Impact of Financial Market Uncertainty on Market Returns: A Global Analysis

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ABSTRACT
This paper examines the effect of financial market uncertainty on market returns of different countries of the world. The effect of other macroeconomic factors on world’s Equity Market Indices was also explored. These factors included Consumer Price Index (CPI), Real Interest Rates (R.IR), Market Capitalization (MCAP), and Gross Domestic Product per capita growth (GDPPCG). For analyzing this relationship, around 40 countries data including developed and developing countries, over the period of 10 years from 2009-2018 which included major ups and downs occurred in the Equity markets of the world. To calculate financial market uncertainty, we followed Chang et al. (2000) methodology, involving cross-sectional absolute standard deviations (CSAD) among individual Countries returns, to define non-linear relations between equity return dispersions and market returns. For analysis, Panel Least Square (PLS) was used. Fixed Effect Model (FEM) is used to check the overall strength of the model, and checking heterogeneity of different countries. Group correlation was also performed on overall variables to check the causal relationship between all the variables and individual regression tests are also conducted country wise to explore that how much this model is applicable in selected countries and individual countries descriptive analysis for market return and uncertainty to check the moments of these variables. The overall results concluded that market returns are affected by the financial markets uncertainty in the long run and it is a significant variable in explaining market returns while overall test results proved a positive relationship with market returns but individual testing of this model on each country shows, more than half countries in the study have a negative relationship of financial market uncertainty with market returns. Along this, other macro-economic variables impact is also measured over market returns of the world which shows all variables Consumer Price Index, Real Interest Rates and Market Capitalization except Gross Domestic Product per capita growth have a negative relationship with the Market returns.

Keywords: Market Uncertainty, Market Returns, Macroeconomic variables, Consumer Price Index, Market Capitalization, Real Interest Rates, Cross sectional Absolute Standard Deviation

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1. INTRODUCTION

1.1 Background to the Study

Risk and uncertainty both relate to the same underlying concept—randomness. Risk is randomness in which events have measurable probabilities, wrote economist Frank Knight in 1921 in Meaning of Risk and Uncertainty. Probabilities may be attained either by deduction (using theoretical models) or induction (using the observed frequency of events). For example, we can easily deduce the probabilities of the possible outcomes of a game of dice. Similarly, economists can deduce probability distributions for stock market returns based on theoretical models of investor behavior. On the other hand, induction allows us to calculate probabilities from past observations where theoretical models are unavailable, possibly because of a lack of knowledge about the underlying relation between cause and effect. For instance, we can induce the probability of suffering a head injury when riding a bicycle by observing how frequently it has happened in the past. In a like manner, economists estimate probability distributions for stock market returns from the history of past returns.

Whereas risk is quantifiable randomness, uncertainty isn’t. It applies to situations in which the world is not well-charted. Typically, in situations of choice, risk and uncertainty both apply. Many situations of choice are unprecedented, and uncertainty about the underlying relation between cause and effect is often present. Given that risk is quantifiable, it is not surprising that academic literature on stock market randomness deals exclusively with stock market risk. On the other hand, ignorance of uncertainty may be hazardous to the investor’s financial health.

Stock market uncertainty relates to imperfect information about how the world behaves. First, how well do we understand the process that generated historical stock market returns? Second, even if we had perfect information about past processes, can we assume that the same relation between cause and effect will apply in the future?

As far as quantifying uncertainty is concerned, multiple approaches have been developed. For example, Chulia et. al. (2017) propose a daily index of time varying stock to measure market uncertainty. This model contributes to daily measurement of uncertainty because it means the market can be monitored in real time. Fair (2002), Bomfim (2003) and Chulia Martens (2010) emphasize on the estimation of impacts extracted from event studies are much more precise and less noisy as the frequency of the data increases. Jussi Nikkinen (2004) used the CBOE VIX as a proxy for expected volatility of U.S equity market to calculate market uncertainty. Engle (2002)
and Kang et. al. Ronald (2014) also used realized volatilities, conditional volatility recovered from a stochastic volatility model and implied volatility deduced from option prices to measure uncertainty.

Degiannakis et al (2014) and many other researchers favor standard deviation as good indicator of volatility so the monthly stock volatility may be given by variance or standard deviation and define as monthly stock volatility as the square root of the sum of the daily volatility contributions.

It’s a major concern that market uncertainty and macroeconomic events have large influence on the volatility of the stock returns. Several studies have attempted to clarify this relationship like by using Arbitrage Price theory (APT), developed by Roll & Ross (1980), Chen & Jordan (1993) used this study to check the impact on stock returns of US market by macroeconomic variables.

1.2 Problem Statement

According to Devenow and Welch (1996), the irrational view focuses on investor psychology where investors disregard their prior beliefs and follow other investors blindly. The rational view, on the other hand, focuses on the principal-agent problem in which managers mimic the actions of others, completely ignoring their own private information to maintain their reputational capital in the market (Scharfstein and Stein, 1990; Rajan, 1994). Bikhchandani et al. (1992) and Welch (1992) refer to this behavior as an informational cascade.

Example of irrational view is Herd behavior. This can become increasingly important when the market is dominated by large institutional investors. Since institutional investors are evaluated with respect to the performance of a peer group, they have to be cautious about basing their decisions on their own priors and ignoring the decisions of other managers. In fact, Shiller and Pound (1989) document that institutional investors place significant weight on the advice of other professionals with regard to their buy and sell decisions for more volatile stock investments.

Irrationality in the stock market caused by many reasons in which uncertainty avoidance behavior of investors is the major reason. Sometimes Irrational analyst’s expectations as a cause of excess volatility in the stock market (George Bulkley and Richard D.F. Harris, 1997). Uncertain behavior of the investors based on the macro events and floating information in the market caused irrational changes in the stock markets which ultimately results in stock returns volatility. This is the major reason of uncertainty in the stock market which must be explore to reduce the uncertain
fluctuations in the stock market and ultimately guiding the investors that how to keep focus on their investment without making any uncertain situation in the market.

1.3 Gap Analysis
Christie and Huang (1995) examine the investment behavior of market participants in the US equity market. By utilizing the cross-sectional standard deviation of returns (CSSD) as a measure of the average proximity of individual asset returns to the realized market average, they develop a test of herd behavior. In particular, they examine the behavior of CSSD under various market conditions. They argue that if market participants suppress their own predictions about asset prices during periods of large market movements and base their investment decisions solely on aggregate market behavior, individual asset returns will not diverge substantially from the overall market return, hence resulting in a smaller than normal CSSD. Chang et. al. (2000) extended the work of Christie and Huang (1995) with more powerful approach to detect herding based on equity return behavior. However, no such study was conducted on developing country like Pakistan. On a more recent note, Gupta et. al. (2019) provided a historical perspective on the evolution of the high-frequency daily impact of uncertainty shocks on the first and second moments of stock returns of the U.S. Sarwar & Khan (2016) explored the Effect of US Stock Market Uncertainty on Emerging Market Returns in this paper they just covered the US stock Market Uncertainty not overall or individual Financial Market Uncertainties of countries over the Latin America or aggregate Emerging Markets. They used daily closing values of Chicago Board Option Exchange’s Volatility Index (VIX) as an uncertainty measure. They concluded that, increase in VIX cause declines in market returns of Emerging Markets. These and other later studies used VIX as a proxy of uncertainty. However, since financial markets are not that developed in developing countries, VIX options are mostly unavailable for a large cross section, hence to conduct a cross country study involving different countries, we have to rely on Christie and Huang (1995) and Chang et. al. (2000) methodology. Many country specific studies were conducted in past mostly involving developed countries, however, they still lacks a cross country analysis, to find the commonality globally. Hence, this is a novel endeavor as no as study was conducted with the perspective of global equity markets.

1.4 Research Objectives
This paper examines the effect of financial market uncertainty on market returns of different countries of the world. The effect of other macroeconomic factors on world’s Equity Market Indices was also explored. These factors included Consumer Price Index (CPI), Real Interest Rates (R.IR), Market Capitalization (MCAP), and Gross Domestic Product per capita growth (GDPPCG). For analyzing this relationship, around 40 countries data including developed and developing countries, over the period of 10 years from 2009-2018 which included major ups and down occurred in the Equity markets of the world. To calculate financial market uncertainty, we followed Chang et al. (2000) methodology, involving cross-sectional absolute standard deviations (CSAD) among individual Countries returns, to define non-linear relations between equity return dispersions and market returns.

1.5 Research Question:
1. To calculate uncertainty index for each country
2. To study the effect of Consumer Price Index, GDP per Capita Growth and Real Interest Rates, market capitalization and uncertainty on stock market returns
3. Cross country comparison of the effect of uncertainty on returns.

1.6 Significance:
This study helps to understand and explore the relationship between market uncertainty and stock market returns and make a clear view about the market uncertainties which occurs due to the macro-economic factors fluctuations and related news float in the market furthermore through this study investors can predict and understand the market fluctuations. It also helps to understand, the impact of crises do vary across the time frequencies. Through this research findings which helps policy makers to continuously monitor the financial market and adjust the macro-economic policies to control uncertainty effect on market returns.
This research provide an in depth review about equity return behaviors for a large cross section including developing countries. It also provided a cross country analysis to explore the commonality globally.

2. LITERATURE REVIEW:
(Badshah, et al., 2013; Boscaljan and Clark 2013; Jubinski and Lipton 2013; Sari, Soytas, and Hacihasanoglu 2011) examined the impact of US market uncertainty on the emerging market returns and their results concluded that effects of uncertainty on the values of fixed income securities, alternative assets, commodities, foreign currencies and other market volatilities. 

Rapach, Strauss, and Zhou (2013), and Yunus (2013) discussed about the negative relation between the US market returns and stock market uncertainty and cross market impact of uncertainty on emerging markets are less than US market so, lagged US stock returns are a powerful indicator for developed and developing countries.

Dimic et. al. (2016) conducted a research to explore the impact of global financial market uncertainty and domestic macro-economic factors on stock–bond correlation in emerging markets, they used Emerging markets along with the US to explore this relationship and they just selected 10 countries of Emerging Markets along with the time period of 10 years from January 2001 to December 2013 based stock price indices converted into monthly frequencies. They selected all emerging markets in the sample which have positive higher average stock returns like Colombia, Venezuela and Peru and volatility of these emerging markets are higher than the volatility of US market.

Sarwar and Khan (2017) examined the impact of US stock market uncertainty (VIX) on the Stock market returns of Latin America and aggregate and emerging markets who crossed over the financial crises and global equity market crises era. The uncertainty fear leads to higher volatility in stock market returns through generalized autoregressive conditional heteroskedasticity (GAARCH) type process. This study cover the time period from January 2003 to December 2014 and covers the crucial time period of financial crises. For this, daily closing uncertainty values taken from Chicago Board Options Exchange (CBOE) and the daily closing values of Morgan Stanley Capital International (MSCI) emerging market index (EM) and the MSCI country specific index which includes 23 emerging markets. The results shows that, emerging market returns were reduced due to the US market Uncertainty by both reducing the mean return and raising the variance of a return.

Chulia (2017) established an index for an uncertainty. This index was created after removing the first variation in the series to create the difference between risk and return. For this purpose they sorted 25 portfolios by size and book to market value. Then compare it with macro uncertainty and check its impact on the dynamics of macro-economic variables. This paper is the first which used
Quantile impulse response functions which is obtained from the multivariate quantile to check the impact of US market uncertainties on market returns not only domestic but mature and emerging markets also. For this purpose, used data from January 1998 to March 2016 and results revealed that at the time of financial distress, stock market returns reduces due to an uncertainties shocks both in mature and emerging markets.

**Fu lai lin (2017)** examined the relationship of stock market uncertainty with the stock and bond relationship that how uncertainty impacts stocks and bonds return. For this study, used data from 1988 to 2014, first to examine the time variation factor between stock and bond relation which can be linked in to two dimensions: fundamental economic factors and market uncertainty. The results shows dependency between both of them over the time and impact of uncertainty on long term bond relation is negative while the impact of uncertainty over short time period is positive.

**Christou and Cunado (2017)** used 6 countries data include (Australia, Canada, China, Japan, Korea and the US) to check the impact of economic policy uncertainty on stock market returns by applying VAR model using Stochastic Search Specific Selection (SSSS). Main concerned towards the EPU shocks and US EPU shocks from January 1998 to December 2014 and its concluded that a significant negative relationship found between the stock market returns and EPU shocks all countries except Australia so it would be beneficial for the investors to invest in these countries after an increase in policy uncertainty levels.

**Arori (2016)** in this study, the impact of Economic Policy Uncertainty is checked over a long period on US Stock market returns. For this relation, used the sample period from 1900 to 2014 which is a huge time period including two world wars and several economic and financial crises to check the true picture of relationship between both variables. They tested the different specifications of Markov switching model: Two regime versus Three regime model but results proved Three regime model is better than the other competing models. The results shows that increase in Economic policy Uncertainty reduces significantly stock returns and finally concluded that this relation is persistent and stronger during extreme volatility period.

**Xiong et. al. (2018)** used a new policy uncertainty index to check the long term time varying correlation between Economic Policy Uncertainty and Chinese Stock market return. DCC GAARCH model is used to explore this correlation in which examined the period from January 1995 to December 2016. The model revealed that highest fluctuations during the period of financial crises furthermore the impact of this uncertainty is more on Shanghai stock market than
the Shenzhen stock market and robustness test emphasized that, the impact of Economic Policy Uncertainty is larger on State owned Enterprises as compared to Non State owned Enterprises. So, during the financial crises correlation drops dramatically and Chinese Stock market crash. Hoque and Zaidi (2019) in this paper, they checked the impact of Global Economic Policy Uncertainty on Emerging markets so they checked this impact over Malaysian Market, period from 2003 to 2017 by using Linear and Non Linear Models. Using the GAARCH model, they analyze that GEPU negatively affects the Malaysian Stock market. But Stock market performance in both low and high volatile states impact by the Global Policy Uncertainty and this is uncovered by Markov switching estimation. So, the relationship both the variables GEPU and stock markets returns tends to be asymmetric.

2. MARKET UNCERTAINTY:
Helena Chuliá, Montserrat Guillén, Jorge M. UribeFrank (2016) discussed many theories related to Uncertainty in which Knight was the first person to postulate the distinction between uncertainty and risk on the grounds that the former cannot be described by means of a probability measure while the latter can. So, the distinction between the risk and uncertainty is still a debating topic. Indeed several studies were conducted over it to explore this difference. While we discussed about the empirical studies they mostly relied on proxies of uncertainties which are directly observable like stock return of their implied/realized volatility (i-e., VIX or VXO) the cross sectional dispersion of firms profits (Bloom, 2009), estimated time-varying productivity (Bloom et al., 2013), the cross-sectional dispersion of survey-based forecasts (Dick, Schmeling, & Schrimpf, 2013; Bachmann, Elstner, & Sims, 2013), credit spreads (Fendoğlu, 2014). On the other hand (Scotti, 2016 they provide key insights to the comprehension of uncertainty and serve as a reliable starting point for the analysis of the economic impacts of uncertainty on economic variables. Latanè, H. A., and Rendleman (1976) discussed “The option Pricing model” which is given by Black and Scholes (B-S) the model which gained a so much popularity in both academics and investments. By using this model researcher used the standard deviations of continuous price relative returns which are implied in actual call option prices on the assumption that investors behave as if they price options and this measure which is Implied Standard Deviations (ISDs) used as measure of Market forecast of return variability and then this measured is used for several
purpose to measure its impacts on returns and to check the sensitivity of an option price to movements in the underlying stocks.

Rustam Boldanov, Stavros Degiannakis, George Filis (2016) in their study they used six stock market indices over the period from January 2000 through to December 2014, in order to construct their monthly volatilities. The six market indices represent three oil-exporting countries (TSX (Canada), RTS (Russia), OSEAX (Norway)) and three oil-importing countries (S&P 500 (the US), SSE (China) and Nikkei 225 (Japan)). The calculated volatilities are presented as conditional volatilities which can be defined as conditional standard deviation of returns.

We followed Chang et al. (2000) methodology, involving cross-sectional absolute standard deviations (CSAD) among individual Countries returns, to define non-linear relations between equity return dispersions and market returns.

\[
\text{CSAD} = \sqrt{\sum (R_{i,t} - R_{m,t})^2/N-1}
\]

Where \( R_{i,t} \) is the observed stock return on firm \( i \) at time \( t \) and \( R_{m,t} \) is the cross-sectional average of the \( N \) returns in the aggregate market portfolio at time \( t \). This dispersion measure quantities the average proximity of individual returns to the realized average. Other academic studies have also used variants of the return dispersion measure. For example, Bessembinder et al. (1996) use the absolute deviation of individual firm returns from the market model expected returns as a proxy for firm-specific information flows. Connolly and Stivers (1998) use the stock markets cross-sectional dispersion to measure the uncertainty with regard to the underlying market fundamentals. Stivers (1998) also employs the cross-sectional return dispersion as a measure of the uncertainty faced by imperfectly informed traders in attempting to infer common factor innovations from news and prices.

**Uncertainty Values:**

|         | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | High Value period | Events coinciding to this period |
|---------|------|------|------|------|------|------|------|------|------|------|-------------------|---------------------------------|
| Egypt   | 0.019| 0.015| 0.023| 0.016| 0.012| 0.011| 0.012| 0.011| 0.009| 0.009| 2011              | Egyptian Revolution of 2011    |
| Nigeria | 0.000| 0.000| 0.000| 0.007| 0.004| 0.001| 0.018| 0.009| 0.011| 0.009| 2015              | Election of 2015               |
| Bangladesh | 0.000| 0.000| 0.000| 0.000| 0.014| 0.008| 0.003| 0.002| 0.000| 0.004| 2013              | Impact of market crash in 2010-2011 |
| India   | 0.000| 0.000| 0.012| 0.014| 0.005| 0.003| 0.005| 0.005| 0.003| 0.005| 2012              | Indian Blackouts of July 2012  |
| Pakistan | 0.033| 0.004| 0.005| 0.003| 0.004| 0.006| 0.008| 0.007| 0.005| 0.006| 2009              | IMF package and improve economic conditions |

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| Country       | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lebanon       | 0.016| 0.010| 0.005| 0.000| 0.000| 0.001| 0.001| 0.016| 0.004| 0.014| 0.008| 0.012|
| Namibia       | 0.016| 0.010| 0.005| 0.005| 0.012| 0.004| 0.011| 0.009| 0.012| 0.009| 0.002| 0.002|
| Oman          | 0.000| 0.000| 0.000| 0.016| 0.016| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Colombia      | 0.002| 0.007| 0.004| 0.004| 0.007| 0.002| 0.001| 0.000| 0.001| 0.001| 0.001| 0.010|
| United states | 0.007| 0.007| 0.000| 0.009| 0.007| 0.007| 0.007| 0.007| 0.007| 0.007| 0.007| 0.007|
| South Africa  | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Ukraine       | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Singapore     | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Qatar         | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Romania       | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Philippines   | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| New Zealand   | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Mexico        | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Sri lanka     | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Kenya         | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Japan         | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Jordan        | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Hungary       | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Thailand      | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| China         | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Chile         | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Canada        | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Brazil        | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Hong Kong     | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Bulgaria      | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Australia     | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Croatia       | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Korea, Rep.   | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|
| Mauritius     | 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000| 0.000|

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EGYPT: Hosni Mubarak was in power under emergency law and protests in Tunisia sparked by the death of Mohamed Bouazizi turned into a revolution including the death of Khaled Saeed. Due to all these protest waves it cause high unemployment, increase in inflation rate and low minimum wages which directly hits EGX and cause volatilities.

NIGERIA: Muhammdu Buhari wins The Election of 2015, so The Nigeria Stock market marked for stronger growth in 2015, this Election help to build investors’ confidence again, although depressed oil prices continue to be a reason for caution. Further reforms are introduced which helps in expansion and penetration locally and globally as well.

BANGLADESH: The Bangladesh stock market crash in 2010-2011, some market observers sounding the alarm of a potential bubble in Bangladesh markets. Due to this GDP growth rate recorded at 6.01% lowest in 2013.

INDIA: In the history of mankind it was the worst power crises in which two large scale power Black outs in India in which around 350 million people was affected, while the second one involved a whopping 670 million people, one-tenth of the world’s population and spread over 21 out of 28 Indian states.

PAKISTAN: After the 2008, growth slowed due to the down turn and collapse of world demand but in 2009 it started improving after the IMF bailout package economy gradually moving upward GDP growth rate recorded above the 3% and inflation decrease from 25% to 14% from 2008 to 2009.

INDONESIA: This year 2010, was majorly a disturbance year for the Indonesia because in April Sumatra Earthquake, in June Papua Earthquake and in October Mentawai Earthquake and Tsunami which create disturbance in the economy and ultimately affect financial markets.

LEBANON: Banks are removing the stops to bring in dollars as they want to preserve a two decade old currency peg, which resultantly offers high returns to customers to change their hard currency into long term Lebanese pound deposits to maintain monetary policy as political leaders warnings of economic crises.
NAMIBIA: Due to the excess spending’s in previous fiscal years continued to future years with slower space. Along with this due to the technical recession economic decline during which trade and industrial activity are reduced, generally identified by a fall in GDP in two successive quarters. 

OMAN: Change in GDP was mainly due to the decline in oil prices. Matrah Souk in Muscat. Oman's GDP per capita income fell to about RO6,000 in 2009 from RO8,000 in 2008.

COLOMBIA: In short it’s an implementation of “Money Printing” in which liquidity increase by the Central bank in the financial system. It ultimately affect the financial system and the real economy be selling the additional bonds. When the high quality asset price increase, by paying high prices the effective rate of return decline. Risky assets are benefiting from waves of “dip-buying” - anytime volatility rises.

UNITED STATES: World’s Highest CAPE ratio reason for this higher rate of share repurchases, it may also reflect a strong psychology of fear about the replacement of jobs with the machines but it impossible to pin down the cause of high price of the US market.

SOUTH AFRICA: There were strong indications of increased asset price and risk premium volatility on African financial markets as early as the summer of 2008.

UKRAINE: Due to the Stock market mergers in 2009, outclass performance recorded because before this 10 stock markets were working in the same country.

SINGAPORE: Singapore is counted in four Asian tigers and highly developed with free market economy that’s why it enjoy high GDP rate than other developed countries but sudden decline in GDP growth rate from 44.50% in March of 2010 to -18.90% in September of 2010.

QATAR: Sudden positive changes seen in the QSE market and this moment was started with the start of the FY14. In May 2014, QE Total return Index was at 20,422 and QE Index at 13,964 similarly this trend followed and touched the highest in September 2014, QE Total return Index was at 20,475 and QE Index at 13,728 which is highest in 2009 to 2018.

ROMANIA: The 2011 called a changing year for Romania, by changing the political regime which is continue from years to years by restructuring the economic social system, transition enforced by crisis, imbalance and economic loss. Many authors claim that the Romanian society slipped from communism, a totalitarian regime, without walking through the democracy stage, to post-democracy

PHILIPPINES: Poverty, geographical remoteness, rapid urbanization, malnutrition, and poor hygiene and sanitation all are contributing factors of wide spread of dengue. Other than this
Philippines is also affected by El Niño H12 because of this agriculture sector is affected and PPP (Public Private Partnership) projects were delayed.

NEW ZEALAND: In late 2008 and early 2009, it’s the phase of global crises which caused rapid deterioration in financial and economic activities of overall countries of the world. It caused decline in consumer confidence, recession in economy and collapse in business. So, New Zealand financial markets also faced critical situation due the presence of volatilities.

MEXICO: It was a year filled with fears that were never realized: a global economic slowdown, disruptive trade wars and potential missteps from Federal Reserve policy. The Fed raised rates four times in 2018, including a December 2018 hike that took its key rate to 2.5 percent.

SRILANKA: After the end of the Sri Lankan Civil War on 18 May 2009, CSE indexes increased rapidly creating new records. Market capitalization at the Colombo Stock Exchange reached record high on 6 October 2009 as it reached the Rs. 1 trillion mark for the first time in Sri Lanka’s history. CSE was the best performing stock exchange in the world in 2009 as it jumped 125.2 percent during that year.

KENYA: Kenya economy faces continuous increase in the debt to GDP ratio after the 2012 and in 2016 it reaches to 53.46% so it badly impact the financial markets and liquidity position in the market.

JAPAN: Japan has suffered its worst week since 2008 after the Nikkei fell 4.84% on fears about global banks, a rising yen and limitations of government intervention. The Nikkei has fallen 11.1% over the week, the biggest weekly slump since the height of the global financial crisis in 2008.

JORDAN: Economic disaster as Jordanians are demanding the government's resignation and the dissolution of parliament the government implemented a tax rise of between 50-100 percent on key food staples such as bread, in order to decrease its $700m budget deficit.

HUNGARY: It has low stability in exchange rate with the US dollar sometimes fluctuations as large as 50% decline in GDP can be seen due to the external shocks and government have socialist nature so government has not been able to prove its seriousness regarding the reduction of debt, and continues to post record deficits.

THAILAND: Thailand’s Boom is driven by an Underlying Credit Bubble. As with most other emerging market nations, Thailand is currently experiencing a dangerous credit bubble that is helping to boost its economic growth and consumer spending. Though traditionally an export-
driven economy, debt-funded domestic demand has replaced the country’s export sector as the primary economic growth engine since 2008.

**CHINA:** 2015–16 Chinese stock market turbulence. The Chinese stock market turbulence began with the popping of the stock market bubble on 12 June 2015 and ended in early February 2016. A third of the value of A-shares on the Shanghai Stock Exchange was lost within one month of the event.

**CHILE:** due to fears of contagion of the European sovereign debt crisis. The August 2011 stock markets fall was the sharp drop in stock prices in August 2011 in stock exchanges across the United States, Middle East, Europe and Asia.

**CANADA:** 2008–09 Global Financial Crisis and Recession. In 2008–09, the Canadian economy entered a recession primarily because of problems in the housing market in the United States. A boom in buying houses, fuelled by cheap financing and financial deregulation in that country, collapsed when interest rates started to rise, causing several large financial institutions in the US to fail. These business failures in turn caused a lack of confidence in the overall global financial sector, and this had an impact on the economies of Canada and other countries around the world. Consumer spending and business investment in Canada declined sharply, and it took some time before government could restore stability and confidence in the markets by reducing interest rates and increasing the supply of money.

**BRAZIL:** Brazil stocks jump 7% in biggest gain since 2009, FX intervention boosts real.

**HONG KONG:** The most recent market correction in Hong Kong came in the spring of 2015, and it followed a crash of Chinese stocks on the Mainland in the second quarter when they lost a total value of around 40 percent at one point. The result throughout the year was a slide in the HSI from a peak of 28,442 on April 28 to a bottom of 20,556 on September 28 – a 25 percent drop Bulgarian. Bulgarian Stock Market Hit by Global Shares Rout. The Bulgarian bourse indices fell sharply on Friday as the stock markets in Asia and Europe recorded sharp declines, while Wall Street had its worst day since the 2008 financial crisis.

**AUSTRALIA:** Equity capital markets in the 2009 calendar year to date, Australian companies raised a record $96 billion in initial and subsequent equity issues. Despite representing only 2-3% of global equity market value, Australia has the third most active capital market in the world by value of equity issuance.
CROATIA: The Croatian stock market index is positively associated with real GDP, the M1/GDP ratio, the German stock market index and the euro area government bond yield and is negatively influenced by the ratio of the government deficit to GDP, the domestic real interest rate, the HRK/USD exchange rate, and the expected inflation rate.

KOREA, REP: SEOUL, South Korea when the global financial crisis struck more than two years ago, But South Korea was able to bounce back and resume the soaring growth rates that have enabled its gross domestic product to double since 1998, catapulting South Korea into the ranks of the world’s wealthiest nations.

MAURITIUS: SEM became in 2011 the only Exchange in Africa and one of the rare Exchanges in the world to possess a multi-currency platform, open for dual-currency trading that can list, trade and settle equity and debt products in USD, EUR, GBP, besides MUR.

NAMIBIA: 2018 February - Politicians and civil servants are banned from all foreign business travel to cut expenditure. The economy has been hard hit by a drop in uranium revenues.

RUSSIAN FEDERATION: From July 2008 – January 2009, Russia's foreign exchange reserves (FXR) fell by $210 billion from their peak to $386 billion

VIETNAM: It was a situation that only deteriorate clearly going downwards. It hit a drop of nearly 18% in a quarter and has marked as the worst period of the market

SCATTERPLOT GRAPH ON UNCERTAINTY VS RETURN:
In this graph, on y-axis take Uncertainty and on x-axis Market return and this is shown that when the uncertainty change which can be seen through log difference of uncertainty it also pushes market return with it with the same proportion.

**GRAPH ON UNCERTAINTY VS WORLD UNCERTAINTY INDEX:**

![Graph showing the correlation between Log Differenced UC and Log Differenced WUI.]

In this graph, analysis of two different measures in which one is calculated Market uncertainty according to the prescribed methodology and the other one is World Uncertainty Index which is a new index of 143 countries on a quarterly basis from 1999 to onwards but we used data from 2009 to 2018 and analyze that both the measures are showing same spark of changes in the duration.

**TREND ANALYSIS:**

In the time series graph, analyze the changes in financial market uncertainty from time to time. Like it covers the era from 2009 to 2018, in which major changes occur in between 2015 to 2018 which major reasons are Euro debt crises, El Nino, UK Brexit vote and 2016 US Elections which impact overall the world.
4. REGRESSION SPECIFICATIONS

Over the past years, the relation between the macro economic factors and the stock return were examining and the interaction between these variables are concern able so, different countries determined the relationship exist between the fundamentals macroeconomic factors such as the Consumer Price Index (CPI), Real Interest rate (R.IR), Gross Domestic product per Capita Growth (GDP) and Equity Market returns (MR).

1. REAL INTEREST RATE: (R.IR)

Interest rate is one of the important macroeconomic variables, which is directly related to economic growth. Generally, interest rate is considered as the cost of capital, means the price paid for the use of money for a period of time. From the point of view of a borrower, interest rate is the cost of borrowing money (borrowing rate). From a lender’s point of view, interest rate is the fee charged for lending money (lending rate). According to the study, Chandra (2004) increase in interest rates leads to depress in corporate profitability and increase in discount rates implement to equity investors which have negative impact on stock prices. Similarly, a study conducted on US economy found that, stock returns increases suddenly when the Federal Reserve’s cut the interest rates or discount rates.

An increase in the interest rate share price would decrease and required rate of return is increased so increase interest rates would directly promotes investors to hold their investment in interest bearing securities which cause certain decline in share prices. Another theoretical perspective is,
either the interest rates are short term or long term it negatively respond to stock returns (French et al, 1987).

Real interest rates of different countries taken from “Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.” (Source: International Monetary Fund, International Financial Statistics and data files using World Bank data on the GDP deflator).

2. CONSUMER PRICE INDEX: (CPI)

Mohan & Chitradevi, (2014) Inflation is measured by analyzing the movements in the Consumer Price Index. Inflation rate helps in measuring price inflation, which is measured from the annual percentage change in the General Price index (Consumer Price Index) over the period of time. According to Ariss (2012), Increase in the general price level of goods and services in an economy over a period of time. Inflation is defined as the certain increase in the general level of prices (Shiblee, 2009). Thus, inflation is a persistent rise in the overall (or average) level of prices of all goods and services. Inflation occurs when prices of goods increase or when it needs more money to purchase the same items (Saleem, Zafar & Rafique, 2013). Required risk premium increased by the higher inflation uncertainty which leads to a higher discount rate, and decreases the discounted present value of expected future cash flows, that resultantly cause decline in stock prices. In addition, economic activities are negatively affected by inflation uncertainty and since stock returns lead economic activity, there is a negative relation between stock returns and inflation uncertainty (Azar, 2014).

Fama (1991) examines that expected inflation is negatively related to share prices. It implies that inflation rate is negatively related to US stock prices and positively related to the economic activity (Geske and Roll, 1983).

Consumer Price Index of different countries taken from “Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.” (Source: International Monetary Fund, International Financial Statistics and data files).
3. GROSS DOMESTIC PRODUCT: (GDP per Capita growth)

Economic growth is measured in terms of an increase in the size of a nation’s economy. A broad measure of an economy’s output. A most widely used measure of economic output is the Gross Domestic Product. It’s a calculation method in national accounting is defined as the total value of final goods and services produced within a country's borders in a year, regardless of ownership. Gross Domestic Product per capita growth is the metric used for the distribution of GDP over its population of that country. Researchers also discuss the relationship of GDP and Growth rate that both have positive relationship when the higher the growth rate of GDP they more favorable for the stock market while other factors being constant.

Carstrom (2002) examines the relationship between the future RGDP growth and stock prices. According to him, changes in real GDP cause changes in stock market prices and further add changes in stock prices will reduce firm’s assets worth and affect the cost of their borrowing.

GDP per capita growth rate of different countries taken from “Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.” (Source: World Bank national accounts data, and OECD National Accounts data files).

4. MARKET CAPITALIZATION

Market Capitalization of different countries taken from “Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values converted to U.S. dollars using corresponding year-end foreign exchange rates.” (Source: World Federation of Exchanges database).

The impact of market capitalization on returns extends beyond a comparison of small- and large-cap stocks. Marc R. Reinganum (1999) explored this relationship between the market capitalizations and return researcher conducted a research by collecting a data of New York Stock
Exchange stock over the period beginning at the end of December 1925 and continuing through December 1998 in the NYSE all common stocks are ranked from large to small caps (price per share times number of shares outstanding) Stocks are placed into one of ten market cap decile portfolios depending upon their size. Each portfolio has the same number of securities. Over long investment horizons, smaller-cap stocks outperform larger-cap stocks, although there is much variability around this long-run relationship in shorter investment horizons.

5. EQUITY MARKET RETURN: (MR)

If the market expected stock return is high it would influence the level of stock prices due to the certain change in the demand of stocks. Equity market returns have predictive power for investment and output because stock market returns are a forward-looking variable that incorporates expectations about future cash flows and discount rates. Stock market returns serve as an index to investors or governments in making their investment decisions. Investors of different financial capacity are able to invest in the stock market as long as they are able to get a return that is higher than their cost of capital (Wang, 2012).

Market Indices return data of different countries taken on daily basis from their country’s stock exchange website.

5. METHODOLOGY:

The data regarding stock market returns, CPI, GDP per capita growth, real interest rates, market capitalization and market uncertainty have been taken for the last 10 years from 2009-2018. We have taken 40 different countries Equity Market Indices (dependent variable) for the period of 2009 to 2018 on yearly basis and Market Uncertainty through CSAD model and Consumer Price Index, GDP per capita growth, Market Capitalization and Real Interest rates data (independent variable).

To test this relationship we have run different tests by using EViews 7 statistical package. Similar types of test analysis techniques have been used by (Geetha, Mohidin et al. 2011) for measuring long run causal relationship between inflation and stock market for the case of Malaysia, United State and China respectively.

The model is specified below:

\[ MR = C (MU, MCAP, R.IR, GDPPCG, CPI) \]
This can be represented in equation as:

$$MR = \text{Constant} + \beta \text{ (Market uncertainty)} + \beta \text{ (Real Interest rates)} + \beta \text{ (GDP per capita growth)} + \beta \text{ (Consumer Price Index)} + \beta \text{ (Market Capitalization)}$$
5.1 Descriptive Statistics

The descriptive analyses were conducted to know the mean, median, standard deviation, Skewness, kurtosis and the like statistics.

Overall Descriptive Analysis for market return and financial market uncertainty

| Country   | Market Return | Financial Market Uncertainty |
|-----------|---------------|------------------------------|
|           | Mean          | Median                       | Maximum | Minimum | Std. Dev. | Skewness | Kurtosis | Mean      | Median | Maximum | Minimum | Std. Dev. | Skewness | Kurtosis |
| Australia | 0.0002        | 0.0011                       | 0.0015  | -0.0055 | 0.0048    | 0.38916   | 2.71893  | 0.00896   | 0.00846 | 0.01325 | 0.00581 | 0.00244 | 0.51636 | 2.09784  |
| Bangladesh| 0.0012        | 0                            | 0.0088  | -0.0005 | 0.0004    | 0.22031   | 2.84448  | 0.00305   | 0.00091 | 0.014    | 0       | 0.0045  | 1.5392  | 4.272   |
| Brazil    | 0.00054       | 0.000232                     | 0.00228 | -0.0001 | 0.000698  | 1.4587    | 4.3856   | 0.01176   | 0.01152 | 0.01552 | 0.00924 | 0.00189 | 0.55428 | 2.62907  |
| Bulgaria  | 0.00098       | 0.000077                     | 0.00326 | -0.00306| 0.00188   | -0.70151  | 3.2107   | 0.0272    | 0.0319  | 0.0464  | 0       | 0.0154  | -0.98827 | 2.7485  |
| Canada    | 0.000227      | 0.000275                     | 0.001202| -0.00047| 0.00053   | 0.1413    | 2.2485   | 0.00844   | 0.00769 | 0.01644 | 0.00459 | 0.00337 | 1.40375 | 4.253603 |
| Chile     | 0.00036       | 0.000017                     | 0.00158 | -0.00056| 0.00078   | 0.4078    | 1.6987   | 0.0071    | 0.006407| 0.011425| 0.004887| 0.001868| 1.1711 | 3.76754  |
| China     | 0.000194      | 0                            | 0.00199 | -0.0013 | 0.00098   | 0.6783    | 2.876    | 0.00906   | 0.00421 | 0.02997 | 0       | 0.010869| 0.66635 | 2.1383  |
| Colombia  | 11.686        | 0.0011                       | 57.4998 | -0.0018 | 20.289    | 1.3568    | 3.4603   | 39.64     | 0.0017  | 159.6   | 0.015   | 64.802  | 0.9772  | 2.1136  |
| Croatia   | 0.0001        | 0.0001                       | 0.0011  | -0.0005 | 0.0004    | 0.4151    | 2.9129   | 0.00892   | 0.0083  | 0.0132  | 0.0058  | 0.0024  | 0.5235  | 2.0394  |
| Egypt     | 0.00038       | 0.00007                      | 0.00245 | -0.0026 | 0.00146   | -75807    | 2.88459  | 0.0137    | 0.0121  | 0.0226  | 0.0087  | 0.0044  | 0.8138  | 2.6439  |
| Hong Kong | 0.000156      | 0.000101                     | 0.001305| -0.00062| 0.00057   | 0.68309   | 2.859    | 0.0094    | 0.0101  | 0.0208  | 0       | 0.0061  | -0.0883 | 2.8095  |
| Hungary   | 0.000244      | 7.66E-05                     | 0.001528| -0.00127| 0.0008    | -0.1303   | 2.695    | 0.00933   | 0.01066 | 0.01823 | 0       | 0.00556 | -0.5841 | 2.7777  |
| India     | 0.0002        | 0.0001                       | 0.0011  | -0.0007 | 0.0005    | 0.1939    | 2.2553   | 0.004     | 0.003    | 0.01    | 0       | 0       | 0.963   | 2.751   |
| Indonesia | 0.00075       | 0.000575                     | 0.003397| -0.00047| 0.001092  | 1.460609  | 4.538413 | 0.0055    | 0.006   | 0.0106  | 0.001   | 0.0034  | 0.0846  | 1.5074  |
| Japan     | 0.0003        | 0.0004                       | 0.0017  | -0.0011 | 0.0008    | -0.1879   | 2.7291   | 0.0126    | 0.0127  | 0.0169  | 0.0069  | 0.0027  | -0.584  | 2.8369  |
| Jordan    | 0.0005        | -9.598                       | 0.0059  | 0       | 0.0019    | 2.5518    | 7.741    | 0.0076    | 0.0073  | 0.0221  | 0.0003  | 0.0064  | 1.0125  | 3.5226  |
| Jordan    | -0.00014      | -5.10E-05                    | 0.000348| -0.0009 | 0.00036   | -0.728    | 3.0798   | 0.00748   | 0.00928 | 0.01495 | 0       | 0.0055  | -0.4293 | 1.721   |

*This table presents the summary statistics for market return, financial market uncertainty, Real Interest rates, Market Capitalization, Gross Domestic Product per capita growth and Consumer Price Index covering the data period from January 2009 to December 2018.*
| Country    | Strike 1 | Strike 2 | Strike 3 | Strike 4 | Strike 5 | Strike 6 | Strike 7 | Strike 8 | Strike 9 | Strike 10 |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Kenya      | 0.00041  | 0        | 0.0035   | -0.00098 | 0.0013   | 1.4346   | 4.403    | 0.011468 | 0.009214 | 0.034062  |
| Korea.Rep  | -5.56E-05| 0        | 0.00098  | -0.00111 | 0.00059  | -0.18817 | 2.7201   | 0.0076   | 0.00793  | 0.01896   |
| Lebanon    | 0.081232 | 6.53888  | 0.741426 | -0.00014 | 0.233022 | 2.623873 | 7.96891  | 1.1532   | 0.00113  | 10.4915   |
| Mauritius  | -5.57E-05| 0        | 0.00098  | -0.00111 | 0.00059  | -0.18817 | 2.7201   | 0.0076   | 0.00793  | 0.01896   |
| Mexico     | 0.00035  | 0.00031  | 0.00092  | 8.00E-05 | 0.00024  | 1.2076   | 4.078    | 0.009754 | 0.008342 | 0.016943  |
| N.Zealand  | -0.00013 | 0.00028  | 0.00066  | -0.0032  | 0.0012   | -2.093   | 5.7004   | 0.0125   | 0.0056   | 0.0632    |
| Namibia    | 0.00018  | 5.52E-05 | 0.0009   | -0.0008  | 0.0005   | -0.28    | 3.0899   | 0.0075   | 0.0098   | 0.0168    |
| Namibia    | 0.0031   | 0.0028   | 0.0071   | 0.00062  | 0.00175  | 1.026    | 3.9249   | 0.0107   | 0.01049  | 0.01647   |
| Nigeria    | 0.00018  | 0        | 0.0016   | -0.0009  | 0.00094  | 0.50064  | 1.74982  | 0.0059   | 0.0055   | 0.0183    |
| Oman       | -6.00E-05| -0.0001  | 0.0007   | -0.0006  | 0.00055  | 0.294    | 1.62297  | 0.007    | 0.005    | 0.016     |
| Pakistan   | 0.0008   | 0.001    | 0.002    | -0.0005  | 0.0009   | -0.2162  | 1.5098   | 0.007    | 0.005    | 0.0325    |
| Philippines| -0.00018 | -2.58E-05| 0.00031  | -0.00109 | 0.00039  | -1.1703  | 3.8282   | 0.00898  | 0.0111   | 0.01683   |
| Qatar      | 4.63E-05 | 0        | 0.00117  | -0.00118 | 0.00079  | -0.0097  | 1.928    | 0.00815  | 0.0096   | 0.0169    |
| Rfeder     | 0.000652 | 0.00039  | 0.00363  | -0.00059 | 0.00118  | 1.64095  | 5.1812   | 0.014    | 0.0125   | 0.0299    |
| Romania    | 0.00025  | 0.00013  | 0.00085  | -0.0002  | 0.0003   | 0.5081   | 2.0386   | 0.00754  | 0.0075   | 0.0174    |
| S.Africa   | 0.00041  | 0.00044  | 0.00114  | -0.00039 | 0.00048  | -0.194   | 2.01     | 0.01106  | 0.0114   | 0.0169    |
| Singapore  | -1.90E-05| 7.14E-05 | 0.00059  | -0.00118 | 0.0004   | -1.4569  | 4.9926   | 0.0104   | 0.0107   | 0.013     |
| Sri Lanka  | 0.0003   | 0.00017  | 0.0017   | -0.00061 | 0.00066  | 0.9166   | 3.676    | 0.009291 | 0.008918 | 0.012492  |
| Thailand   | 0.000567 | 0.00057  | 0.0021   | -0.00058 | 0.00088  | 0.3284   | 2.0865   | 0.00999  | 0.00881  | 0.01585   |
| Thailand   | 0.00021  | 0.000287 | 0.000897 | -0.00049 | 0.000426 | -0.09576 | 2.0602   | 0.00986  | 0.00984  | 0.01474   |
| Ukraine    | 0.00036  | 0.00056  | 0.00282  | -0.00226 | 0.0019   | -0.1346  | 1.6083   | 0.0145   | 0.0156   | 0.0217    |
| US         | 0.0288   | 0.0002   | 0.2914   | -0.0042  | 0.0922   | 2.665    | 8.107    | 0.4686   | 0.0097   | 4.556     |
| Viet       | 4.94E-05 | 0        | 0.0016   | -0.0013  | 0.00072  | 0.5475   | 4.5585   | 0.004    | 0.003    | 0.013     |
Correlation

Correlation test was applied to measure the causal relationship between CPI and equity market indices, GDP per capita growth and equity market indices, real interest rates and equity market indices. Correlations computed as the Correlation Coefficient, which has a value that must fall between -1.0 and +1.0. Thus in other words, it shows the relationship between two variables.

In this table we check the correlation between the variables, first value of 1.000 is meaningless because it shows the 100% correlation of Equity Market Indices with itself. Then the correlation between the Consumer Price Index and Equity Market Indices shows the positive relationship with the coefficient value of 0.018285 indicates a very weak positive correlation between both of them. Similarly, Real Interest rates and Market Uncertainty has a positive relationship with the Market returns.

Then the GDP per capita growth and Market Capitalization has a weak negative correlation with the Market return with the value -0.045 and -0.027 respectively. So, all variables has correlation between -1 to +1, so rejecting Ho by accepting Hi which is there is a correlation exist between the variables.

Regression

Fixed effect model or LSDV model allows for heterogeneity or individuality among different countries by allowing to have its own intercept value.

COUNTRY ANALYSIS:

| Country   | C  | CPI        | GDPPC     | UC        | MC        | R. INT    | R- Squared | DW Test |
|-----------|----|------------|-----------|-----------|-----------|-----------|-----------|---------|
| Overall   | 0.004532 | -0.003702 | 0.000306  | 0.302568  | -4.21E-15 | -0.001106 | 0.966929  | 3.458441 |
| Egypt     | 0.000435 | 7.84E-05   | -2.86E-06 | 3.07E-14  | -0.195929 | -3.92E-05 | 0.54712   | 2.565790 |
| Nigeria   | -0.00762 | 0.000376   | -1.07E-05 | 6.76E-05  | 6.28E-14  | -0.024840 | 0.662155  | 2.023693 |
| Bangladesh| 0.002055 | -0.635468  | -0.000822 | 0.001354  | -7.09E-14 | -0.000143 | N/A       | 3.01266  |
| Country         | Close  | Gap  | Index  | Spread  | Turnover | Value  | t-Stat | p-Value |
|-----------------|--------|------|--------|---------|----------|--------|--------|---------|
| Brazil          | 0.00388| 9.57E-05 | 0.000160 | 1.64E-15 | 0.000172 | 0.044128 | 0.376180 | 2.391005 |
| Chile           | -0.00415| 0.061250 | 0.000878 | 0.000203 | 0.000369 | -8.73E-15 | 0.952263 | 2.222533 |
| Indonesia       | 0.010401| -0.000923 | -0.000414 | 0.086802 | -0.000169 | -8.52E-15 | 0.807995 | 2.653436 |
| Jordan          | 0.005451| 0.000957 | 0.000438 | 1.80E-05 | -0.006591 | -1.79E-13 | 0.554916 | 2.569217 |
| Lebanon         | -0.01310| -0.000220 | 0.000120 | 0.070810 | 1.18E-12 | -0.000203 | 0.999997 | 3.464818 |
| Namibia         | -0.00246| 5.98E-05 | 0.000213 | 1.75E-05 | 8.54E-13 | -0.020374 | 0.638108 | 3.003112 |
| Oman            | 0.000249| -6.02E-05 | 0.000126 | 0.071307 | -9.11E-15 | -1.23E-05 | 0.460566 | 2.585287 |
| Colombia        | 8.686806| -0.959119 | -0.725652 | -0.816056 | 0.308914 | 1.38E-11 | 0.964664 | 2.834108 |
| United states   | -0.01093| -0.000361 | 0.000804 | 0.064478 | 0.003232 | 1.28E-16 | 0.999421 | 2.338139 |
| South Africa    | 0.003745| -0.000535 | -0.000403 | -0.000567 | -0.034639 | 1.49E-15 | 0.483358 | 1.662633 |
| Hungary         | 0.00140| 9.24E-05 | 0.000189 | -2.61E-14 | 0.3491 | -0.035314 | 0.2423 | 2.109276 |
| Romania         | 0.001172| -2.88E-05 | -0.046669 | -6.59E-05 | -0.000205 | 3.42E-16 | 0.445161 | 2.121354 |
| Philippines     | 0.00014| 3.11E-05 | -1.82E-05 | -0.149441 | -8.18E-15 | -1.62E-05 | 0.303431 | 2.520305 |
| New Zealand     | -0.00114| 0.000410 | 4.96E-05 | -6.94E-05 | 1.74E-14 | -0.052262 | 0.0948 | 2.946723 |
| Mexico          | 0.000403| -4.96E-05 | -5.43E-16 | 0.000581 | -3.15E-05 | 6.07E-05 | 0.468316 | 1.517463 |
| Sri Lanka       | 0.004745| 1.68E-05 | -4.50E-05 | -0.000118 | -1.63E-13 | -0.061233 | 0.950247 | 2.390514 |
| Kenya           | -0.00057| -0.000158 | 3.13E-05 | 0.091667 | 2.68E-05 | 5.39E-14 | 0.615754 | 1.734483 |
| Japan           | 0.000701| -8.03E-05 | -0.029036 | -0.000126 | -0.000155 | 1.12E-16 | 0.139723 | 1.766646 |
| Jordan          | -0.00259| -0.000353 | 5.15E-05 | -0.042932 | 0.000274 | 3.06E-14 | 0.389701 | 2.851114 |
| Hungary         | 0.002081| -0.000131 | -0.000187 | -0.000115 | -2.31E-14 | -0.033170 | 0.392185 | 2.346545 |
| Thailand        | 0.003914| 6.78E-06 | -0.132895 | -0.000026 | -0.000167 | -9.40E-15 | 0.390637 | 2.189068 |
| China           | -0.01515| 0.000995 | -0.022573 | 0.000719 | 0.000770 | 8.49E-16 | 0.725633 | 2.465462 |
| Chile           | 0.002346| -0.000132 | -0.005258 | -0.0000117 | -0.000117 | -0.000191 | 0.715817 | 2.462666 |
| Canada          | 0.000209| -0.000417 | 0.012344 | -0.000330 | -0.000292 | 7.04E-16 | 0.834507 | 2.578567 |
| Brazil          | -0.00314| -0.000293 | -0.005813 | 2.13E-05 | -7.43E-05 | 3.85E-15 | 0.866878 | 1.975917 |
| Hong Kong       | -0.00110| -6.87E-05 | -0.070155 | 0.001777 | -6.50E-05 | 5.48E-16 | 0.470037 | 1.913022 |
| Bulgaria        | -0.00038| 8.21E-05 | 0.037683 | 0.000241 | -6.75E-05 | 6.99E-14 | 0.529822 | 1.285875 |
| Australia       | -0.00264| -0.000115 | 0.085582 | -6.91E-06 | -0.000491 | 2.48E-15 | 0.529822 | 1.285875 |
| Croatia         | N/A    | N/A   | N/A    | N/A     | N/A      | N/A    | N/A    | N/A     |
| Korea, Rep.     | -0.00095| -9.02E-05 | -0.055997 | -5.55E-05 | 5.27E-05 | 1.31E-15 | 0.547096 | 1.603997 |

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This table presents the regression model results linking the financial market returns with the Financial Market Uncertainty (UC) along with the macro-economic variables like Consumer Price Index (CPI), Gross Domestic Product per capita growth (GDPPCG), Market Capitalization (MC) and Real Interest rates (R.INT).

Coefficients are displayed along with p values in bracket.

A rule of thumb for DW test is that, statistics value between the ranges of 1.5 to 2.5 are relatively normal. There is no auto correlation (serial relationship) if the value is 2 and if the value is greater than 2 and ranges in 2 to 4 indicates a negative auto correlation and the value ranges 0 to 2 indicates a positive auto correlation between the samples.

**EGYPT:** All the variables have p-value greater than 0.05 which means they are insignificant in explaining market returns including that all the variables have negative relationship with the market return except financial market uncertainty and consumer price index because when the Egyptian revolution occur it may cause increase in CPI and Uncertainty which ultimately impact market returns.

**NIGERIA:** All the variables are significant except GDP per capita growth and Real Interest rates and all have positive relationship with market return except these two variables which are insignificant.

**BANGLADESH:** All the variables have negative relationship with the market returns except financial market uncertainty so, when the market the face volatility with the same proportion market returns move with the same direction.

**INDIA:** All the variables are insignificant while the model has strength of only 37% in India and Durbin Watson shows negative auto correlation between the variables.

**PAKISTAN:** Model showing the strength of 95% in Pakistan and all the variables have positive relationship except Market Capitalization. While Real Interest rates and GDP per capita are insignificant because according to the results there is no major impact of these two variables on market returns in Pakistan.

**INDONESIA:** All the variables are insignificant except Market Capitalization and all have negative relationship with market return except Financial Market Uncertainty with the 80% overall strength of the model and due the disturbance in the economy caused after the earthquakes are major reason of high volatilities in Indonesia.
**JORDAN:** All the variables are insignificant while the model is 55% strong and all the variables have positive relationship except Market capitalization and Real Interest rates.

**LEBANON:** Only two variables are significant in this model Market capitalization and Financial Market Uncertainty while all the factors have positive relationship except Real Interest rates and Consumer Price Index.

**NAMIBIA:** Regression results shows 63% overall strength of the model and showing all the variables have insignificant relation with the market return and only Financial Market Uncertainty and Real Interest have negative relation with the market return.

**OMAN:** All the variables are insignificant because all have p value more than 0.05 and model shows 46% strength in the Oman while Financial Market Uncertainty and GDP per capita growth have positive relation with the market return.

**COLOMBIA:** All the variables have p-value more than 0.05 except Market Capitalization and overall strength of the model in Colombia is around 96% and all the variables have negative relationship except Market Capitalization and Real Interest rates which means when performance of the economy high market returns are also high.

**UNITED STATES:** All the variables have positive relationship with the market return except Consumer Price Index which means when the rate of CPI increase in US it would negatively affect its market returns. Only Financial Market Uncertainty have significant value in this model.

**SOUTH AFRICA:** In South Africa, this model is showing 48% strength while all the variables are insignificant and all have negative relationship with the market return except market capitalization.

**UKRAINE:** Due to the unavailability of some factors data for selected time period, regression test is giving an error.

**THAILAND:** All the variables have insignificant relationship, while model have only 30% strength and all the independent variables have negative relationship except Consumer Price Index.

**SINGAPORE:** All the variables have p value more than the 0.05 which means all are insignificant and regression showing 64% strength of the model. All variables have negative relation except Consumer Price Index and Real Interest rates.

**QATAR:** Due to the unavailability of some factors data for selected time period, regression test is giving an error.
ROMANIA: The regression results showed 79% overall strength of the model and all the variables are insignificant except Consumer Price Index and Financial Market Uncertainty. Other than this Market Capitalization and Real interest rates have negative relation with market return.

PHILIPPINES: Overall strength of the model is 44% and all the variables are insignificant while all have negative relationship with the market return except Real Interest rates.

NEW ZEALAND: All the variables are insignificant except Real Interest rates and all the variables have positive relationship except Financial Market Uncertainty and Real Interest rates.

MEXICO: All the variables are insignificant because all have p value more than 0.05 and overall strength of the model is 46% and all the variables have negative relation except Financial Market Uncertainty and Real Interest Rates.

SRI LANKA: All the variables have negative relation with the market return except Consumer Price Index and all the variables are significant except Consumer Price Index and Real Interest rates.

KENYA: Model showing 61% overall strength and all the variables have positive relation with the market return except Consumer Price Index and all the variables are insignificant.

JAPAN: In japan model showing only 13% strength which is too weak means other factors are more contributing to analyze market return and all the variables are insignificant and all have negative relationship except Real Interest rates.

HUNGARY: All the variables have insignificant relationship and all have negative relationship. While regression shows only 39% overall strength of the model.

CHINA: Overall strength of the model is 72% while all the variables are insignificant because all have values more than 0.05 except Consumer Price Index and Financial Market Uncertainty. All the variables have positive relation with market return except GDP per capita growth.

CHILE: All the variables have negative relationship while model has 71% overall strength and all the variables are insignificant and Durbin Watson value is 2.46 which means all the variables have negative auto correlation.

CANADA: All the variables have insignificant relationship and all have negative relationship except Financial Market Uncertainty. While regression shows 83% overall strength of the model and Durbin Watson value is 2.57 which means all the variables have negative auto correlation.

BRAZIL: Durbin Watson value is 1.97 which means all the variables have positive auto correlation. All the variables are insignificant because all have values more than 0.05 except Real
Interest rates and all have negative relation except Financial Market Uncertainty and Real Interest rates.

**HONG KONG:** All the variables have negative relation except Financial Market Uncertainty and Real Interest rates and all are insignificant. Model showing the overall strength of 47% and DW value is 1.91 which means positive auto correlation exist.

**BULGARIA:** All the variables are insignificant and model just have 19% overall strength and all the variables have positive relation except Market Capitalization.

**AUSTRALIA:** All are insignificant and model have 52% overall strength. All the variables have negative relation except GDP per capita growth and Real Interest rates and DW value is 1.28 which means positive auto correlation exist.

**CROATIA:** Due to the unavailability of some factors data for selected time period, regression test is giving an error.

**KOREA, REP:** Overall strength of the model is 54% while all the variables are insignificant because all have values more than 0.05. All the variables have positive relation with market return except Real Interest rates and DW value is 0.54 which means positive auto correlation exist.

**MAURITIUS:** All the variables are insignificant because all have p value more than 0.05 and overall strength of the model is 40% and all the variables have negative relation except Real Interest Rates.

**NAMIBIA:** Overall model is 89% strong while all the variables are insignificant except Consumer Price Index and GDP per capita growth. All the variables have positive relation except Market Capitalization and DW value is 1.73 which means positive auto correlation exist.

**RUSSIAN FEDERATION:** Overall strength of the model is 87% while all the variables are insignificant because all have values more than 0.05. All the variables have positive relation with market return and DW value is 1.73 which means positive auto correlation exist.

**VIETNAM:** All the variables have insignificant relationship and all have negative relationship except Real Interest rates and Market Capitalization. While regression shows 72% overall strength of the model and Durbin Watson value is 1.86 which means all the variables have positive auto correlation.

**OVERALL:** In this model Market uncertainty is the significant variable because its probability value is less than 0.05 but the other variables Consumer Price Index, GDP per capita growth, Real Interest rates, Market Capitalization has values 0.7054, 0.9793, 0.8441 and 0.6615 which is
more than 0.05 which means they are the insignificant variables for explaining Equity Market Indices.

The negative coefficient values of CPI consumer price index which is -0.003 means that when the CPI goes down Equity Market indices return will go up and vice versa. Similarly with Real interest rates and Market capitalization with the value of -0.001 and -4.21 it also follows the same inverse relationship with the Equity market indices return. But GDP per capita growth and Market Uncertainty has a positive relationship with the value 0.0003 and 0.35268 with dependent variable it means that when the GDP per capita growth and Market Uncertainty increases with the same proportion, returns will also increases.

The value of R-squared showed around 96% of variation on Equity Market Indices (dependent variable) of different countries is explained by the variation in macroeconomic factors (Market Uncertainty, Consumer Price Index, Real Interest Rates, Gross Domestic Product per capita growth). The results shows DW stats having a value of 3.458441, which indicates a negative autocorrelation between the samples.

6. DISCUSSION:

The above table shows the correlation co-efficient with domestic macro-economic variables and the global Financial Market Uncertainty of overall selected countries. This correlation Co-efficient is helpful in determining the strength of relationship between two variables and the second thing which have explanatory power is (R-Square) values. Around 23 countries out of 40 showing regression value more than 50% strength of the model, which means in most of the countries the selected independent variables are defining the dependent variable.

The countries which have below 50% (R-square) value are some of developing countries like India, South Africa, Oman, Thailand and Philippines except developed countries like Japan, Jordan, Hong Kong, Hungary, Bulgaria and Mauritius so, we can’t create a link of impact of financial market uncertainty on market returns regarding the developing or developed nations. We can take the example of Singapore which is the ninth most developed nation of the world and having most competitive economy in the world and according to the latest information having world’s highest GDP rate of 7.7% and its R-squared value is 64% other than this Pakistan which is newly entered into the emerging market have R-square value around 95% and the middle class is expanding rapidly, reaching into the tens of millions. Goldman predicted in 2007 that Pakistan could
ultimately have the potential to become similar to the smaller of today’s G7 in terms of size. So, the relationship is not between developed and developing countries, relation is between the how much uncertainty and other independent variables affecting market returns. So, Sensitivity of uncertainty is high in those countries whose R-squared value is high.

The first influential factor is Financial Market Uncertainty in which around half countries out of 40 have a negative relationship with the market returns and the same finding is found in the article, in which 7 countries out of 10 have a negative impact of Financial Market Uncertainty on both stocks and bonds in the long run (Nebojsa Dimic, Jarno Kiviaho, Vanja Piljak*, Janne Äijö, 2016).

The other independent variables are macro-economic variables in which first is Consumer Price Index which mostly negative correlation co-efficient values showing negative relation of Consumer Price Index with the Market returns. Similarly, in many other studies we found a negative relationship of Consumer Price Index with the market returns (D. V. Lokeswar Reddy, 2012 Azar, 2014 and Osagie & Emeni, 2015).

Similarly, Gross Domestic Product per capita growth and Market capitalization have a negative relationship with the Market returns because more than half of the countries have a negative value of correlation co-efficient which describes that when the Gross Domestic Product per capita growth and Market Capitalization is increases it ultimately cause declines in market returns and this results is supported by previous studies as well. Laichen and Obwogi (2015) conduct the research to explore this relationship and findings were same.

In last, Real Interest rates have a positive relationship with the Market returns because around 25 countries have a positive correlation co-efficient values. So, when the interest rates rise it would give increase in Market returns. D. V. Lokeswar Reddy (2012) conduct the research and their results were same when the interest rates increase it ultimately gives positive impact on Market returns.

7. **CONCLUSION**

The methodology applies on the panel data of multiple countries of the same data of ten years. The correlation is the first objective of the study that has been analyzed in a way that each component’s relation and significance is viewed with the explained variable. The results that has been generated is also viewed with the help of Regression i.e., the second objective of the study on the single basis and then overall impact is viewed of different macro components on the performance of the Equity...
market. The model summary shows the overall strength of the variables that may help in bringing on board any underlying impact and helped us in the single view to examine the impact of each macro factor on the overall performance of the Equity Market.

In the gap analysis as discussed about the different studies, in which many researchers just covered the emerging markets not covered the markets of the whole world. But in this research random selection of countries from the overall to check the different categories of volatilities impact on market return including this all researches are before the 2015 so this research obsolete this gap also.

By studying the ten years impact of financial market uncertainty in this study researchers can be able to understand the market fluctuations and the impact of crises do vary across the time frequencies and it also facilitates the policy makers regarding the macro-economic policies who continuously monitor and adjust the market according to the trends. This research is also helpful for the new researchers to emphasize on different method for measuring Market Uncertainties which discussed in this research and can also use the described method for future analysis and calculation of upcoming Market uncertainties in future.

It is concluded that, Financial Market uncertainty has a significance impact on the Market returns and this phenomenon is applicable in all over the countries so during the crises Financial Market uncertainties move upwards along this Market returns also moved with the same proportion. Other than this, macro-economic variables also have significant impact on the market returns.

It leads to upshot that in the given explanatory variables only Market Uncertainty does have the direct impact on the market while the other variables of our study; Consumer Price index and the Real Interest rates do have an impact on the endogenous but does not show any considerable impact on the performance of Equity Market.

So, overall significance of this research paper is that it will be helpful for the upcoming researchers and serve as a base paper and this technique can be used further for exploring upcoming volatilities in the different stock markets of the world. It helpful in taking experience from previous occurred events that how market reacts at the time of crises like in this paper we study about Canada that its volatility rate is high in 2009 because at that time its economy was entered into the Recession phase due to rise in interest rates consumer spending’s and business investment declined sharply and at that time government was too late to take measure actions to overcome this problem like decrease in interest rates and increase in money supply. Similarly many other situations of different
countries discussed in this paper which would be helpful to overcome if similar type of problem will occur in future.

REFERENCES:

Ariss, R. T. (2012). Understanding Inflation and Revising National Price Data Lebanese Economic Association, Beirut-Lebanon

Arouri, M., Estay, C., Rault, C., & Roubaud, D. (2016). Economic policy uncertainty and stock markets: Long-run evidence from the US. Finance Research Letters, 18, 136-141.

Azar, S. A. (2014). Inflation and stock returns II. International Journal of Economics and Finance, 6(1), 208-216.

Bachmann, R., Elstner, S., & Sims, E. R. (2013). Uncertainty and economic activity: Evidence from business survey data. American Economic Journal: Macroeconomics, 5(2), 217-49.

Badshah, I. U., Frijns, B., & Tourani-Rad, A. (2013). Contemporaneous spill-over among equity, gold, and exchange rate Implied Volatility Indices. Journal of Futures Markets, 33(6), 555-572.

Bessembinder, H., Chan, K., Seguin, P.J., 1996. An empirical examination of information, differences of opinion, and trading activity. Journal of Financial Economics 40, 105-134

Bikhchandani, S., Hirshleifer, D., Welch, I., 1992. A theory of fads, fashion, custom, and cultural change as informational cascades. Journal of Political Economy 100, 992-1026

Boldanov, R., Degiannakis, S., & Filis, G. (2016). Time-varying correlation between oil and stock market volatilities: Evidence from oil-importing and oil-exporting countries. International Review of Financial Analysis, 48, 209-220.

Bomfim, A.N. (2003). Pre-announcement effects, news, and volatility: monetary policy and the stock market. Journal of Banking and Finance, 27(1), 133–151.

Bulkley, G., & Harris, R. D. (1997). Irrational analysts' expectations as a cause of excess volatility in stock prices. The Economic Journal, 107(441), 359-371.

Carlstrom, C. T., Fuerst, T. S., & Ioannidou, V. P. (2002). Stock prices and output growth: an examination of the credit channel. Federal Reserve Bank of Cleveland.

Chang, E. C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. Journal of Banking and Finance, 24(10), 1651-1679.

Chen, S. J., & Jordan, B. D. (1993). Some empirical tests in the arbitrage pricing theory: Macro variables vs. derived factors. Journal of Banking & Finance, 17(1), 65-89.

Electronic copy available at: https://ssrn.com/abstract=3681304
Christie, W.G., Huang, R.D., 1995. Following the pied piper: Do individual returns herd around the market? Financial Analysts Journal, July-August, 31-37

Chuliá, H., Guillén, M., & Uribe, J. M. (2017). Measuring uncertainty in the stock market. International Review of Economics & Finance, 48, 18-33.

Chuliá, H., Martens, M., & Van Dijk, D. (2010). Asymmetric effects of federal funds target rate changes on s&p stock returns, volatilities and correlations. Journal of Banking and Finance, 34, 834-839.

Connolly, R., Stivers, C., & Sun, L. (2005). Stock market uncertainty and the stock-bond return relation. Journal of Financial and Quantitative Analysis, 40(1), 161-194.

Connolly, R., Stivers, C., 1998. Conditional stock market return autocorrelation and price formation: evidence from six major equity markets. Working paper, University of Georgia and University of North Carolina at Chapel Hill.

Degiannakis, S., Filis, G., & Kizys, R. (2014). The effects of oil price shocks on stock market volatility: Evidence from European data. The Energy Journal, 35(1).

Devenow, A., Welch, I., 1996. Rational herding in financial economics. European Economic Review 40, 603-615

Dick, C. D., Schmeling, M., & Schrimpf, A. (2013). Macro-expectations, aggregate uncertainty, and expected term premia. European Economic Review, 58, 58-80.

Dimic, N., Kiviaho, J., Piljak, V., & Äijö, J. (2016). Impact of financial market uncertainty and macroeconomic factors on stock–bond correlation in emerging markets. Research in International Business and Finance, 36, 41-51.

Engle, R. (2002). Dynamic conditional correlation: A simple class of multivariate generalized autoregressive conditional heteroskedasticity models. Journal of Business & Economic Statistics, 20(3), 339-350.

Evbayiro-Osagie, E. I., & Emeni, F. K. (2015). INFLATION RATES, FINANCIAL OPENNESS, EXCHANGE RATES AND STOCK MARKET RETURNS VOLATILITY IN NIGERIA. Ican Journal Of Accounting & Finance, 4(1), 125-140.

Fair, R.C. (2002). Events that shook the market. Journal of Business, 75, 713–731.

Fama, E.F. (1991), "Efficient capital markets: II", The Journal of Finance 46, 1575-1617.

French, K. R., Schwert, G. S., & Stambaugh, R. F. (1987). Expected stock returns and volatility. Journal of Financial Economics, 19, 3 – 30
Geetha, C., Mohidin, R., Chandran, V. V., & Chong, V. (2011). The relationship between inflation and stock market: Evidence from Malaysia, United States and China. *International journal of economics and management sciences, 1*(2), 1-16.

Geske, R., & Roll, R. (1983). The fiscal and monetary linkage between stock returns and inflation. *The journal of Finance, 38*(1), 1-33.

Gupta, R., Lau, C. K. M., & Wohar, M. E. (2019). The impact of US uncertainty on the Euro area in good and bad times: evidence from a quantile structural vector autoregressive model. *Empirica, 46*(2), 353-368.

Hoque, M. E., & Zaidi, A. S. (2019). IMPACTS OF GLOBAL ECONOMIC POLICY UNCERTAINTY ON EMERGING STOCK MARKETS: EVIDENCE FROM LINEAR AND NON-LINEAR MODELS. Prague Economic Papers, 1-12.

https://fred.stlouisfed.org/series/ for World Uncertainty Index

https://www.investing.com/ for daily market returns

Jones, P. M., & Olson, E. (2013). The time-varying correlation between uncertainty, output, and inflation: Evidence from a DCC-GARCH model. *Economics Letters, 118*(1), 33-37.

Jubinski, D., & Lipton, A. F. (2013). VIX, gold, silver, and oil: how do commodities react to financial market volatility?. *Journal of Accounting and Finance, 13*(1), 70-88.

Kang, W., Lee, K., & Ratti, R. A. (2014). Economic policy uncertainty and firm-level investment. *Journal of Macroeconomics*, 39, 42-53.

Laichena, K. E., & Obwogi, T. N. (2015). Effects of macroeconomic variables on stock returns in the East African community stock exchange market. *International journal of education and research, 3*(10), 305-320.

Latanè, H. A., and Rendleman, R. J. Jr, “Standard Deviations of Stock Price Ratios Implied in Options Prices.” *Journal of Finance, 31* (1976), 369–381

Lin, F. L., Yang, S. Y., Marsh, T., & Chen, Y. F. (2018). Stock and bond return relations and stock market uncertainty: Evidence from wavelet analysis. *International Review of Economics & Finance*, 55, 285-294.

Liu, X., Margaritis, D., & Wang, P. (2012). Stock market volatility and equity returns: Evidence from a two-state Markov-switching model with regressors. *Journal of Empirical Finance, 19*(4), 483-496.

Mohan, C., & Chitradevi, N. (2014). Impact of inflation and exchange rate on stock market performance in India. *Indian Journal of Applied Research, 4*(3), 230-232.

Electronic copy available at: https://ssrn.com/abstract=3681304
Nikkinen, J., & Sahlström, P. (2004). Impact of the federal open market committee's meetings and scheduled macroeconomic news on stock market uncertainty. International Review of Financial Analysis, 13(1), 1-12.

Rajan, R.G., 1994. Why credit policies Fluctuate: A theory and some evidence. Quarterly Journal of Economics 436, 399-442.

Rapach, D. E., Strauss, J. K., & Zhou, G. (2013). International stock return predictability: what is the role of the United States?. The Journal of Finance, 68(4), 1633-1662.

Reddy, D. L. (2012). Impact of inflation and GDP on stock market returns in India. International Journal of Advanced Research in Management and Social Sciences, 1(6), 120-136.

Reinganum, M. R. (1999). The significance of market capitalization in portfolio management over time. The Journal of Portfolio Management, 25(4), 39-50.

Roll, R., & Ross, S. A. (1980). An empirical investigation of the arbitrage pricing theory. The Journal of Finance, 35(5), 1073-1103.

Saleem, F., Zafar, L., & Rafique, B. (2013). Long run relationship between inflation and stock return: evidence from Pakistan. Academic Research International, 4(2), 407.

Sari, R., Soytas, U., & Hacihasanoglu, E. (2011). Do global risk perceptions influence world oil prices?. Energy Economics, 33(3), 515-524.

Sarwar, G., & Khan, W. (2017). The effect of US stock market uncertainty on emerging market returns. Emerging Markets Finance and Trade, 53(8), 1796-1811.

Scharfstein, D.S., Stein, J.C., 1990. Herd behavior and investment. American Economic Review 80,465-479

Scotti, C. (2016). Surprise and uncertainty indexes: Real-time aggregation of real-activity macro-surprises. Journal of Monetary Economics, 82, 1-19.

Shiblee, L. S. (2009). The impact of inflation, GDP, unemployment, and money supply on stock prices. GDP, Unemployment, and Money Supply On Stock Prices (December 29, 2009).

Shiller, R.J., Pound, J., 1989. Survey evidence of dissusing interest among institutional investors. Journal of Economic Behavior and Organization 12, 47-66.

Welch, I., 1992. Sequential sales, learning and cascades. Journal of Finance 47, 695-732.
Xiong, X., Bian, Y., & Shen, D. (2018). The time-varying correlation between policy uncertainty and stock returns: Evidence from China. Physica A: Statistical Mechanics and its Applications, 499, 413-419.