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Impact of EPU and Exchange Rate on the Stock Returns of G-7 Countries: A MIDAS Regression Approach

by

Samera Hussain

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I want to dedicate this achievement my parents, teachers and friends who always encourage and support me in every crucial time

CERTIFICATE OF APPROVAL

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Abstract

The research aims to find the impact of Economic Policy Uncertainty and Exchange Rate on Stock Returns of G-7 countries. This study applies the MIDAS regression analysis on the monthly and intra-quarter compounded stock returns for the period of January 2001 – September 2018. OLS regression has been used to compare the outcomes of MIDAS regression analysis the findings of the study suggest the predictive power p of MIDAS regression analysis in case of G-7 countries is significantly more than traditional OLS regression analysis.

Keywords: Economic Policy Uncertainty, Exchange Rate, Stock Returns, Intra-Quarter Compounded Stock Returns, MIDAS Regression, OLS Regression.

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Chapter 1

Introduction

1.1 Introduction of the Study

Recently economic policy uncertainty has economic importance in terms of investment perspectives due to its predictive power (Chen, Jiang, & Tong, 2017). Similarly, , economic policy uncertainty contains anticipative data and guidelines which are statistically important in return prediction (Chen et al (2017). For the purpose described by Chen, Jiang and Tong (2017), it is necessary to add to the literature the impact and magnitude of the economic policy ambiguity on stock returns. Bloom (2014) also emphasized the important implications of economic uncertainty in portfolio diversification.

Furthermore, there are two findings reported by the studies for the link between stock returns and exchange rate (Zivkov, Njegic, & Pavlovic, 2016). Therefore, considering the importance of exchange rate as a predictor of stock returns, it is necessary to incorporate it in this instant study because it will certainly improve the reliability and responsiveness of the model. Besides, long term predictive connection is harder to dictate because of the reality of inference related to the long-run relationships are either nonexistent or invalid in an incomplete model such as the one which has omitted an important variable (Caporale & Pittis, 1997). According to Fama and French (2015) finally extended the model to five factor by including two more factors, which were profitability and investment (Fama & French, 2015).

1.2 Aim of the Study

Studies have been proven to be of great benefit for the investors to make informed decisions and in managing their portfolios and Harry Markowitz presented his Modern Portfolio Theory (MPT) in 1952 which stated that investor utility is only a function of expected returns and expected risk (Markowitz, 1952).

Over the years that simple model by Markowitz (1952), has been widely used and new factors have been introduced to this model to make the model more responsive and reliable such as using the same model (MPT) as foundation. John Lintner (1965), William F. Sharpe (1964) and Jack Treynor (1961, 1962) independently invented Capital Asset Pricing Model in short CAPM (Fama & French, 2004).

Still decades after the invention of CAPM, it is widely used in applications such as cost of capital to the firm and to evaluate the performance of managed portfolios (Fama & French, 2004). The invention of CAPM had the idea to measure risk and to define relation between expected returns and systematic risk behind it, and to fulfill that particular task CAPM had proven to be of significant use even after decades.

Improvements in the CAPM continued to be made with time and new factors were introduced in the model to make it capture so the model could describe stock returns effectively. In 1993, Fama and French introduced two new factors in the model which the model composition of three determinants at the time. At that time the three factors were market risk, the excellent performance of small versus the big firms and the outperformance of high book to market versus small book to market companies (Fama & French, 1993).

In correspondence to Fama and French Three Factor Model, Mark M. Carhart presented another Four Factor Model. It may not be very popular today but Carhart's Four Factor Model was an expansion of Fama and French Three Factor Model. Four determinants Model of Carhart presented force factor as a fourth factor for resource valuing of stocks. It is likewise referred to in the business as the MOM factor (month to month force). Momentum in a stock is portrayed as

the propensity at the stock price to keep rising on the off chance that it is going up and to keep declining on the off chance that it is going down (Carhart, 1997).

According to Fama and French (2015) finally extended the model to five factor by including two more factors, which were profitability and investment (Fama & French, 2015). Very recently, Fama and French Five Factor asset pricing model has been extended by incorporating the sixth factor in the existing Five factor model. The sixth component was human capital component which was added to the model (Roy & Shijin, 2018).

The six factor model now has the market risk, the outperformance of small versus the big firms, the outperformance of high book to market versus small book to market companies, profitability, investment and the human capital component.

So the interest in stock returns has not been overlooked for over six decades and it continues to grow. But there are still macroeconomic variables i.e current account deficit for which the effect on stock returns has not been completely investigated.

1.3 Objectives of the Study

Considerable amount of literature has been available for stock returns but in this research want to contribute to that literature by:

1. To empirically substantiate the relationship of G-7 countries' economic policy uncertainty with controlling effect of G-7 countries' exchange rate on stock returns.

2. To empirically substantiate the relationship of G-7 countries' exchange rate with controlling effect of G-7 countries' economic policy uncertainty on stock returns.

1.4 Research Questions

In this analytical study, following are the research questions which are explore and explain:

i. Does G-7 countries' economic policy uncertainty significantly impact stock returns with controlling effect of G-7 countries' exchange rate?

ii. Does G-7 countries' exchange significantly impact stock returns with controlling effect of G-7 countries' rate economic policy uncertainty?

1.5 Scope of the Study

This research study is based on macroeconomic data and stock return data of the G-7 countries and has the parameters just to define the relationship and magnitude of the relation that may exist between the economic policy variability, exchange rate and the stock returns of individual G-7 country. The study is set to develop the influence of economic policy uncertainty on stock returns with the controlling influence of exchange rate, and also the effect of exchange rate on stock returns with the controlling effect of economic policy uncertainty.

Previous studies have limited only to bivariate models or had only one study under investigation such as Chen, Jiang, and Tong (2017), which had used Chinese market for the pupose of study. As of exchange rate, in literature its exposure has not been fully investigated on the G-7countries as a whole. Also studies haven't investigated the impact of each of these varibles with controlling effect of each of these varibles in the model.

For those puposes, the scope of this study is limited to G-7 countries. This study uses data of macroeconomic variables such as economic policy uncertainty and exchnage rate of G-7 countires and tends to investigate their impact over stock retunrs of G-7 countries. The results of the study can be generalized only to G-7 countries' perspective.

1.6 Organization of the Thesis

The thesis is divided into five chapters.

The entire study is structured as follows; Chapter 2 includes the literature reviews of the previous studies and hypotheses for the study. Chapter 3 covers the data description and methodology of the current research study. Chapter 4 covered the results and findings. Finally, discussion, conclusion, recommendation and limitation of the current research study also future direction covers section 5.

Chapter 2

Literature Review

2.1 Concepts and Definitions

Baker et al, (2016), to evaluate the economic policy unreliability and construct an index they have incorporated three components into their model. One segment measures and evaluates newspapers inclusion of economic policy uncertainty. A second segment mirrors the quantity of government charge code arrangements set to terminate in upcoming age. The third part utilizes difference among monetary perception as a proxy for uncertainty.

The initial measure for the estimation of economic policy uncertainty is an index from 10 extensive papers of the nation. From those papers, they build a standardized list of volume of news articles examining economic policy uncertainty.

The next part of index draws on reports by the Congressional Budget Office (CBO) that compile lists of temporary federal tax code provisions. They make yearly dollar-weighted numbers of tax code provisions scheduled to expire throughout following decade, giving a proportion of dimension of uncertainty with respect to way that the government charge code will take later on.

The last part of their policy linked uncertainty index draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters. Moreover, they use the dispersion between individual forecasters' expectations about future dimensions of

the Consumer Price Index, Federal Expenditures, and State and Local Expenditures to make measures of uncertainty about policy linked with the macroeconomic factors.

2.2 Theoretical Reflections

Few factors affecting the stock returns for which the studies have tried to establish links over the period are market risk (Fama & French, 2004) , exchange rate (Živkov, Njegić, & Pavlović, 2016), monetary policy (Chen S.-S. , 2007), and economic policy uncertainty (Chen, Jiang, & Tong, 2017) which has grown in popularity in the past decade.

Studies have identified the origins of economic policy uncertainty (EPU) to year 1985 and hence the evolution has refined it to its current state (Baker, Bloom, & Davis, 2016). The role of economic policy has been looked into for predicting many macroeconomic variables, like in predicting the exchange rate returns (Christou, Gupta, Hassapis, & Suleman, 2018). The goal behind the study of Christou et al (2018), was to make observational connection between economic policy uncertainty (EPU) and exchange rate.

The examination utilized news-based proportion of economic policy uncertainty (EPU) to research whether it can estimate exchange rate returns and volatility utilizing a quantile regression approach, utilizing information from 13 nations and the investigation's discoveries uncovered that the economic policy uncertainty is valuable for gauging exchange rate returns and volatility (Christou, Gupta, Hassapis, & Suleman, 2018).

The effects of economic policy uncertainty are not limited to just one area, its impact is wide spread to other aspects of the economy such as tourism (Gozgor & Ongan, 2017). Gozgor and Ongan (2017) used economic policy uncertainty index for the first time as an independent variable to determine the change in tourism spending pattern (direct sales) of United States domestic tourists. High economic policy uncertainty was found to be a cause for significant decline in the tourism spending in the long run (Gozgor & Ongan, 2017).

The goal of the study was to break down the influence of economic policy uncertainty on Japanese visitors and they found that specific increase in EPU of America cause 4.7% decline in the Japanese tourists coming to USA. A study from Choi (2014), show that variations in economy-wide uncertainty makes asymmetric stock price reactions to firm earnings surprises. Likewise, the uncertainty that goes to bad income news amid expansion with more prominent economy-wide uncertainty events bigger price declines because of the reasons of news being conflicting with the earlier beliefs about the condition of the increase in economy uncertainty (Choi, 2014).

This finding is steady with Veronesi (1999). As indicated by his investigation speculators' ability to support changes in their own uncertainty on the state influences stock prices to overcompensate to terrible news in great occasions and under respond to uplifting news in bad occasions. Rational expectation equilibrium model likewise demonstrates that speculators are progressively inclined to request higher anticipated returns in face of more prominent uncertainty (Veronesi, 1999).

A step further, to investigate the predictive ability of univariate models against bivariate models, a study used economic policy uncertainty in the bivariate model which contained information on a measure of economic uncertainty (Segnon, Gupta, Bekiros, & Wohar, 2018). The purpose of the study by Segnon et al (2018), was to incorporate economic uncertainty in different models to analyze the accuracy of the models in predicting the Gross National Product of United States.

The results showed that Economic Policy Uncertainty can help in improving the accuracy of the United States growth forecast, furthermore other uncertainty forecast dimensions such as NVIX and GPR in various cases have less explanatory power in predicting United States GNP growth or recession than EPU (Segnon, Gupta, Bekiros, & Wohar, 2018).

Belke & Osowski, (2019), For that reason, Belke and Osowski (2019), compared the impacts of United States policy uncertainty shock with that of Euro area policy uncertainty shocks. The findings showed that expansion in economic policy uncertainty not just has negative effect on total national output (GDP), consumer prices, equity prices, and interest rates yet additionally that the uncertainty shocks

cause further recession in Continental Europe (with the exception of Germany) than in Anglo-Saxon nations (Belke & Osowski, 2019).

Further results by Belke and Osowski (2019), found that United States uncertainty shocks have a greater effect than those of Euro region and economic policy uncertainty not just influences the nation from which the economic policy uncertainty shocks started from yet additionally has expansive crossfringe impacts which rise rapidly outside the area of root.

Recent study of interest has also incorporated Economic Policy Uncertainty (EPU) into the research model (Chen, Jiang, & Tong, 2017). Chen, Jiang and Tong (2017) explained the reason for the investigation which was to test whether the Economic Policy Uncertainty of China has any effect over the normal stock return in Chinese securities exchange. Authors have expressed in their findings that Economic Policy Uncertainty on different time horizons can foresee negative future stock returns yet the negative nexus between Economic Policy Uncertainty and expected future returns were observed to be significant by controlling number of economic and market uncertainty factors or when leading out-of-sample tests (Chen, Jiang, & Tong, 2017).

A study on Pacific-Rim used economic policy uncertainty to investigate its impact on stock returns. Christou et al. (2017), used six nations as a sample which included China, Australia, Japan, Canada, USA and Korea. The authors expected to explicitly break down the spillover effect of US economic policy uncertainty on the stock returns of these nations and furthermore the effect of local economic policy uncertainty on the securities exchanges for the period 1998 to 2014. These nations gave interesting results as they verify a few discoveries of Sum. (2013). Study's outcomes demonstrated that expansion in economic policy uncertainty causes negative effect on stock returns. They likewise shared that spillover effect is seen from US economic policy uncertainty to the stock returns and negative relationship is found for every one of the nations with the exception of Australia. Authors recommend Australia as great open door for financial specialists to put resources into, in the event of high economic policy uncertainty in USA (Christou, Cunado, Gupta, & Hassapis, 2017).

Another study has incorporated the EPU of United States in the model but has tested its impact over ASEAN (Indonesia, Singapore, Malaysia, Philippines and Thailand) stock market returns (Sum, 2013). The study utilized Granger Causality tests on five markets to check whether the progressions in economic policy uncertainty of United States can be an imperative determinant in clarifying the progressions stock returns of those economies. Results for Granger Causality tests demonstrated that changes in economic policy uncertainty of U.S causes the adjustments in stock profits for the Singapore and Malaysia stock markets yet same can't be said for Indonesia,

Philippines and Thailand. By testing EPU on cross markets the findings further provided evidence that changes in EPU of United States are negatively related to returns in five ASEAN stock markets and ASEAN stock markets are linked to economic policy and stock market in U.S. The findings suggested that investors in ASEAN markets do consider the changes and conditions in U.S economic policy conditions in their investment decisions.

Furthermore, economic policy impacts have also been investigated in emerging market for the purpose of identifying its relation with exchange rate volatility (Krol, 2014). He found that domestic economic policy uncertainty has more significant impact in case of less integrated economies, whereas more integrated are more prone to have influence from US economic policy uncertainty and domestic economic policy uncertainty in down times of the economy.

Exchange rate has turns out to be a crucial factor for determining the stock returns. Many studies have incorporated exchange rate in models to predict and establish sound relation with stock

Returns (Živkov, Njegić, & Pavlović, 2016;Kanas, 2000). (Živkov016) (Kanas, 2000). Kanas (2000), the proof of volatility spillover in stock returns and exchange rate by breaking down information from six nations in particular USA, UK, Japan, Canada, France and Germany. Author gives observational proof that there is a presence of volatility spillover from stock returns to exchange rate changes for five nations, Germany being the exemption. Author additionally gives that all spillovers are symmetric as in the impact of bad news from securities exchange has

same effect over exchange rate as the uplifting news from stock market (Kanas, 2000).

Sui and Sun (2016) findings suggest the opposite. They utilize the BRICS nations (Brazil, Russia, India, China and South Africa) as sample and examine the linkage between domestic stock returns, foreign exchange rate, interest rate changes and returns of USA S&P 500. Their findings recommend that in short run there is a spillover effect from foreign exchange rate to stock returns yet no proof if there should arise an occurrence of the other way around. Likewise, the spillover effect between exchange rate and stock returns were significant amid the recession of 2007-2009. Then again, US S&P 500 shocks were found to affect the stock exchange in China, Brazil and South Africa (Sui & Sun, 2016).

In case of China, Zhao (2010), also gives blended discoveries for the connection of conversion scale and stock returns. Author utilizes month to month information from 1991 to 2010 with VAR and multivariate GARCH models (generalized autoregressive conditional heteroscedasticity models) and look at the dynamic idea of connection between the Renminbi (RMB) real exchange rate and stock returns. Findings by the author demonstrated no stable long term connection no mean spillover between the two. Further tests by the author demonstrated the bidirectional volatility spillover impact between foreign exchange market and stock market which can be followed back to developments made in the stock markets in the past which have the incredible impact on future volatility in foreign exchange market and the other way around (Zhao, 2010).

The abundance of literature can be found on the nexus between the stock returns and exchange rate but the findings are fluctuating in kind of their direction. For instance, Alagidede et al (2011), to analyze the nexus between the exchange rate and stock returns from January 1993 to December 2005 in Australia, Canada, Japan, Switzerland and UK. By breaking down the factors through both straight and non-straight models, they reasoned that the two factors have no long run relationship. By investigating the transient causality the creators discovered proof of nexus working from exchange prices to stock prices in UK, Canada and Switzerland, additionally the other way for the Switzerland (Alagidede, Panagiotidis, & Zhang, 2011).

These discoveries are supported by the examination by Lean et al. (2011), where they reviewed the association between exchange rate and stock returns for eight Asian nations. For checking cointegartion and Granger causality for every individual Asian nations they utilized the Gregory and Hansen cointegration test and inferred that there is no presence of long-run connection between exchange rate and stock prices, yet just a contemporaneous impact which must be found in short-run (Lean, Narayan, & Smyth, 2011).

For examining the short term and long term relationship of stock returns and exchange rate with the monetary policy changes Yang (2017), investigate the impact of these markets in four small open economies in the region of Asian Pacific (Singapore, South Korea, Hong Kong and Taiwan from period of 1999 to 2016). Aim of the author was to investigate three viewpoints in the examination, the first being the efficiency in stock markets in light of changes in exchange rate and monetary policy shocks.

Second one was development in exchange rate because of changes in stock prices and monetary policy shocks. Third one was to look at the narrowness between the stock returns and exchange rate in short run and long run. To address these three angles author made three inferences, initial one demonstrated that while the effect of money related monetary shocks as for stock returns are contemporaneous for each of the four economies, stock prices unite to the benchmark generally apace in Hong Kong and Singapore than in South Korea and Taiwan.

Second was that the unpredictability caused by the exchange rate shocks was less in short-keep running in the stock market of Hong Kong and Singapore, where as the; long-run combination to gauge in the majority of the four economies takes roughly rise to measure of time. Third to address the causality between the stock returns and swapping scale was that where the stock value stuns were found to cause exceptionally continuous varieties in the exchange rates of each of the four economies, exchange rate shocks initiated an extremely immediate effect on stock prices (Yang, 2017). Ajayi and Mougoue in 1996, using the Error Correction model (ECM) for the sample of eight advanced economies to analyze the short-run and long-run dynamics of the exchange rate changes and stock indices. They provide

the findings that suggest that negative short-term effect on domestic currency value is due to increase in aggregate domestic stock price, whereas increase in stock price leads to positive influence on domestic currency value in the long-run. An author finds that domestic currency depreciation has a negative effect in both short run and long run (Ajayi & Mougouė, 1996).

A recent study in 2014 by Inci and Lee utilized exchange rate and stock returns. Their investigation was to reconsider the connection between stock returns and exchange rate changes.

The extent of the investigation was limited to five European nations which were France, Germany, Italy, Switzerland and the UK, and furthermore USA, Canada and Japan. By considering the lagged changes of factors and utilizing causal relations the investigation found that exchange rate has noteworthy effect on stock returns. The study also gave the proof of Granger causality from exchange rate variation to stock returns and the causality for the reverse direction. Likewise given that dynamic connection has been increasingly critical and stronger recession periods than in early times of expansion (Inci & Lee, 2014) .

Traditional investigations in the past likewise inspected the relationship of exchange rates and stock returns however a large portion of them have revealed weak relations or mixed outcomes. For instance an examination which endeavored to look at the connection of exchange rate changes and stock returns did not discover the connection but rather it did not dismiss a contemporaneous connection at the industrial level (Bodnar & Gentry, 1993).

Study of Andries et al. (2014), researched the connection of interest rates, exchange rate and stock prices in India from the time of July 1997 to December of 2010. Utilizing the wavelet models such cross wavelet control, the cross-wavelet coherency and the stage distinction procedures they discover nexus between the three factors. Stock price changes were observed to lagging both to loan costs and exchange rate fluctuations in cross-wavelet results (Andrieș, Ihnatov, & Tiwari, 2014).

By utilizing cointegration method and multivariate Granger causality tests a study by Phylaktis and Ravazzolo (2005), on the Pacific Basin nations, for example,

Hong Kong, Malaysia Singapore, Thailand and Philippines additionally inspected the relationship elements between stock returns and exchange rate. The investigation analyzed the short term and long term elements between stock returns and exchange rate. The findings propose that securities exchanges and foreign exchange markets are emphatically related and that the US securities exchanges goes about as a course for these connections. (Phylaktis & Ravazzolo, 2005).

Furthermore, another study revolves around exploring, systematically the relationship between exchange rate movements and industry competition for stock returns. The study did not find concrete evidence of relationship existing between exchange rate changes and stock returns (Griffin & Stulz, 2001).

Other studies such as Neiman (2010) had their scope limited only to single markets such as Canada, the UK, Japan, and the USA and provided inconclusive results using short sample periods.

A study specifically investigating the relationship between contemporaneous stock returns and yen fluctuations for the firms traded on the Tokyo Stock Exchange provided results which stated the existence of significant relation between the two variables (Doukas, Hall, & Lang, 1999).

Findings of the study are corroborated by another study which is conducted at industrial level (Doukas, Hall, & Lang, 2003). Also, Matsubayashi (2011), empirically tested the effect of exchange rate shocks with capital stock adjustment in the Japanese industry. Japanese yen increases the expected profitability of the firm and stimulates investment in the manufacturing sector prominently and less prominently in the nonmanufacturing sector (Matsubayashi, 2011). Furthermore, an event-based study finds evidence in favor of contemporaneous relation between stock returns and exchange rates (Dewenter, Higgins, & Simin, 2005).

An investigation on four Latin American nations (Argentina, Brazil, Chile and Mexico) by Diamandis and Drakos (2011), analyzed the short-run and long-run connection among stock returns and foreign exchange markets for these nations and furthermore their connection with the U.S securities exchanges. Their discoveries specified that the two markets in these economies share a positive connection and that the U.S securities exchange speaks to a funnel for these connections

(Diamandis & Drakos, 2011). Specific only to short-run relation analysis with balance-portfolio theory Fang (2002), used the sample of five East Asian Economies (Hong Kong, South Korea, Taiwan, Singapore and Thailand) and tested the impact of their currency's depreciation on stock returns. Discoveries demonstrated a negative connection between stock returns and exchange rates in the securities exchanges of Taiwan, Singapore, South Korea and Thailand however not in the share trading system of Hong Kong.

Findings likewise demonstrated that the devaluation of the local money diminishes the mean stock returns and furthermore increment the unpredictability in the stock market (Fang W. , 2002). Similarly, another study supported the balanced-portfolio hypothesis by using the panel type Granger causality and some other like a panel DOLS methodologies on ASEAN-5 countries and provided that through capital mobility exchange rate impacts stock prices negativity (Liang, Lin, & Hsu, 2013).

Walid et al. (2011) also offered support for adjusted portfolio approach by utilizing Markov-Switching EGARCH show for examining the dynamic nexus between stock returns unpredictability and exchange rate for currencies of four rising Asian markets. The proof in help in adjusted portfolio hypothesis when negative indication of exchange rate dimensions in the mean condition leaded to assumption stock returns in all four markets reduce with domestic currency depreciation (Walid, Chaker, Masood, & Fry, 2011). In another empirical study, six Asian markets provided with the results that the dynamic relationship between stock market and foreign exchange market is logical and consistent with the stock-oriented exchange rate models (Tai, 2007).

Number of research studies, investigating emerging Asian countries have provided supporting evidences for portfolio-balance theory simply because these emerging countries have become an attractive point for foreign capital in past few decades. In case of East of European countries (ECC), same assumption can be true as their financial markets get more integrated and become more appealing for foreign capital. Moore and Wang (2014) investigated several emerging and developed markets for causes of dynamic relationship between stock returns differentials and

real exchange rates using dynamic conditional correlation (DCC) approach. They provide that financial coherency and economic integration are two main forces behind this dynamic relationship between both variables. Monetary incorporation is related with worldwide intensity (flow oriented theory), though financial coherence is associated with global portfolio conduct (portfolio-balance approach).

Authors give their observational discoveries that if there should be an occurrence of nations with generally low level of capital volatility, financial combination is undoubtedly the power behind the linkage between exchange rate markets and stock returns. Then again, money related cognizance is the major thrust behind why the exchange rate impacts stock returns if there should arise an occurrence of nations with high capital versatility (Moore & Wang, 2014).

Monetary Policy has been identified by many studies like as determinant of changes in stock returns (Peter, 2001). Furthermore, Monetary Policy uncertainty (MPU), which is a component of Economic Policy Uncertainty has already been vastly studied for its impact on different market components. A study from (Gospodinov & Jamali, 2017) empirically tested Monetary Policy Uncertainty impact over commodity futures prices. The aim was to find evidence whether the changes in MPU can be used to determine the stance of traders and their speculative ideas. The study provided evidence for MPU to be determinant for changes in commodity future prices and in times of high Monetary Policy Uncertainty, trader speculative activities about market futures get very high (Gospodinov & Jamali, 2017). Further investigations by Creal and Wu (2017) has empirically tried to establish a link between economic fluctuations and Monetary Policy Uncertainty (MPU). The findings showed that Monetary Policy Uncertainty (MPU) contributes negatively towards real economy, which is consistent with the previous literature (Creal & Wi, 2017). The financial approaches play an important role at national and international level for making economy strong at global level. The national economic policies act as a tool for escalating economy of a country. Any uncertainty in these economic policies has a detrimental effect on the global economic development process (Raza et al., 2018). During times of high global economic uncertainty, many studies examined and uncovered the financial resources that could serve as potential hedges against the economically uncertain times. Traditionally, gold has

been regarded to serve as a potential hedge for investors during periods of extreme economic havoc due to its attributes of serving as a currency and commodity simultaneously (Lucey et al., 2017). Another major non-conventional asset that has captured the attention of the investors is the Bitcoin which is a totally decentralized form of cryptocurrency that came into being during the post global financial crisis era and acts independently with no government oversight (Nadarajah & Chu, 2017).

There are many prior empirical studies that have investigated the association between economic policy uncertainty (EPU) and conventional financial assets such as: oil, gold, stocks etc. It has been revealed that these assets are significantly affected by EPU (Raza et al., 2018; Bilgin et al., 2018; Fang et al., 2018). This is further evident from the study undertaken by Wu et al. (2019) in which the GARCH and quantile regression models were used to assess the hedging capabilities of the bitcoin and gold during time of economic uncertainty.

The advent of the novel corona virus (COVID-19) has again created an environment of global economic uncertainty (Ali et al., 2020). The confidence of many businesses and investors has been shattered due to the downward and bearish trend exhibited by major stock market indexes. The S&P 500 has registered a steep decline of 30% whereas other major commodities such as oil and gold have also turned negative. Ali et al. (2020) used the GARCH modelling and regression techniques to analyze the effect of economic uncertainty caused by the COVID-19 pandemic onto the returns of major financial instruments and commodities such as oil and gold. The results indicated that the conventional assets and commodities such as stocks, oil and gold exhibited high levels of volatility in the European and US stock markets with investors on the lookout for potential safe havens to diversify risk and mitigate their losses. The need to examine the effect of economic uncertainty caused by the COVID-19 pandemic onto the bitcoin prices was again emphasized by Ali et al. (2020)

Birz& Lott (2011) noticed the effect of Global Economic Policy Uncertainty (GEPU) on performance of crypto currencies and concluded that the announcement of monetary policy influences the principle of valuation of crypto currencies in a number of ways as it also affect the mount of usage the investment incentive range is

specifically influenced by it. Carr, Geman, Madan, & Yor (2000) measured how macroeconomic variables affect performance of crypto currencies and found that discontinuity in the flow of knowledge in relation to the introduction of volatile drives creates hurdles throughout the pricing phase, causing substantial interest in macroeconomic developments, since they have an anticipation of general economic conditions and potential prospects. To observe the scale of the volatility channels of several countries, Shim (1989) uses vector autoregression models (VARs), defining the US as the biggest capital markets. Their research was based on cryptocurrencies as assets for investments and results of VAR indicated that announcement of new monitory policy has least volatility effects on crypto currencies as compared to other assets.

Onali (2020) explored the effect of causalities of COVID -19 on Dow Jones and S & P 500 indexes. He observed that the pandemic of COVID-19 in Italy, Spain, UK, Iran and France does not influence volatile return of stock markets. Another study conducted by Al-Awadhi et al. (2020) paid special attention on measuring volatility index of Chinese security market and documented that both daily progress in cases and deaths due to COVID 19 resulted in decrease in volatility of stock returns.

Forbes (2017) measured Bitcoin production as well as other factors which could affect crypto currencies like volatility index, S & P 500 index etc. The results found that the value of Bitcoin grew exponentially and are more affected by volatility index than S& P 5oo index. But it has also been observed that when bitcoin is added in the same portfolio having S&P 500, downside risk enhances significantly which makes bitcoin doubtful to act as a shelter from instable financial conditions. According to Corbet et al. (2020), highly efficient and short-term vibrant association among bitcoin and security markets of China have been observed after the epidemic of COVID 19. Another study performed by Conlon et al. (2020), investigated secure highly influential characteristics of Bitcoin, Ethereum and Thether during epidemic of COVID 19 with the reference of global security exchange market investors. The study concluded that Bitcoin and Ethereum could not be treated as secure as the addition of these cryptocurrencies in portfolios provokes downside risk.

The hedging capabilities of the Bitcoin are evident from the fact that during the European sovereign debt crisis in 2012-13 and the Turkish currency crisis in 2018, many investors turned to Bitcoin to hedge their investment against uncertain and challenging economic times (Maurya, 2018). A limited number of studies have contributed towards studying and investigating the effect of global economic policy uncertainty (GEPU) onto the Bitcoin prices. Some studies have used the VIX index (Bouri et al., 2017), EPU index (Wang et al., 2018) and the global financial stress index (Bouri et al., 2018) to posit that the Bitcoin encompasses various hedging capabilities during economically uncertain circumstances. Demir et al. (2018) used the quantile-on-quantile and OLS regression approach to determine the impact of economic uncertainty on Bitcoin returns. It was revealed that the Bitcoin demonstrated a negative relationship with uncertainty.

Moreover, Bouri et al. (2018) applied the copula-based approach to decide the causality Bitcoin and the global financial stress index. The results depicted that Bitcoin had the potential to act as a hedge instrument during periods of global financial stress. Furthermore, Wang et al. (2018) used a multivariate quantile and Granger causality approach to examine the effect of EPU on Bitcoin returns. The result showcased that EPU had a negligible effect in the Bitcoin returns hence making it a suitable haven for the investors during periods of EPU shocks.

According to Glaser et al. (2014), bitcoin is preferred by investors in case when there in uncertainty is involved about the returns because cryptocurrencies especially bitcoin is least affected by volatilities. Other analysts including (Bartos, 2015; Urquhart 2016; Fry and Cheah, 2016) have a contradictory view about bitcoins in 2016 there was a sharp decline of $200 in Bitcoin results due to currency bubbles and shocks which means that bitcoin is also affected by volatilities.

2.3 Literature Gaps

The examinations still leave space for further investigation. For that reason, to observationally technique the affect of Economic Policy Uncertainty in the example of developed nations. For test, with the accessibility of information this examination has in general explored the connection between Economic Policy Uncertainty

of G-7 nations (US, UK, Canada, France, Italy, Germany and Japan), on which previous studies have not worked, with the stock returns and Economic Policy Uncertainty (EPU) of their own respective countries. These are the sample countries because these countries have very similar economic systems and share very strong mutual diplomatic relations. Furthermore, no previous study has incorporated the data from these economies in one study with given variables.

To make model more responsive, study added exchange rate as a second independent variable due to previous study's finding that omitting an important variable makes this long term prediction of the model inefficient (Caporale & Pittis, 1997). Besides as study says that securities exchanges and foreign exchange markets are emphatically concerned and that the US securities exchanges goes about as a course for these connections (Phylaktis & Ravazzolo, 2005). For that reason, it is important to include exchange rate as a controlling variable to enhance the predictability of the model.

As the studies have investigated the countries which have close trading ties and shares strong diplomatic relations, like one of the main focus study has set a model around change in Economic Policy Uncertainty of United States and its impact on ASEAN stock market returns, which are important importers of United States products (Sum, 2013). It shows that due to close ties and heavy reliance of ASEAN markets on United State products, the Economic Policy Uncertainty of United States has such an influence on perception of investors of ASEAN markets to be on lookout for economic stance of United States. The main study also focuses on Chinese.

Economic Policy Uncertainty and its implications on stock returns (Chen, Jiang, & Tong, 2017). But it is still limited to Chinese market and does not provide clear evidence that the findings would be the same in the case of developed countries.

The omission of important variable from model can compromise or make invalid predictions (Caporale & Pittis, 1997). An investigation on four Latin American nations (Argentina, Brazil, Chile and Mexico) by Diamandis and Drakos (2011), analyzed the short-run and long-run connection among stock returns and foreign exchange markets for these nations and furthermore their connection with the U.S

securities exchanges. Their discoveries stipulated that the two markets in these economies share a positive connection and that the U.S securities exchange speaks to a funnel for these connections (Diamandis & Drakos, 2011).

Specific only to short-run relation analysis with balance-portfolio theory Fang (2002), used the sample of five East Asian Economies: Hong Kong, South Korea, Taiwan, Singapore and Thailand) and tested the impact of their currency's depreciation on stock returns. Discoveries demonstrated a negative connection between stock returns and exchange rates in the securities exchanges of Taiwan, Singapore, South Korea and Thailand however not in the share trading system of Hong Kong. Findings likewise demonstrated that the devaluation of the local money diminishes the mean stock returns and furthermore increment the unpredictability in the stock market (Fang W., 2002).

2.4 Critical Analysis of the Literature

MIDAS Regression has been introduced in 2004 by Eric Ghysels and colleagues. In econometrics, the acronym MIDA refers to "Mixed-Data Sampling" regression analysis.

Quickly, a MIDAS relapse show enables us to "clarify" a (period arrangement) variable that is estimated at some recurrence, as a component of current and slacked estimations of a variable that is estimated at a higher recurrence. In this way, for example, we can have a needy variable that is quarterly, and a regressor that is estimated at a month to month, or every day, recurrence.

There can be more than one high-recurrence regressor. Obviously, we can likewise incorporate different regressors that are estimated at the low (say, quarterly) recurrence, and slacked estimations of the reliant variable itself. Along these lines, a MIDAS relapse show is an exceptionally broad sort of autoregressive-dispersed slack model, in which high-recurrence information are utilized to help in the expectation of a low-recurrence variable.

The study in 2004 introduced MIDAS regression analysis due to the reasons of the unexplored areas of finance. Before MIDAS, it was the general perception to use

the same amount of sampling frequencies for each variable which is incorporated in the model. The idea behind the development of MIDAS was to combine data with different frequencies.For that reason, the relapse system a Mi(xed) Da(ta) S(ampling) relapse (hereafter MIDAS regression) was produced. At a general dimension, the interest for MIDAS regression tends to a circumstance frequently experienced practically speaking where the important data is high recurrence information, while the variable of interest is examined at a lower recurrence. One precedent relates to models of stock market volatility. Many areas of finance have been untapped before MIDAS regression models.

Keeping that in view, MIDAS has opened new areas for finance to explore and it has been proven its applicability in wide range of macroeconomics and finance. The investigation gave the examples by saying that some macroeconomic information is tested month to month, similar to price series and monetary aggregates, then again different series are examined quarterly or every year, real activity series like GDP and its segments. For a reasonable picture we can expect the connection among inflation and growth. Rather than aggregating the inflation series to a quarterly sampling to coordinate GDP information, one can run a MIDAS regression joining month to month and quarterly information (Ghysels, SantaClara, & Valkanov, 2004).

More innovations have been brought to MIDAS regression models by incorporating it with different aspects. Stock market volatility and macroeconomic activity relationship was revisited by using the GARCH-MIDAS models, purpose of which was to distinguish short-run and long run movements (Engle, Ghysels, & Sohn, 2013). As per Engle et al (2013), putting economic fundamentals in volatility models plays significant role for forecasting volatility in short-term as well as long term.

After the introduction of GARCH-MIDAS models, many studies have used the technique, for instance GARCH-MIDAS model was used to investigate whether information contained in macroeconomic variables can help predict short-term and long-term components of the stock return variance (Asgharian, Hou, & Javed, 2013). Findings by Asgharian, Hou and Javed (2013) provide that low-frequency information in GARCH-MIDAS models improve the prediction ability of the model,

particularly for the long-term variance components. Same model has been used recently for prediction of gold futures market volatility by incorporating Global Economic

Policy Uncertainty in the model (Fang, Chen, Yu, & Qian, 2018). The results by Fang et al (2018) are similar to Asgharian et al (2013), as both say that including low frequency information in the model significantly enhances the forecasting ability of the GARCH-MIDAS model.

The literature strongly supports the use of methodology and due to its efficacy, this study would use it with increased and enhanced response of dependent variable (stock returns) with independent variables (economic policy uncertainty and exchange rate) in consideration. MIDAS regression would allow more data points to be included in the model which has definitely increased the efficacy of results for the study.

2.5 Conceptual Framework

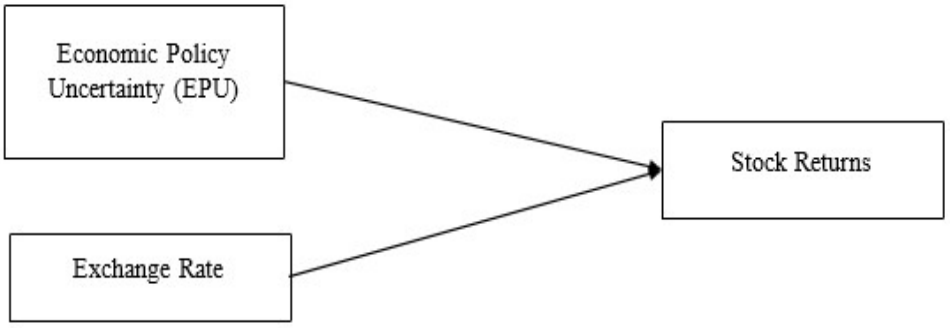

FIGURE 2.1: Conceptual Framework

2.6 Hypotheses

H_{01}: Economic Policy Uncertainty of G-7 countries does not affect the stock returns of G-7 countries

H_1: Economic Policy Uncertainty of G-7 countries affects the stock returns of G-7 countries

H_{02}: Exchange Rate of G-7 countries does not affect the stock returns of G-7. countries

H_2: Exchange Rate of G-7 countries affects the stock returns of G-7 countries.

Chapter 3

Research Methodology

3.1 Sample Selection

This study has incorporated G-7 countries as a sample out from the population of all the countries in the world. The G-7 countries are United States, United Kingdom, Canada, France, Italy, Germany and Japan. Pakistan is not included in this research because less data is available for economic policy uncertainty. Data which is available its accuracy is unable to define due to political and economic stability in pakistan.

3.2 Population Frame

The whole population frame is all the countries around the world which are 195 in number. This study intends to analyze the response of respective data for 17 years.

3.3 Unit of Analysis

For G-7 countries which include United States, United Kingdom, Canada, France, Italy, Germany and Japan, the data from January of year 2001 to the September of 2018 has been incorporated. Intra quarter compounded stock returns data

(closing value) has been used from major stock market indices of the respective countries. Economic Policy Uncertainty and Exchange Rate data frequency has been monthly as provided by their indices.

3.4 Type of Study

This study is predictive and causal in nature which intends to explore the impact of economic policy uncertainty on stock returns with controlling effect of exchange rate and impact of exchange rate impact on stock returns with controlling effect of economic policy uncertainty.

This study is based on quantitative techniques and data.

3.5 Time Horizon

Time series data has been incorporated in the model from the first month of year 2001 till the first month of year 2018. Time series data has been incorporated to understand the underlying causes of trends or systematic patterns over the time. Time series data predict how economic variable changes over te time.

3.6 Instrument Development/Selection

Secondary data of stock exchanges, exchange rate and economic policy uncertainty has been used for this study.

3.7 Data Collection Procedures

For the purpose of the study data of the stock return for each country in the sample (G-7 countries) has been collected from their major benchmark indices. The indices used by this study are as follow:

TABLE 3.1: Data Availability for Stock Returns

Country	**Index**
Canada	S&P TSX composite index
France	CAC 40 index
Germany	DAX index (GADXI)
Italy	FTSE MIB
Japan	Nikkei 225
UK	FTSE 100
USA	S&P 500

Stock returns data for most countries' indices are available from January 2001 to September 2018 except for UK and Italy. The data for UK FTSE 100, data is available from February 2001 to September 2018. Whereas, the data for Italy's FTSE MIB index, is available from December 2002 to September 2018.

The data for economic policy uncertainty has been collected from the Baker and Bloom's indices of economic policy uncertainty. The proxy of EPU used for the indices are "news based uncertainty" for all countries. EPU data is available for all G-7 countries from January 2001 to September 2018.

The exchange rate data has been collected from ofx website. Exchange rate for each country is the value of domestic currency in terms of US dollar. For three European union countries, such as France, Germany and Italy, Euro has been used in terms of dollar. For USA, US dollar index has been used as an exchange rate proxy.US dollar record (USDX) is a proportion of the estimation of the US dollar in respect to the estimation of a container of monetary forms of the USA's most noteworthy exchanging accomplices. This list is like exchange weighted records, which likewise utilize the trade rates from a similar significant monetary standard. Exchange rate data is available for all G-7 countries from January 2001 to September 2018.

The respective indices were exported to Microsoft Excel and accumulated there with all the data. After that data was exported to EViews 10 for test runs.

3.8 Data Analysis Techniques

Proposed data analysis techniques are descriptive for normality, correlation to explore relationship between variables, Augmented Dickey Fuller Test for stationarity, OLS regression and MIDAS regression to test the impact of economic policy uncertainty and exchange rate over stock returns of G-7 countries.

MIDAS regression analysis is direct forecasting tool which can relate future low frequency data with current lagged high frequency indicators, simply this analysis can deal with data sampled at different frequencies. MIDAS has opened new areas for research in finance sector to explore and applicable in huge range of macroeconomics and finance. The idea behind to support MIDAS is to com bine data with different frequencies, this is the reason to replace system mixed data analysis was produced.

Chapter 4

Data Analysis and Discussion

Before entering any time series data into regression analysis it is necessary to check that data is stationary (its mean and variance are not time variant). This study has employed the Augmented Dicky-Fuller Test to check the stationarity of the data.

4.1 Descriptive Statistics

4.1.1 Monthly Stock Returns

All maximum and minimum values are within predicted range and the data is clean enough to be used for further analysis.

Skewness is acceptable in between +1 and -1. All the variables are in the given limit except for EPU Canada, EPU Germany, EPU Japan and EPU UK which is very close to the prescribed limit so, it can be used in the regression analysis.

Kurtosis is acceptable in the range between +3 and -3. All the EPUs are out of range from prescribed range (significantly deviate from normal). To that end, the data has been double checked with the publishing source and does not contain any errors so therefore will have to be used for further analysis if found stationary. Kurtosis is acceptable in range start from +3 and -3. All the research variables are in the predicted limits except for Euro, which is close enough to be presented in the regression analysis.

Table 4.1: Monthly Stock Returns

	SR_CANADA	SR_FRANCE	SR_GERMANY	SR_ITALY	SR_JAPAN	SR_UK	SR_USA
Mean	0.005327	0.00414	0.009052	0.000964	0.006926	0.004096	0.007081
Median	0.008848	0.010011	0.013814	0.005729	0.009148	0.008007	0.011061
Maximum	0.112092	0.128018	0.213778	0.208	0.128499	0.086541	0.107723
Minimum	-0.169332	-0.135173	-0.191921	-0.163063	-0.238269	-0.130248	-0.169425
Std. Dev.	0.034821	0.045624	0.052727	0.057005	0.053215	0.036682	0.037864
Skewness	-1.160142	-0.373361	-0.176512	-0.180556	-0.680597	-0.559901	-0.800347
Kurtosis	7.30094	3.47643	5.14262	3.746826	4.758107	3.889612	5.58497

4.1.2 Economic Policy Uncertainty (EPU)

Table 4.2: Economic Policy Uncertainty (EPU)

	EPU_CANADA	EPU_FRANCE	EPU_GERMANY	EPU_ITALY	EPU_JAPAN	EPU_UK	EPU_USA
Mean	154.7575	181.6053	135.8295	109.4085	105.5628	200.4233	123.152
Median	137.456	169.8411	122.8792	104.1846	101.1055	158.6422	112.4726
Maximum	449.6239	574.6332	454.0054	241.0182	236.8639	1141.796	283.6656
Minimum	40.44013	30.62037	28.43398	31.70153	48.4347	30.4688	44.78275
Std. Dev.	87.2461	97.84509	65.31366	38.29377	32.65975	153.4685	45.94972
Skewness	1.001695	0.931449	1.342373	0.687683	1.142174	2.178674	0.908158
Kurtosis	3.707055	4.142738	6.073078	3.371405	5.088452	10.7109	3.730922

4.1.3 Exchange Rate

Table 4.3: Exchange Rate

	CAD	**GBP**	**EURO**	**USD**	**YEN**
Mean	1.209678	0.629585	0.827205	111.0003	106.3117
Median	1.197132	0.631325	0.793143	110.0808	109.1953
Maximum	1.59983	0.810296	1.171584	129.6402	133.5122
Minimum	0.955871	0.482616	0.634241	94.5475	76.59538
Std. Dev.	0.180249	0.07766	0.118863	10.11932	13.95906
Skewness	0.56304	0.213539	1.098431	0.183134	-0.583149
Kurtosis	2.348243	2.589823	3.809963	1.700139	2.42073

All maximum and minimum values are within expected ranges and the data is clean enough to be used for further analysis.

Skewness is acceptable lies between +1 and -1. All the dimensions are in the given limit except EURO which is very close to the prescribed limit. So, it maybe be used for the regression analysis. Kurtosis is acceptable in range start from +3 and -3. All the research variables are in the predicted limits except for Euro, which is close enough to be presented in the regression analysis.

4.1.4 Intra Quarter Compounded Returns

The data is clean enough to be used for further analysis and all maximum and minimum values are within expected ranges. Skewness is admissible when it lies in between +1 and -1. All the variables are in the given limit except SR_CANADA and SR_USA which is very close to the prescribed limit so, it can be utilized in the regression analysis.

Table 4.4: Intra Quarter Compounded Returns

	SR_CANADA	SR_FRANCE	SR_GERMANY	SR_ITALY	SR_JAPAN	SR_UK	SR_USA
Mean	0.004982	0.003514	0.008245	-7.96E-05	0.006049	0.003653	0.006639
Median	0.00941	0.008204	0.010855	0.001458	0.013205	0.0073	0.00849
Maximum	0.059618	0.065179	0.099364	0.071823	0.070858	0.065074	0.048363
Minimum	-0.08553	-0.09192	-0.09309	-0.09756	-0.07681	-0.04809	-0.08169
Std. Dev.	0.023385	0.029001	0.034297	0.034433	0.033805	0.021786	0.023818
Skewness	-1.29225	-0.84467	-0.38522	-0.4378	-0.36197	-0.42211	-1.0449
Kurtosis	6.416919	4.444078	3.899098	3.521604	2.555308	3.725456	5.163957

Kurtosis is admissibe in range when it lies in between +3 and -3. All Stock Returns ranges (except SR_JAPAN) are out of range from prescribed range (significantly deviate from normal). To that end, the data has been double checked with the publishing source and does not contain any errors so therefore will have to be used for further analysis if found stationary.

4.2 OLS Regression Analysis and Results

OLS Equation:

$$SR_t = \beta_o + \beta_1(EPU) + \beta_2(ER) + \varepsilon_t \tag{4.1}$$

4.2.1 Canada

Table 4.5: Dependent Variable: SR_CANADA

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.030874	0.018122	1.703643	0.0899
EPU_CANADA	-5.97E-05	2.91E-05	-2.050579	0.0416
CAD	-0.015184	0.014158	-1.072459	0.2848
R-squared	0.023893	Mean dependent var		0.003278
Adjusted R-squared	0.014552	S.D. dependent var		0.037133
S.E. of regression	0.036861	Akaike info criterion		-3.749252
Sum squared resid	0.283982	Schwarz criterion		-3.701753
Log likelihood	400.4207	Hannan-Quinn criter.		-3.730054
F-statistic	2.557894	Durbin-Watson stat		1.514597
Prob(F-statistic)	0.079891			

4.2.2 France

TABLE 4.6: Dependent Variable: SR_FRANCE

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.001317	0.007449	0.176815	0.8598
EPU_FRANCE	-2.54E-06	3.60E-05	-0.070618	0.9438
D(EURO)	-0.020514	0.184792	-0.111011	0.9117
R-squared	0.000093	Mean dependent v ar		0.000874
Adjusted R-squared	-0.009476	S.D. dependent var		0.050423
S.E. of regression	0.050661	Akaike info criterion		-3.113268
Sum squared resid	0.536408	Schwarz criterion		-3.065769
Log likelihood	333.0064	Hannan-Quinn criter.		-3.09407
F-statistic 0.009705		Durbin-Watson stat		1.805505
Prob (F-statistic)	0.990342			

4.2.3 Germany

$$\Delta JSR_t = 586.2116 - 5.076818(EPU) + 101.9455(\Delta Yent) + \varepsilon_t \quad (4.2)$$

TABLE 4.7: Dependent Variable: SR_GERMANY

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.021513	0.009627	2.234742	0.0265
EPU_GERMANY	-0.000123	6.38E-05	-1.931238	0.0548
D(EURO)	0.155582	0.219649	0.708318	0.4795
R-squared	0.018101	Mean dependent var		0.004614
Adjusted R-squared	0.008705	S.D. dependent var		0.059811
S.E. of regression	0.05955	Akaike info criterion		-2.789945
Sum squared resid	0.741161	Schwarz criterion		-2.742446
Log likelihood	298.7341	Hannan-Quinn criter.		-2.770747
F-statistic	1.926473	Durbin-Watson stat		1.801736
Prob(F-statistic)	0.148239			

4.2.4 Italy

$$\Delta ItlaySR_t = -12 - 109.98(\Delta Euro) + \varepsilon_t \tag{4.3}$$

TABLE 4.8: Dependent Variable: SR_ITALY

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.006058	0.012584	0.481376	0.6308
EPU_ITALY	-5.09E-05	0.000111	-0.460187	0.6459
D(EURO)	-0.559843	0.225247	-2.485463	0.0138
R-squared	0.035279	Mean dependent var		0.000964
Adjusted R-squared	0.024906	S.D. dependent var		0.057005
S.E. of regression	0.05629	Akaike info criterion		-2.900844
Sum squared resid	0.589359	Schwarz criterion		-2.849388
Log likelihood	277.1298	Hannan-Quinn criter.		-2.879998
F-statistic	3.400978	Durbin-Watson stat		1.925241
Prob(F-statistic)	0.035427			

4.2.5 Japan

Table 4.9: Dependent Variable: SR_JAPAN

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.04694	0.011554	4.062631	0.0001
EPU_JAPAN	-0.000404	0.000105	-3.858896	0.0002
D(YEN)	0.007061	0.00139	5.079902	0.000
R-squared	0.188616	Mean dependent var		0.004121
Adjusted R-squared	0.180851	S.D. dependent var		0.054262
S.E. of regression	0.049111	Akaike info criterion		-3.175434
Sum squared resid	0.504077	Schwarz criterion		-3.127935
Log likelihood	339.596	Hannan-Quinn criter.		-3.156236
F-statistic	24.29221	Durbin-Watson stat		1.886935
Prob(F-statistic)	0.000			

4.2.6 UK

$$\Delta UKSR_t = -0.434855(EPU) + \varepsilon_t \tag{4.4}$$

TABLE 4.10: Dependent Variable: SR_UK

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.001963	0.002643	0.742709	0.4585
D(EPU_UK)	-7.65E-05	3.06E-05	-2.504442	0.013
D(GBP)	0.078848	0.192974	0.408592	0.6833
R-squared	0.029281	Mean dependent var		0.001889
Adjusted R-squared	0.019947	S.D. dependent var		0.038757
S.E. of regression	0.038369	Akaike info criterion		-3.669034
Sum squared resid	0.306209	Schwarz criterion		-3.621377
Log likelihood	390.0831	Hannan-Quinn criter.		-3.64977
F-statistic	3.137094	Durbin-Watson stat		1.97655
Prob(F-statistic)	0.04547			

4.2.7 USA

$$\Delta USASR_t = -11.85770(\Delta USDX) + \varepsilon \tag{4.5}$$

TABLE 4.11: Dependent Variable: SR_USA

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.014692	0.007672	1.915001	0.0569
EPU_USA	-8.22E-05	5.86E-05	-1.403202	0.162
D(USD)	-0.009675	0.001944	-4.975748	0
R-squared	0.126579	Mean dependent var		0.004432
Adjusted R-squared	0.118221	S.D. dependent var		0.041009
S.E. of regression	0.038508	Akaike info criterion		-3.661826
Sum squared resid	0.309927	Schwarz criterion		-3.614327
Log likelihood	391.1535	Hannan-Quinn criter.		-3.642628
F-statistic	15.14446	Durbin-Watson stat		1.822789
Prob(F-statistic)	0.000001			

OLS regression model used to test the impact of economic policy uncertainty and exchange rate over stock return shows that results for Canada, France and Germany is not significant. The Fstat value for their OLS regression models is insignificant. This means that OLS regression model predicts no changes in stock returns of Canada, France and Germany when put together with economic policy uncertainty and exchange rate. Whereas OLS regression analysis give significant results in case of Italy, Japan, UK and the USA. Euro has and impact over stock returns of Italy, but EPU does not have any impact in this case. Adjusted R-square for Italy is 0.024, which means that OLS regression analysis is able to predict 2.4% change in stock returns of Italy given EPU and exchange rate.

Japan has most significant results in comparison to all other G-7 countries. Results show that EPU and Yen exchange rate has significant impact over stock returns of Japan. Whereas, regression analysis with adjusted R-square of 0.180851 shows the 18% predictive power for stock returns of Japan give EPU and exchange rate. Result of UK are also significant but only EPU was significant in this case. OLS regression analysis has the adjusted R-square value of 0.019 and has only 1.9% predictive power for the stock returns of UK.

USA results are also significant but US dollar index (US exchange rate proxy) is significant and EPU has no impact over the returns of USA according to OLS regression analysis. Adjusted Rsquare value for USA is 0.118221, which shows that OLS regression analysis has 11.8% predictive power for stock returns of USA give EPU and exchange rate.

4.3 MIDAS Regression Results and Interpretations

MIDAS regression analysis uses PDL/ALMON which is used by default for autoregressive models. But as this study doesn't use autoregressive model, step weighted method has been incorporated which had been recommended for such models. Step Weighted method for this model has use the weighted monthly independent variables (EPU and exchange rate) for past three months against the

quarterly frequency dependent variables (stock returns). After that, it uses lags for all those months and test them against the dependent variable. General MIDAS regression model equation for this study is as following:

One step method was used with three fixed lags, which bounds the regression model to test only previous three values of independent variables against one dependent value by going one step back each time. Non-compounded quarterly returns and intra quarter compounded returns were tested against the prior three months' values of that quarter of economic policy uncertainty and exchange rate.

4.3.1 Canada

TABLE 4.12: Dependent Variable: SR_CANADA

Variable	**Coefficient**	**Std. Error t-Statistic**	**Prob.**
	C	0.038783	0.019731
Page: MONTHLY_EPU_EXR Series: EPU_CANADA Lags: 3			
STEP01	-0.000109	5.67E-05 -1.920183	0.0593
STEP02	-1.49E-05	6.30E-05 -0.236964	0.8134
STEP03	0.000127	6.60E-05 1.922184	0.059
Page: MONTHLY_EPU_EXR Series: CAD Lags: 3			
STEP01	-0.433014	0.150437 -2.878381 0.0054	
STEP02	0.045492	0.215754 0.210853 0.8337	
STEP03	0.3569	0.118622 3.008702 0.0037	
R-squared	0.361658	Mean dependent var 0.002453	
Adjusted R-squared	0.361658	S.D. dependent var 0.027090	
S.E. of regression	0.021644	Akaike info criterion -4.645185	
Sum squared resid	0.032792	Schwarz criterion -4.422104	
Log likelihood	171.9041	Hannan-Quinn criter. -4.556472	
Durbin-Watson stat	1.56518		

Intra quarter compounded stock returns of Canada have shown no response to EPU and exchange rate and all the monthly lags of EPU against stock returns have been found to be insignificant at 5% significance level.

Meaning that economic policy uncertainty and exchange rate for previous three months do not impact stock returns of Canada at 5% significance level. But the first and the third lag of the EPU are significant at 10% significance level.

As for the case of exchange rate, previous month exchange rate (first lag) and three months' prior exchange rate (third lag) are significant at 5% significance level. First lag (previous months' prior exchange rate) has a beta of -0.433014 which means that one unit change in exchange rate would be able to decrease 0.43 units in Canadian stock returns.

The third lag (three-month prior exchange rate) has a beta of 0.356900 showing that one unit change in the three-month previous exchange rate will cause 0.36 units increase in stock returns effectively. For that reason, both these lags have been used in the representation of the equation of MIDAS regression analysis of Canadian stock returns.

The MIDAS regression analysis model still provides the R-square value of 0.361658 clearly stating the 36 percent predictive power of the model. Even with no impact from EPU, MIDAS regression solely basing upon the exchange rate is able to predict 36% change in the stock returns of Canada.

4.3.2 France

In case of France, economic policy uncertainty has been insignificant at 5% significance level for all three lags, showing that past three month's EPU has no predictive power over the stock returns of France. Same has been found for exchange rate of France (EURO). Euro is also insignificant for all three lags, which means that exchange rate for previous three months of the returns has no predictive power over the stock returns of France.

TABLE 4.13: Dependent Variable: SR_FRANCE

Variable	**Coefficient**	**Std. Error t-Statistic**	**Prob.**
	C	0.044105	0.031515
Page: MONTHLY_EPU_EXR Series: EPU_FRANCE Lags: 3			
STEP01	-0.000114	7.04E-05 -1.614583	0.1113
STEP02	4.39E-05	7.32E-05 0.599703	0.5508
STEP03	5.87E-05	6.63E-05 0.885180	0.3794
Page: MONTHLY_EPU_EXR Series: EURO Lags: 3			
		0.252787 0.570178 0.5706	
STEP01	0.144133		
STEP02	-0.419004	0.370917 -1.129643 0.2628	
STEP03	0.226273	0.211021 1.072275 0.2876	
		Mean dependent var -0.000164	
R-squared	0.079888		
Adjusted R-squared	0.079888	S.D. dependent var 0.034254	
S.E. of regression	0.032857	Akaike info criterion -3.810316	
Sum squared resid	0.07557	Schwarz criterion -3.587234	
Log likelihood	142.2662	Hannan-Quinn criter. -3.721603	
Durbin-Watson stat	1.941202		

All the variables have found insignificant at 5% significance level and with beta of zero, for that reason they have been omitted from the MIDAS regression equation. R-square value at 0.079888 shows that even with all the variables being

insignificant at all three lags for France.

4.3.3 Germany

Table 4.14: Dependent Variable: SR_GERMANY

Variable	**Coefficient**	**Std. Error t-Statistic**	**Prob.**
	C	0.073161 0.033457	2.186745
Page: MONTHLY_EPU_EXR Series: EPU_GERMANY Lags: 3			
STEP01	-0.000287	7.87E-05 -3.641802	0.0005
STEP02	5.44E-05	0.000113 0.480082	0.6328
STEP03	0.000155	9.34E-05 1.660901	0.1016
Page: MONTHLY_EPU_EXR Series: EURO Lags: 3			
STEP01	0.340226	0.284957 1.193956 0.2369	
STEP02	-0.685441	0.425354 -1.611461 0.1120	
STEP03	0.278122	0.240259 1.157593 0.2513	
		Mean dependent var 0.003295	
R-squared	0.227775		
Adjusted R-squared	0.227775	S.D. dependent var 0.041835	
S.E. of regression	0.036763	Akaike info criterion -3.585666	
Sum squared resid	0.094605	Schwarz criterion -3.362585	
Log likelihood	134.2911	Hannan-Quinn criter. -3.496954	
Durbin-Watson stat	2.03059		

In case of Germany's intra quarter compounded returns, economic policy uncertainty at first lag (previous months' prior economic policy uncertainty) has been found significant at 5% significance level and has the beta of -0.000287, which means that one unit change in previous months' economic policy uncertainty can cause approximately 0.000287 units decrease in stock returns of Germany. But the other two lags (two months and three months prior) economic policy uncertainty is insignificant at 5% significance level.

As for exchange rate of Germany (Euro), same as France has been insignificant for all three lags, which means that exchange rate for previous three months has no predictive power over the stock returns of Germany. All the lags have beta of zero and have been omitted from the MIDAS regression model.

Even with one responsive lag of EPU, MIDAS regression analysis gives R-squared value of 0.227775, which means that the model has approximately 22.8% predictive ability using economic policy uncertainty and exchange rate for Germany.

4.3.4 Italy

Table 4.15: Dependent Variable: SR_ITALY

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C		-0.03856	0.047548	0.4208
Page: MONTHLY EPU Series: EPU ITALY Lags: 3	EXR			
STEP01	-0.000173	0.000171	-1.012065	0.3159
STEP02	-3.43E-05	0.000149	-0.229694	0.8192
STEP03	0.000121	0.000156	0.777455	0.4402
Page: MONTHLY EPU	EXR			

Continued Tale: 4.15 Dependent Variable: SR_ITALY

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Series: EURO				
Lags: 3				
		0.274815	0.370497	0.7124
STEP01	0.101818			
STEP02	-0.658616	0.394501	-1.669490	
				0.1006
STEP03	0.618375	0.223513	2.766616	0.0077
		Mean dependent var -		
		7.96E-05		
R-squared	0.16047			
Adjusted R-squared	0.16047	S.D. dependent var		
		0.034433		
S.E. of regression	0.031549	Akaike info criterion -		
		3.868309		
Sum squared resid	0.061712	Schwarz criterion -		
		3.630183		
Log likelihood	128.8517	Hannan-Quinn criter. -		
		3.774653		
Durbin-Watson stat	1.748095			

Economic policy uncertainty of Italy has been found insignificant at 5% for all three lags and hence has the beta of zero, which means that economic policy uncertainty of Italy for past three months has no predictive power for the stock returns of Italy. As the beta is zero for all three lags, that is why they have been omitted from the MIDAS regression analysis equation.

Euro as the exchange rate has first two lags insignificant at 5%, with beta of zero and have been omitted from the MIDAS regression equation. First two lags being insignificant means that the previous months' and two months' prior exchange rate of Italy has no predictive power over stock returns of Italy. Whereas the third lag of Euro is significant at 5% significance level with the beta of 0.618375, which states that the three months' prior exchange rate causes approximately 0.62 units change in the stock returns of Italy.

Overall model has R-square value of 0.160470 showing that MIDAS has 16% predictive ability for the changes in stock returns of Italy.

4.3.5 Japan

Japanese returns show the close patterns as the returns of Italy. All the lags of economic policy uncertainty of Japan have been found insignificant at 5% for all three lags and hence has the beta of zero, which means that economic policy uncertainty of Japan for past three months has no predictive power for the stock returns of Japan. As the beta is zero for all three lags, that is why they have been omitted from the MIDAS regression equation. But the first lag is significant at 10% significance level.

Yen as the exchange rate has the second lags insignificant at 5%, with beta of zero and has been omitted from the MIDAS regression equation. Second lag being insignificant means that the two months' prior exchange rate of Yen has no predictive power over stock returns of Japan.

Whereas the first and the third lag of Yen is significant at 5% significance level with the betas of 0.003686 and -0.004090, which states that the first lag (previous months' exchange rate of Yen) has 0.36% ability to predict the stock returns of Japan, whereas, the third lag (three months' prior exchange rate of Yen) can cause 0.0041 units change the stock returns of Japan.

R-square value of 0.423658 denotes the overall predictive ability of the whole model which in this case suggests that 42.3% change in stock returns of Japan can be predicted through this MIDAS regression model.

Table 4.16: Dependent Variable: SR_JAPAN

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
	C	0.101736		0.035452 2.869693
Page: MONTHLY_EPU_EXR Series: EPU_JAPAN Lags: 3				
STEP01	-0.000348	0.000175	-1.994770	0.0503
STEP02	-0.000118	0.000183	-0.645756	0.5207
STEP03	-7.84E-06	0.000136	-0.057591	0.9543
Page: MONTHLY_EPU_EXR Series: YEN Lags: 3				
		0.001417	2.602457	0.0115
STEP01	0.003686			
STEP02	-5.20E-05	0.002268	-0.022913	0.9818
STEP03	-0.00409	0.001421	-2.878232	0.0054
		Mean dependent var 0.003066		
R-squared	0.423658			
Adjusted R-squared	0.423658	S.D. dependent var 0.034862		
S.E. of regression	0.026466	Akaike info criterion -4.242891		
Sum squared resid	0.049033	Schwarz criterion -4.019810		
Log likelihood	157.6226	Hannan-Quinn criter. -4.154179		
Durbin-Watson stat 1.766394				

4.3.6 UK

TABLE 4.17: Dependent Variable: SR_UK

Variable	**Coefficient Std. Error**	**t-Statistic**	**Prob.**
	C	0.030117 0.029746	1.012461
Page: MONTHLY_EPU_EXR Series: EPU_UK Lags: 3			
STEP01	-5.53E-05	3.48E-05 -1.586667	0.1176
STEP02	6.42E-05	4.23E-05 1.517207	0.1342
STEP03	2.92E-05	2.85E-05 1.024921	0.3093
Page: MONTHLY_EPU_EXR Series: GBP Lags: 3			
STEP01	-0.097437	0.260795 -0.373615 0.7099	
STEP02	-0.349884	0.391018 -0.894802 0.3743	
STEP03	0.390954	0.214812 1.819982 0.0735	
R-squared	0.145441	Mean dependent var 0.001657	
Adjusted R-squared	0.145441	S.D. dependent var 0.024019	
S.E. of regression	0.022203	Akaike info criterion -4.591541	
Sum squared resid	0.034016	Schwarz criterion -4.366691	
Log likelihood	167.7039	Hannan-Quinn criter. -4.502228	
Durbin-Watson stat	2.07803		

UK's stock return against economic policy uncertainty and exchange rate show same results as France's stock returns in the MIDAS regression analysis. As the

economic policy uncertainty of UK has been found insignificant at 5% for all three lags and hence has the beta of zero, which means that economic policy uncertainty of Italy for past three months has no predictive power for the stock returns of UK. As the beta is zero for all three lags, that is why they have been omitted from the MIDAS regression analysis equation.

UK's Pound Sterling (GBP) as the exchange rate has all three lag insignificant at 5%, with beta of zero and have been omitted from the MIDAS regression equation. All three lags being insignificant means that previous three month's exchange rate of GBP has no predictive power over stock returns of UK. The third lag of EPU on the other hand is significant at 10% significance level.

Model has the R-square value of 0.145441 showing the 14.5% predictive ability of the MIDAS regression model in case of UK's stock returns but all the variables are found to be insignificant.

4.3.7 USA

Table 4.18: Dependent Variable: SR_USA

Variable	**Coefficient Std. Error**	**t-Statistic**	**Prob.**
	C 0.051428	0.035319	1.456076
Page: MONTHLY_EPU_EXR Series: EPU_USA Lags: 3			
STEP01	-0.000163	8.12E-05 -2.006270	0.0491
STEP02	2.77E-05	0.000103 0.268748	0.789
STEP03	3.14E-05	9.03E-05 0.348024	0.729
Page: MONTHLY_EPU_EXR Series: USD Lags: 3			

Continued Table: 4.18 Dependent Variable: SR_USA

Variable	**Coefficient Std. Error**	**t-Statistic**	**Prob.**
STEP01	-0.001227	0.003067 -0.400198	0.6903
STEP02	-0.004373	0.004580 -0.954882	0.3432
STEP03	0.005298	0.002404 2.203616	0.0312
R-squared	0.194236		
Adjusted R-squared	0.194236		
S.E. of regression	0.024996	Akaike info criterion	-4.357203
		Schwarz criterion	-4.134122
Log likelihood	161.6807	Hannan-Quinn criter.	-4.268491
Durbin-Watson stat	1.634534		

USA's economic policy uncertainty at first lag (previous month's prior economic policy uncertainty of USA) has been found significant at 5% significance level and has the beta of -0.000163, which means that one unit change in previous month's economic policy uncertainty can cause approximately 0.000163 unit fall in stock returns of USA.

But the other two lags (two month and three months' prior economic policy uncertainty) is insignificant at 5%. As they are insignificant at 5% with beta of zero those two lags have been omitted from the MIDAS regression equation.

US dollar index (USDX) taken as a proxy of USA' exchange rate has first two lags insignificant at 5%, with beta of zero and have been omitted from the MIDAS regression equation. First two lags being insignificant means that the previous month's and two months' prior exchange rate of USD (US dollar) has no predictive power for stock returns of USA.

Whereas only the third lag of USD (US Dollar) is significant at 5% significance

level with the beta of 0.005298, which states that the three months' prior exchange rate can cause 0.0053 units change in the stock returns of USA.

Model has the R-square value of 0.194236 showing the 19.4% predictive ability of the MIDAS regression model in case of USA's stock returns.

TABLE 4.19: Pakistan OLS Regression Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.016788	0.014909	1.126045	0.263
EPU_PAK	3.72E-06	0.00016	0.023215	0.9815
D(PKR)	-0.002885	0.003613	-0.798648	0.4265
R-squared	0.006823	Mean dependent var		0.015985
Adjusted R-squared	-0.014536	S.D. dependent var		0.049243
S.E. of regression	0.0496	Akaike info criterion		-3.1389
Sum squared resid	0.228796	Schwarz criterion		-3.05876
Log likelihood	153.667	Hannan-Quinn criter.		-3.10651
F-statistic	0.31945	Durbin-Watson stat		2.125102
Prob(F-statistic)	0.727342			

OLS regression model used to test the impact of economic policy uncertainty and exchange rate over stock return shows that results for Pakistan is not significant. The F-stat value for its OLS regression models is insignificant. This means that OLS regression model predicts no changes in stock returns of Pakistan when put together with economic policy uncertainty and exchange rate.

TABLE 4.20: Pakistan MIDAS Regression Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.145563	0.079546	1.829926	0.0792
Page: MONTHLY_EPU_EXR Series: EPU_PAK Lags: 3				
STEP01	0.000108	0.000241	0.449223	0.6571
STEP02	-0.000305	0.000256	-1.189931	0.2453
STEP03	-0.000239	0.000183	-1.306706	0.2032
Page: MONTHLY_EPU_EXR Series: PKR Lags: 3				
STEP01	-9.60E-05	0.002723	-0.03526	0.9722
STEP02	0.001486	0.007979	0.186224	0.8538
STEP03	-0.002302	0.006654	-0.345984	0.7322
R-squared	0.201657	Mean dependent var		0.016264
Adjusted R-squared	0.201657	S.D. dependent var		0.029595
S.E. of regression	0.026443	Akaike info criterion		-4.021887
Sum squared resid	0.021676	Schwarz criterion		-3.701258
Log likelihood	71.3502	Hannan-Quinn criter.		-3.915608
Durbin-Watson stat	1.800827			
MONTHLY_EPU_EXR_PAK	Lag	Coefficient	Distribution	
	0	0.000108	*	
	1	-0.00031	*	
	2	-0.00024	*	
MONTHLY_EPU_EXR	Lag	Coefficient	Distribution	
	0	-9.60E-05	*	
	1	0.001486	*	
	2	-0.0023	*	

In case of Pakistan, economic policy uncertainty has been insignificant at 5% significance level for all three lags, showing that past three month's EPU has no predictive power over the stock returns of France. Same has been found for exchange rate of France (EURO). Euro is also insignificant for all three lags, which means that exchange rate for previous three months of the returns has no predictive power over the stock returns of France. The MIDAS regression analysis model still provides the R-square value of 0.201657 clearly stating the 20 percent predictive power of the model.

Chapter 5

Discussion and Conclusion

This study aimed to empirically explore the effect of economic policy uncertainty and exchange rate over stock returns of G-7 countries. Local economic policy uncertainty and domestic exchange rate was used to test the impact over local stock returns of G-7 countries.

Study used different statistical tools for its investigative purposes. First tool that this study used was the traditional OLS regression model. Monthly stock returns were tested against monthly economic policy uncertainty and monthly exchange rate. Results of OLS regression model for four (Italy, Japan, UK and the USA) out of seven countries came out to be significant suggesting that OLS regression model has predictive ability over stock returns with given independent variables in only these four countries.

Euro has an impact over stock returns of Italy, but EPU does not have any impact in this case. Adjusted R-square for Italy is 0.024, which means that OLS regression analysis is able to predict 2.4% change in stock returns of Italy given EPU and exchange rate. Japan has most significant results in comparison to all other G-7 countries. Results show that EPU and Yen exchange rate has significant impact over stock returns of Japan. Whereas, regression analysis with adjusted R-square of 0.180851 shows the 18.08% predictive power for stock returns of Japan give EPU and exchange rate.

TABLE 5.1: Adjusted (and Non-Adjusted) R-Square Values

	Adjusted R Square		**R-Square**	
Country	**OLS**	**MIDAS**	**OLS**	**MIDAS**
Canada	0.023893	0.361658	0.014552	0.361658
France	0.000093	0.079888	-0.009476	0.079888
Germany	0.018101	0.227775	0.008705	0.227775
Italy	0.035279	0.16047	0.024906	0.16047
Japan	0.188616	0.423658	0.180851	0.423658
UK	0.029281	0.145441	0.019947	0.145441
USA	0.126579	0.194236	0.118221	0.194236

Result of UK are also significant but only EPU was significant in this case. OLS regression analysis has the adjusted R-square value of 0.019947 and has only 1.9% predictive power for the stock returns of UK.

USA results are also significant but US dollar index (US exchange rate proxy) is significant and EPU has no impact over the returns of USA according to OLS regression analysis. R-square value for USA is 0.118221, which shows that OLS regression analysis has 11.8% predictive power for stock returns of USA give EPU and exchange rate.

Second tool that was used was the MIDAS regression model. This study aimed to test the effectiveness of MIDAS regression model as suggested by the literature review (Ghysels, SantaClara, & Valkanov, 2004). This study used step weighted

method with 3 monthly lags for each independent variable. One step method was used with three fixed lags, which bounds the regression model to test only previous three values of independent variables against one dependent value by going one step back each time.

TABLE 5.2: R-Square Values

Country	**EPU**					
	Lag 1	**Lag 2**	**Lag 3**	**Lag 1**	**Lag 2**	**Lag 3**
Canada	0	0	0	-0.433014		0.3569
France	0	0	0	0	0	0
Germany	-0.000287	0	0	0	0	0
Italy	0	0	0	0	0	0.618375
Japan	0	0	0	0.003686	0	-0.00409
UK	0	0	0	0	0	0
USA	-0.000163	0	0	0	0	0.005298

MIDAS regression analysis is used for intra quarter compounded stock returns, the results were very different from OLS regression analysis as significant difference can be seen in the R-square values and the Adjusted R-square values. All the countries showed different results, varying from variable to variable and from lag to lag for each independent variable.

Intra quarter compounded stock returns of only France and UK showed no response to domestic economic policy uncertainty and exchange rate (Euro for France and

Pound Sterling for UK) for each of three lags of both variables. France and UK were the only country showing such results with the use of MIDAS regression analysis.

Canada stock returns are responsive to only third lag of the exchange rate (three months' prior exchange rate). Through MIDAS regression analysis 36% change in intra quarter compounded stock returns of Canada can be predicted.

Stock returns of Japan showed change at the first and the third lag of exchange rate of Yen (previous month and three months' prior exchange rate). MIDAS regression analysis showed 0.423658 R-square value showing 42% predictable power of MIDAS regression analysis in case of stock returns of Japan which is highest of all the other results. On the other hand, Italy stock returns were predictable only in the third lag of exchange rate of Euro (three months' prior exchange rate), which means that three months' prior exchange rate has impact over intra quarter compounded stock returns of Italy. Predictable power (Adjusted R-square value) of MIDAS regression analysis in case of Italy's stock returns was 16%.

Germany and USA's stock returns on the other hand, were affected by the first lag of EPU (previous month's EPU) whereas, USA stock returns were also affected by the third lag of exchange rate but Germany was insignificant in response to its respective exchange rates. The results of the study suggest that the predictive power of MIDAS regression analysis when used with different frequencies of variables is significantly higher than that of OLS model. Results by MIDAS regression analysis show that predictive power of mixed data sampling (MIDAS) significantly increases in case intra quarter compounded stock returns.

5.1 Limitations

The study only has developed economies under its scope and is reflecting their results. These findings cannot be generalized in case of developing and underdeveloped economies. Further investigation can explore if the developing or developing economies behave the same way.

5.2 Implications and Future Recommendations

The results of this study can be useful as our findings examines that that MIDAS regression has strong predictability power over stock returns in comparison to traditional OLS regression analysis, therefore researchers should focus on using MIDAS regression analysis rather than traditional OLS regression techniques.

As researchers often encounter a situation where there are more observations for the interested independent variable are more than the dependent variable. For such purpose MIDAS regression analysis can also become a source of solution and with better results than the traditional OLS regression analysis.

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