theories. Theories and review of literatures suggest that macroeconomic variables such as exchange rates, oil price and gold price influence each other. Hence these variables are considered for the study. The exchange rate considered is the RBI reference rate of daily nominal spot rate i.e., rupee per US Dollar price as available for each foreign exchange market day under the study period. In the following section it has been discussed briefly.

1.6.1 S&P BSE 100 Index

The Bombay Stock Exchange's Sensitive Index, also called sensex or BSE sensex, is one of the leading stock market benchmark indices in India. It tracks the movement of stock prices on the exchange and functions as an indicator of market sentiments. This index was launched by BSE in 1986 and it consists of 30 components (stocks) that represent, broadly, the composition of the entire market. Each of the scrips is assigned a weightage on the index that is linked to its market capitalisation. It measures a particular stock's ability to influence movements in the index. While the number of components has remained the same since its inception, the composition of the sensex changes periodically as scrips are inducted or removed depending on their market capitalisation, frequency and volume of trading, liquidity among other parameters. For a long time the BSE sensex was
the only benchmark index in India for the stock markets until the National Stock Exchange was launched in the early 90s. Its S&P Nifty Index is a much broader index, but the sensex is still followed as a barometer of market sentiment in India.

1.6.2 Exchange rate of US Dollar

The US Dollar (USD) (also known as the Greenback or Buck) is the official currency used in the United States of America. 85% of all currency transactions across the world involve the US Dollar. It is the world's primary reserve currency and 25 different currencies are pegged to the US Dollar. The dollar's value refers to the purchasing power of the dollar versus other currencies, or the exchange rate between the two currencies. When the dollar is strong, foreign goods are relatively less expensive. This can benefit businesses that import raw materials or manufactured goods into the United States, like Wal-Mart Stores (WMT). A weakening dollar benefits companies with foreign competitors, like US Steel, as their competitors' goods become more expensive. A weakening dollar can also lead to rising interest rates, as investors require higher rates to compensate for the added currency risk. Higher interest rates, in turn, have significant consequences for the housing market and business investment in general. A strong dollar means lower oil prices, as the US purchase much of its oil abroad. As the dollar weakens oil producers charge more to protect their margins.

Trade deficits lead to a net outflow of a country's currency. As a net importer, the US has seen its trade deficit grow rapidly. This trade deficit weakens the US Dollar relative to other currencies since foreign goods are denominated in foreign currency, thus demand for foreign goods increases the demand for foreign currency and decreases the demand for US Dollars. This causes the US Dollar to depreciate.
When a country's government spends more than it earns from taxes or other sources of revenues, it is forced to borrow from its citizens and/or from foreign entities. If a country's debt load increases, the value of its currency may decrease as a result of fear within the international community over its ability to repay the debt. In addition, by borrowing money from foreign countries, the US increases the demand for foreign currency in exchange for US Bonds. This lowers the relative value of the dollar.

Countries like Japan and China are large purchasers of US debt. China in particular has exhibited a voracious appetite for US debt. It is a rapidly growing economy is heavily dependent on exports, and the US is one of its largest trading partners. In any given year, the US imports much more from China than it exports to China. As a result there is a net flow of dollars to China. Normally, one might expect China to sell these dollars on the global market, causing the dollar to weaken. Instead China reinvests its dollars in US debt. In doing so, China strengthens the US Dollar and limits the appreciation of its own currency. As a result Chinese exports remain cheap to American consumers.

However, due to large deficits many countries, China, Russia and India in particular, have begun to reconsider diversifying their reserves to protect themselves from a devaluation of the US Dollar. The decision of these large countries to shift gold as a reserve currency greatly decreases the demand for US Dollars and weakens the USD.

The level of technology and production which a country relates to other countries alters the exchange rates. Countries which are able to produce relatively well and/or have high levels of technology increase the demand for domestic investment and domestic goods.
This rise in demand for both capital and goods strengthens the currency and the exchange rate. Thus, when the US is seen as a technological and production leader, high investment and purchasing rates keeps the US Dollar relatively strong.

1.6.3 Gold price

Gold prices are a good indicator of how healthy the world economy is. When the price of gold is high, means that the economy is not healthy. The main reason is investors flock to gold when they are protecting their investments from either a crisis or inflation. When gold prices drop that usually means the economy is healthy. That's because investors have left gold for other, more lucrative, investments like stocks, bonds or real estate.

There is very little, if any, effect on the economy from the price of gold. If anything, the opposite is usually true: perceptions about the economy can directly affect the price of gold. The usefulness of gold as an economic indicator is questioned by some, but it is still widely recognised as a hedge against the US Dollar and inflation. Gold is used in most electronic devices such as computers and cell phones, but in such small quantities that fluctuations in the price of gold have very little impact on this sector of the economy.

The value of a nation's currency is strongly tied to the value of its imports and exports. When a country imports more than it exports, the value of its currency will decline. On the other hand, the value of its currency will increase when a country is a net exporter. Thus, a country that exports gold or has access to gold reserves will see an increase in the strength of its currency when gold prices increase, which in turn increases the country's total exports.
In other words, an increase in the price of gold can create a trade surplus or help offset a trade deficit. Conversely, countries that are large importers of gold will inevitably end up having a weaker currency when the price of gold rises. For example, countries that specialise in producing products made with gold, but lack their own gold reserves, will be large importers of gold. Thus, they will be particularly susceptible to increases in the price of gold.

The price of Gold has a direct correlation with US dollar rate, local currency, supply and demand factors, government policies etc. Gold price is also influenced by inflation, economic recession and fall in stock market as investors scramble to get into accumulating gold which supposed is considered as a safe bet for investments during crisis period.

1.6.4 BENT Crude Oil

Brent crude is a major trading classification of sweet light crude oil that serves as a major benchmark price for purchases of oil worldwide. Brent crude is sourced from the North Sea, and comprises Brent Blend, Forties Blend, Oseberg and Ekofisk crudes. The Brent crude oil marker is also known as Brent Blend, London Brent and Brent petroleum.

The other well-known classifications are the OPEC Reference Basket, Dubai Crude, Oman Crude, and West Texas Intermediate (WTI). Brent is the leading global price benchmark for Atlantic basin crude oils. It is used to price two thirds of the world's internationally traded crude oil supplies.

The crude oil is playing a key role in the global economy due to its price which has a direct impact on inflation and exchange rates. Since India is in global net, the impact of crude oil price plays a major role in our economy in the form of inflation which
in turn has a direct impact on RBIs credit policies. It is better to understand the pros and cons of crude oil market to take informed decisions.

Rising crude oil price can do more than the limited economic options available for curbing inflation. Given the current situation, they may also result in adverse economic impacts along paths and to a degree that would not be a concern in normal times. A worsening of current accounts comprising balance of trade will, by definition, lead to deteriorating treasury budgets and a worsened balance between savings and investment. Moreover, economic deceleration will see treasury budgets deteriorate further through reduced tax revenues and measures for economic stimulation. The world today faces major challenges due to the European economic crisis, in which treasury budgets have shaken the real economy through the vector of the financial sector. Soaring crude oil prices threaten to become a factor in further worsening the global economy. A grave economic crisis was brought on by the nations of Southern Europe, difficult to explain given the size of their economies. By the same token, the concerns raised by the enormous negative impact on a fragile world economy of the expanding imbalance brought on by a rise in crude oil prices cannot be brushed off as groundless.

1.7 Study Period

Indian economy has undergone the structural changes in the year 1991; hence in the present study the researcher has taken the period from the period of financial reform process i.e. from 1990 to 2015. Further the analysis was made to check the shocks (unpredictable events) impact on the selected macroeconomic variables. The analysis is made in six periods which are considered as having an impact on the economic variables. The selected periods

1.8 Data Sources

Since the present study relay on the economic variables, it required secondary data. Hence, the present data has been collected from various sources like, websites, journals, books and Thesis. Monthly average closing value has been taken for representing the series of S&P BSE 100 index; data has been collected from the BSE website. The monthly average gold price data has been collected from Reserve Bank of India (RBI) website. The monthly average Brent oil price has been collected from the U.S. Energy Information Administration website. The monthly average of US Dollar exchange rate against Indian rupees has been collected from RBI website.

1.9 Tools of Analysis

To satisfy the objectives of the study, various time series econometrics models were used. The analysis was carried out using the computer software EVIEWS 6 which is made for econometric analysis. The following tools were used for the analysis of the study:

1) Augmented Dickey-Fuller Test for Unit-Root

To find whether a time series volatile data is stationary or not or contain unit root Augmented Dickey-Fuller (ADF-1979) test method has been used in the present study. The time series data is non-stationary if the critical value is lower than the calculated value and afterwards null hypothesis is rejected and series is decided to be stationary.

H₀: Series is stationary
H₁: Series is non-stationary
If all the sets of data are found I (1) (non-stationary), and if the regression produces a I (0) error term, the equation is said to be co-integrated. On the other, if there are two variables, \( x_t \) and \( y_t \), which are both non-stationary in levels but stationary in first differences, then \( x_t \) and \( y_t \) would become integrated of order one, I(1), and their linear combination should have the form:

\[
z_t = x_t - a y_t
\]

(1)

[Claire G. Gilmore et al, (2009)]

However, if there is a I (0) such that \( z_t \) is also integrated of order zero, I (0), the linear combination of \( x_t \) and \( y_t \) is said to be stationary and the selected variables are also to be co-integrated (Engle & Granger, 1987). If two variables are co-integrated, there will be a contributory long-run relationship between them.

On the other hand, for determining the charisma of unit roots, an expansion of the Dickey and Fuller (1981) method has been applied. The ADF test uses a regression of the first differences of the series against the series lagged once, and lagged difference terms, with optional constant and time trend terms:

\[
\Delta y_t = a_0 + a_1 t + \gamma y_{t-1} + \Sigma b_i y_{t-i} + e_t
\]

(2)

In the equation \( \Delta \) is the first-difference operator, \( a_0 \) is an intercept, \( a_1 t \) is a linear time trend, \( e_t \) is an error term, and \( i \) is the number of lagged first-differenced terms such that \( e_t \) is the white noise. The test for a unit root has the null hypothesis that signifies \( \gamma = 0 \). If the coefficient is significantly different from zero, the hypothesis that \( y_t \) encloses a unit root is considered as rejected. If the test on the level series fails to reject, the ADF procedure is then applied to the first-differences of the series. Rejection escorts to the finale that the series is integrated of order one, I (1).
A drawback of the Dickey-Fuller test is its assumption that the errors are statistically independent and have constant variances.

2) **Johansen Co-Integration Test**

Co-integration tests endow with a mean to establish whether a set of endogenous variables share a common long-run stochastic trend. A pronouncement of co-integration specifies interdependence of the endogenous variables, which may be the result of economic connections between the markets or arbitrage activity between investors.

Hypothesis to be examined with Johansen co-integration test to be applied on the study has been presented below:

\[ H_0: \text{There is no co-integration relationship between variables} \]

\[ H_1: \text{There is co-integration relationship between variables} \]

The Johansen (1988) approach to testing for co-integration relies on the relationship between the rank of a matrix and its characteristic roots, or eigen values. Let \( X_t \) be a vector of \( n \) time series variables, each of which is integrated of order (1), and assume that \( X_t \) can be modelled by a Vector Auto Regression (VAR):

\[ X_t = A_1 X_{t-1} + ... + A_p X_{t-p} + \varepsilon_t \]  \hspace{1cm} (3)

Rewriting the VAR as

\[ \Lambda x_t = \Pi x_{t-1} + \Sigma \Gamma \Lambda x_{t-i} + \varepsilon_t \]  \hspace{1cm} (4)

Where, \( \Pi = \Sigma A_i - I \), \( \Gamma = - \Sigma A_i \). If the coefficient matrix \( \Pi \) has a reduced rank \( r < k \), there exists \( k \times r \) matrices \( \alpha \) and \( \beta \) each with rank \( r \) such that \( \Pi = \alpha \beta' \) and \( \beta' x_t \) are stationary. The number of co-integrating relations is given by \( r \), and each column of \( \beta \) is a co-integrating vector. Equation (4) can be modified to allow for an intercept and a linear trend.
The number of distinct co-integrating vectors can be obtained by determining the significance of the characteristic roots of $\Pi$. To identify the number of characteristic roots that are not different from unity we have used two statistics, the trace test and the maximum eigenvalue test:

$$\lambda_{\text{trace}}(r) = -T\Sigma\ln(1 - \lambda_i)$$

and

$$\lambda_{\text{max}}(r,r+1) = -T\ln(1 - \lambda_{r+1})$$

Where, $\lambda_i$ = the estimated values of the characteristic roots (eigenvalues) obtained from the estimated $\Pi$ matrix, $r$ is the number of co-integrating vectors, and $T$ = the number of usable observations. The trace test evaluates the null hypothesis that the number of distinct co-integrating vectors is less than or equal to $r$ against a general alternative hypothesis (the number of distinct co-integrating vectors is more than or equal to $r$). The maximum eigen value test examines the number of co-integrating vectors versus that number plus one. If the variables in $X_t$ are not co-integrated, the rank of $\Pi$ is zero and all the characteristic roots are zero. Since $\ln(1) = 0$, each of the expressions $\ln(1 - \lambda_i)$ will equal zero in that case. Critical values for the test are provided by Johansen and Juselius (1990) and by Osterwald-Lenum (1992).

3) Pair-wise Granger Causality Tests

We test for the dearth of Granger causality by estimating the following VAR model (Olushina Olawale Awe, 2012):
\[ Y_t = a_0 + a_1 Y_{t-1} + \ldots + a_p Y_{t-p} + b_1 X_{t-1} + \ldots + b_p X_{t-p} + U_t \]  \hfill (7)

\[ X_t = c_0 + c_1 X_{t-1} + \ldots + c_p X_{t-p} + d_1 Y_{t-1} + \ldots + d_p Y_{t-p} + V_t \]  \hfill (8)

Testing

\[ H_0: b_1 = b_2 = \ldots = b_p = 0 \] against \( H_1: \) Not \( H_0 \) is a test that \( X_t \) does not Granger-cause \( Y_t \).

Similarly, testing \( H_0: d_1 = d_2 = \ldots = d_p = 0 \) against \( H_1: \) Not \( H_0 \) is a test that \( Y_t \) does not Granger cause \( X_t \).

In case of Granger causality between the two variables, null hypothesis is rejected if the probability value is less than alpha (0.05).

4) Vector Auto Regression Modeling

To further confirm the impulse response between stock price and exchange rate and to predict the behaviour among them in coming future, the study can extend the analysis towards Vector Auto Regression modeling (VAR).

Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) proposed an alternative procedure for testing Granger causality in a possibly integrated and co integrated system (of arbitrary orders), using an augmented level VAR modeling. This procedure conducts Granger causality tests with allowance for the long-run information often ignored in systems that requires first differencing and pre-whitening. Also, this methodology is useful because it bypasses the need for potentially biased pre-tests for unit roots and co integration, common to other formulations such as the vector error correction model.

Toda and Yamamoto (1995) proposed a complementary procedure which allows causal inference to be conducted in level VARs that may contain integrated process but does not involve rigorous attention and strict reliance upon integration and co integration properties of any or all variables in the system. VAR system consist a set of regression
equation in which all the variables are considered to be endogenous. In VAR methodology, each endogenous variable is explained by its lagged or past values and the lagged values of all other endogenous variables included in the model. In general, there are no exogenous variables in the model. Thus, by avoiding the imposition of a prior restriction on the model the VAR adds significantly to the flexibility of the model. In essence, this procedure circumvents some of the pre-test biases that practitioners may be confronted with in VECM and other modeling formulations involving unit root and co-integration pretesting. These restrictions themselves would then imply long-run causal inference since, unlike ordinary differences; this formulation involves only variables appearing in their levels.

1.10 Limitations of the study

Since this study relies on the secondary data we are not certain how precise the recorded information is. These data inputs are figured by some associations / organisations. These associations would have dealt with any errors and if erroneous conclusions would have been there, the researcher does not have any control over this. We have included just three factors thus numerous elements impact the market / business sector which can be dealt by other researchers in their study.

1.11 Thesis Structure


Chapter I deals with the introduction to the study, theoretical background of the study, objectives of the study, hypotheses tested and research methodology which includes research design and data sources, study period, tools used for analysis and Thesis Structure.
Chapter II provides the reviews of the earlier similar studies including empirical evidences on the relationship between Stock Market and US Dollar exchange rate, Gold and Oil prices and also it discusses the research gap which paved the way for this present study.

Chapter III consists of the basic analysis unit with descriptive statistics, unit root test and granger causes’ effect of Gold Price, Oil Price and US Dollar exchange rate on stock market during post Liberalisation era which has provided an insight to understand the movement of stock price in an enhanced manner.

Chapter IV discusses the relationship between the Gold Price, Oil Price and US Dollar exchange rate indexes using econometrics model during the Asian Financial crisis period. This chapter throws more light on the short and long run relationship that exist between the above factors.

Chapter V confer with 9/11 crisis period which tests the relationship between the Gold Price, Oil Price and US Dollar exchange rate using Johansen Co-integration test for analysing Co-integration between the above indexes; VAR modeling to confirm the impulse response between stock price and exchange rate and to predict the behaviour of the said indices.

Chapter VI endow with the relationship between the indexes during the Iraq war period. This analysis will help to understand in a broad consensus way, how oil prices influence the other factors which are taken for study.

Chapter VII provides the impulse responses of selected indexes during Global Financial Crisis period which reveals the impact of such crisis on money, stock and commodity markets. And also discusses the extent of volatility of these indexes due to this shock.
Chapter VIII deals with long run relationship between the selected variables during the entire period of study using econometrics model. It also gives a clear edge on these indices and its behaviours in the long run.

Chapter IX presents the summary of the findings, conclusion, the suggestions made in the context of the findings and scope for future research by keeping all these analysis as bottom up approach.


6 Mohamed El Hedi Arouri and Julien Fouquau, ‘On the short-term influence of Oil price changes on stock markets in GCC countries: Linear and Nonlinear Analyses’.
