Determinants of Stock Price Volatility: A Literature Review

Ranil Hewamana, Dinesha Siriwardhane and Ananda Rathnayake

To link to this article:
https://journals.kln.ac.lk/sajf/images/articles/vol2/i01/v02i01a03.pdf

Determinants of Stock Price Volatility: A Literature Review

Hewamana Ranil[a], Siriwardhane Dinesha[b] and Rathnayake Ananda[b]

[a] Department of Banking & Finance, Wayamba University of Sri Lanka.

[b] Department of Business Economics, University of Sri Jayewardenepura, Sri Lanka.

ABSTRACT

Purpose: This paper reviews the theoretical background and the empirical results of the stock price volatility determinants under three categories: macroeconomic, company-specific fundamentals, and behavioral factors.

Methodology: Previous empirical and theoretical articles on volatility determinants were compared to identify the similarities and differences of the findings. The systematic literature review followed to review the articles published in English between 1930 and 2021.

Design: A critical literature review was performed by comparing the findings of previous studies based on the development status of the market. We discuss determinants of stock price volatility. Determinants include behavioral (non-fundamental) factors and macro-economic factors such as GDP, Inflation, Interest Rate, Money Supply, and Exchange Rate. In addition to Earnings and Dividend Payments have been considered under company-specific fundamentals.

Findings: It was found that there is no agreement between the studies on the macro-level and micro-level determinants of stock volatility. This empirical inconsistency is substantial in GDP, Inflation, Money Supply, Exchange Rate, Earnings, and Dividend Payments. The interest rate is the only determinant that shows moderate inconclusive empirical results. However, behavioral determinants appear to be significance consistency in determining the stock price volatility.

Originality: This article reviews the theoretical and empirical background of stock volatility determinants since there is no single article for reviewing theoretical and empirical results. In a single paper, we provide evidence relating to the impact of macroeconomic, company-specific, and behavioral factors on stock price volatility.

Research Directions – Future research is needed to examine the reason for empirical inconsistency in volatility determinants. A systematic literature review is essential.

I. Introduction

The movements of stock prices highly depend on the respective economic conditions (Chen, Roll, & Ross, 1986). If the economy is performing well, it may lead to a bullish capital market, whereas its poor performance may carry out a bearish capital market. Changes in macroeconomic fundamentals impact stock prices irrespective of the firm's industry. As an example, raising the inflation rate decreases the purchasing power of the customers, leading to lower revenue for the firms (Ball & Romer, 2003). After that, the stock price may decline slightly according to the degree of inflation impact. This common phenomenon was theoretically backed by Arbitrage Pricing Model (APT) introduced by Ross (1976). The APT extends the multifactor model capturing the linear impacts of risk factors on asset returns. Macroeconomic impact has been identified as risk factor in asset return leading to price variability. Different assets have their own degree of risk premiums based on the sensitivity of the asset return on macroeconomic fundamentals. In addition to that, company-specific fundamentals also influence stock prices, like return on assets, future expected cash flows, earning power, etc. However, macroeconomic factors primarily determine the overall market performance.

The general idea is that the variability in stock prices is subject to the performances and expectations of general economic conditions. Otherwise, the stock prices have to behave arbitrarily, which is an unrealistic assumption in a rational market. Therefore, there is no argument saying that macroeconomic determinants have no impact on stock price volatility. Even though this theoretical argument has been accepted worldwide, the empirical evidence is inconsistent.

Many studies have identified that macroeconomic variables significantly determine stock price volatility. There are also empirical shreds of evidence stating that macroeconomic variables do not affect the stock price volatility. This empirical inconsistency is similar when the macroeconomic variables are considered individually based on different perspectives, like a market vice, the direction of the influence, etc. Moreover, the same result can be obtained for company-specific fundamentals. Under the rational investment decision-making assumption, both macro and micro (company-specific) level volatility determinants are considered as stock fundamental variables. However, non-fundamental factors (behavioral) deliver consistent empirical results for determining stock volatility. It can be identified that there is a substantial inconsistency in the empirical evidences of fundamental stock volatility determinants even though they are backed by theoretical arguments as significant determinants. Nevertheless, non-fundamental factors appear as significant volatility determinants. This paper aims to identify the existing gaps relating to the determinants of the stock price volatility. The study mainly focuses on the consistency of the research results between different authors and markets. Additionally, the differences in the directions of the variable impact are presented to explain the similarity and disparity of the empirical results.

II. Methodology

This study reviews theoretical and empirical findings of stock price volatility determinants. Relevant theoretical studies were considered for emphasizing the theoretical background, whereas a substantial part of empirical studies was reviewed for identifying the significance of the volatility determinants, which are backed by the theoretical arguments.

The systematic literature review (SLR) method was followed to review the theoretical and empirical background of the stock price volatility determinants. The SLR is a successful method for identifying, evaluating, and summarizing the findings of previous studies. The relevant articles have been collected from the popular bibliographic electronic databases (Scopus, JSTOR, Taylor & Francis, Emerald, etc.) published in English from 1930-2021. The relevant articles have been discovered using selected keywords i.e; stock price volatility, macroeconomic determinants, company-specific factors, and behavioral factors. Therefore, author was able to access a wider range of previous studies appropriate to the given objective.

The empirical inconsistency was assessed based on the border market perspective with three major market categories of Develop Markets, Emerging Markets, and Developing Markets. The Emerging and Developing markets have been considered as a single category while keeping the Develop market to the other end. The market classification is identified based on the All-Country World Index (ACWI) maintained by Morgan Stanley Capital International (MSCI).

III. Literature Review and Discussion

Stock price volatility is not an independent determinant; it is subject to the variability of other explanatory variables. Mainly, two factors cause on stock price volatility, changes in future cash flow expectations and investor's noise trading. These cash flow expectations are largely driven by

macroeconomic or microeconomic fundamentals. On the other hand, these variables are financial variables that have a direct or indirect impact on stock price dynamics. The noise trading involves with non-fundamental factors. Technically we call them as behavioral factors of investors, in other words, non-financial variables. Therefore, these stock volatility determinants can be broken down into three categories, Macroeconomic Determinants, Company fundamentals (Microeconomic Variables), and Behavioral Determinants. Hereafter, the theoretical background and empirical background of the above categories are discussed one by one individually.

Macroeconomic Determinants

The stock market operates under the financial system of a country; whereas the financial system is a blend of economic activities and variables. Conceptually, price behavior of the stock market depends on the current and future economic fundamentals, since firms' earning projections are mainly driven by the economic health. Stock volatility is a mix of several macro determinants with different degrees of influence depending on the nature of the business of the subject stock. Point is that the future cash flows of a firm should be connected with the influential macro determinants to capture the future business conditions and stock behavior.

Ross (1976) has introduced the APT theory for determining the financial asset return. This is the most prominent theory for the relationship between macroeconomic variables and stock volatility. APT is a multifactor model in order to capture the linear relationships between asset return and the variability of macroeconomic determinants. Moreover, the APT theory is mainly driven by the basis of systematic risk which was initiated by Sharpe (1964). Systematic risk is a return concept for accumulating the general economic risk of an asset. Therefore, the APT is the best initiation theory for explaining the sensitivity of the stock price with respect to macroeconomic fluctuations. In addition to that, Fama & French (1995; 2006) has introduced a multifactor model for identifying the price volatility as a function of asset risk factors. These risk factors include a mix of company fundamentals as well as general economic variables. Therefore, the model has less explanatory power for emphasizing the macro determinants of stock price volatility. In conclusion, the APT is a well-known and simple explanation as a model and as a theory.

However, empirical results do not provide consistent results as the theory says. Because, some studies emphasized that macro variables are significant, but other studies rejected the macroeconomic significance. Table 01 shows the comparison of empirical inconsistency between Developed, Emerging, and Developing markets.

Table 1. Macroeconomic impact and different markets

Market	Macroeconomic Variables are Significant	Macroeconomic Variables are Insignificant
Develop Market	Chen et al. (1986)	Martinez and Rubio (1989)
	Kryzanowski and Zhang (1992)	Schwert (1989)
	Chaudhuri and Smiles (2004)	Poon and Taylor (1991)
	Maysami et al. (2004)	Morck et al. (2000)
	Wong et al. (2006)	Morelli (2002)
	Humpe and Macmillan (2009)	Rapach et al. (2005)
	Gospodinov and Jamali (2012)	Laopodis (2011)
	Mittnik et al. (2015)	Shang and Zheng (2021)*
	Abbas et al. (2019)*	
	Vychytilová et al. (2019)*	
Emerging and Developing Markets	Rahman et al. (2009)	Karmakar (2005)
	Chia and Lim (2015)	Bhattacharya and Mukherjee (2006)

Vychytilová et al. (2019)*	Abbas et al. (2019)*
Endri et al. (2020)	Asaolu and Ogunmuyiwa (2011)
Shang and Zheng (2021)*	

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

It can be observed that the macroeconomic variables do not deliver consistent results in determining the stock price volatility irrespective of the market's development status some studies argued about the moderate impact of macro variables other than the significance-insignificance argument. As an example, Chen (2009) conducted a study in USA and revealed that macroeconomic variables have moderate predictability power in stock dynamics. In his study, some variables are significant while others stay as insignificant variables. Further, he emphasized that the application of macroeconomic data is easier under recessionary conditions than under normal conditions. Similarly, Humpe and Macmillan (2009) have received the same result on research conducted in the same market and same period. Further, Chaudhuri and Smiles (2004) revealed that the stock volatility modeling is limited to the past macro data, and expected future macroeconomic data does not explain the current stock price.

The study of Asaolu and Ogunmuyiwa (2011) was utilized different statistical models to determine the significance of macroeconomic data. However, entire models provide the same result that is the insignificance of macroeconomic variables for modeling the stock variability. Therefore, the above findings concluded that there is a greater inconsistency of empirical results on macro variables in determining the stock volatility. It was observed that the authors have made greater weight on GDP, inflation rate, interest rate, money supply and exchange rate. Hereafter, it is presented the validity of those individual macroeconomic variables one by one.

Gross Domestic Production (GDP)

The Gross Domestic Product (GDP) is the total value of the final goods and services produced by a nation over a specified period of time (Brezina, 2012). This measure consists of four components, consumption, investment, government expenditures, and foreign demand (Dornbusch & Fischer, 1994). The future expectation of GDP is the main determinant of the nation's economic health. Further, this is the basic and initial factor in stock price valuation and prediction. A higher GDP value is a positive sign for a good business environment and higher cash flow expectations. However, the magnitude of the impact is different among the markets and firms. Theoretically, this relationship can be modeled in the APT theory or Multifactor models as a single risk factor in stock return expectation.

There are numerous empirical studies conducted for testing the validity of the GDP in determining the stock variability. As shown under the macroeconomic variables, the GDP also has inconsistence empirical results among Develop, Emerging and Developing markets (See Table 2).

Table 2. Different Markets and GDP Impact

Market	GDP is Significant	GDP is Insignificant
Develop Market	Wongbangpo and Sharma (2002)*	Maysami and Koh (2000)
	Kim (2003)	Hassapis and Kalyvitis (2002)
	Maysami et al. (2004)	Chaudhuri and Smiles (2004)
	Ratanapakorn and Sharma (2007)	Chen (2009)
	Humpe and Macmillan (2009)	Shiblee (2009)
	Zhou et al. (2012)	Madsen et al. (2013)
	Hsieh (2013)	Hossain and Hossain (2015)
	Alexius and Spang (2018)	

Emerging and Developing Markets	Vychytilová et al. (2019)*	
	Wongbangpo and Sharma (2002)*	Morck et al. (2000)
	Singh (2008)	Sarkar (2006)
	Reddy (2012)	Bhattacharya and Mukherjee (2006)
	Gupta and Hartley (2013)	Al-tamimi et al. (2011)
	Adusei (2014)	Hussain et al. (2013)
	Tursoy and Faisal (2016)	
	Vychytilová et al. (2019)*	

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Furthermore, this inconsistent nature of the empirical results can be recognized even within the same capital market. As an example, Kim (2003), Ratanapakorn and Sharma (2007), Gallegati (2008), and Humpe and Macmillan (2009) have identified the GDP as a significant variable in USA stock volatility. But studies of Chen (2009), Shiblee (2009), Madsen et al. (2013), Hossain and Hossain (2015), and Alexius and Spang (2018) rejected the GDP value for modeling and forecasting the stock prices in USA. Similarly, in India, GDP is a significant determinant in one context (Reddy, 2012) and insignificant in another context (Bhattacharya & Mukherjee, 2006; Sarkar, 2006). Further, this same significant (Maysami et al., 2004; Wongbangpo & Sharma, 2002) insignificant (Maysami & Koh, 2000) nature can be discovered in Singapore as well.

Moreover, the variability of this relationship is observed as a time-varying impact between GDP and stock volatility. That is, GDP has no impact in the short term, but, it has a strong relationship in the long term as a stock volatility determinant (Liu & Sinclair, 2008; Peng et al., 2009). However, the literature for the above observation is limited to the Chinese capital market. Finally, it can be concluded that there is a strong inconsistency in empirical evidences about GDP and stock volatility relationship among countries, time periods, and regions.

Inflation Rate

The inflation Rate mainly causes the consumption-ability of the people. In addition to that, it influences the financial system through the borrowing and lending rate. As a result, an investor never forgets to accommodate the future inflation rate for their investment decision-making process. Hence, there is a strong linkage between inflation rate and stock price volatility.

What would be the relationship between inflation and share volatility? There are several theoretical arguments for explaining the above relationship. The Long-Run Inflation Neutrality (Monetary Super-Neutrality) says that climbing the inflation trend rate (as a result of the money supply) has no impact on long-term share prices in the real term. Nevertheless, general well-known theories say that a bullish pattern of inflation causes a bearish impact on real stock prices in the long term. According to Modigliani and Cohn (1979), this negative long-term relationship is due to the "Inflation Illusion" which suffers by market participants. This inflation illusion arises because of a general behavioral bias of investors when they are unable to recognize the changes in nominal interest rate whether due to a fundamental change or inflation change. Therefore, investors are unable to differentiate between nominal and real interest rates when selecting the proper discount rate for stock valuation. Modigliani and Cohn (1979) identified this relationship in USA during the period between 1960 and 1970. Subsequently, Feldstein (1982) has added more explanation for the above inverse relationship. He developed a market model and emphasis that the negative pattern is due to the way of tax treatment on depreciation cost and capital gains. Both Modigliani and Cohn and Feldstein's attempts are well profound studies for the theoretical long-run inverse relationship between stock prices and inflation rates.

This inverse relationship was confirmed by Fama (1981) with a strong explanation based on equity fundamental factors. He emphasized that this negative pattern is a result of a positive relationship between stock return and real fundamental factors which are affected by the stock prices. However, the Famas' argument is more practicable and a little ahead of the other two explanations.

The applicable discount rate is an essential input for better stock valuation and investment decision-making. However, the discount rate is impacted by the current and expected inflation rate. But, the degree of impact will depend on the nature of the firm's operations. As an example, a retail business is more sensitive to the inflation rate than a service firm providing business consultations. Therefore, the applicable discount rate of retail stock is strongly linked with inflationary changes. This argument is in line with the above-explained Modigliani and Cohn (1979), Fama (1981), and Feldstein (1982) arguments and can be simply illustrated from the Dividend Discount Model (DDM) as follows (Formula 1).

$$P = {D}/{r} \qquad (1)$$

Where, P denotes the value of a stock price, D denotes constant dividend payment and r is the required rate of return (RRR) of the stock. This RRR is a blend of risk premiums related to the subject stock. Assumed that given r value fully represents by the real rate of return and future expected dividends are subject to the inflationary rate of the economy. Hence, the RRR should be a nominal rate in order to discount nominal future dividend payments. Then, the nominal RRR is the sum of real rate and inflation premium (r + i). As a result of that, the discount rate of the model becomes larger and P-value would be a lower amount. Therefore, when the price level is increasing, the stock price tends to erode in the short-run as well as the long-run.

In addition to the above argument, the ability of inflation hedge is also an important factor that is considered by an equity investor before the investment is made. When the stock prices fully reflect the fluctuations in price levels, investors are well confident with the particular market. Otherwise, they will withdraw the investment and find a better place for their investment with the inflationary hedge. Therefore, this stock price sensitivity on the inflation rate is essential for a good capital market. The given price reflection is totally depending on the information distribution among the market participants.

The explained inflation-stock price relationship is basically standing on the well-known theory of the "Fisher Effect" introduced by Fisher (1930). This fisher effect describes the impact of the nominal interest rate from the inflation rate volatility, thereafter on stock return and investment behavior.

The theoretical relationship was tested by different researchers at different markets. However, the results are not similar and it is observed an empirical inconsistency, like identified in DGP determinant (See Table 3).

Table 3. Different Markets and Inflation Rate Impact

Market	Inflation is Significant	Inflation is Insignificant
Develop Market	Anari and Kolari (2001)	Rapach (2002)
	Wongbangpo and Sharma (2002)*	Morelli (2002)
	Kim (2003)	He (2006)
	Maysami et al. (2004)	Rapach et al. (2005)
	Gan et al. (2006)	Shiblee (2009)
	Chen (2009)	
	Humpe and Macmillan (2009)	
Emerging and Developing Markets	Wongbangpo and Sharma (2002)*	Floros (2004)
	Kuwornu and Victor (2011)	Saleem et al. (2013)

Reddy (2012)   Bai (2014)
Malaolu et al. (2013)   Fahlevi (2019)
Chia and Lim (2015)
Khalid and Khan (2017)

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Further, the same result can be detected when the studies are compared markets-vice individually. As an example, Rapach (2002), Rapach et al., (2005), He (2006), and Shiblee (2009) have found an insignificant relationship between inflation and USA stock dynamics. However, Kim (2003), Ratanapakorn and Sharma (2007), Chen (2009), Humpe and Macmillan (2009), Anari and Kolari (2001), and Valcarcel (2012) argued inflation as an essential determinant for modeling and predicting the stock volatility. This US uneven relationship pattern was identified by Lee (2010) in his research study separately.

In addition to that Anari and Kolari (2001) conducted a study to test the relevancy of the inflation rate with respect to different developed stock markets in USA, UK, Canada, Japan, Germany, and France. He concluded that the inflation is a powerful determinant in all six (6) countries. But, this result was rejected by Rapach (2002) and Rapach et al. (2005), specifying that the inflation factor does not provide any significant influence for stock volatility in all six countries. Similarly, this nature of the inflation influence is the same in China, Indonesia, New Zealand, and Pakistan (Refer Table 4 for a summary of references).

Table 4. Country wise Inflation Rate Impact

Country	Inflation is significant	Inflation is insignificant
China	Liu and Shrestha (2008)	Bai (2014)
Indonesia	Wongbangpo and Sharma (2002)	Fahlevi (2019)
New Zealand	Gan et al. (2006)	Rapach (2002)
Pakistan	Khalid and Khan (2017)	Saleem et al. (2013)

Further, this variability is observable in between different lime lags being considered. As an example, Crosby (2001) revealed a short-run significance and long-run insignificance relationship, while Kwofie and Ansah (2018) argued a long-run significant and short-run insignificant relationship.

According to the theoretical background, inflation has a negative impact on the stock market prices. However, it can be found that some empirical evidences have a positive impact on stocks (Khalid & Khan, 2017; Kuwornu & Victor, 2011; Ratanapakorn & Sharma, 2007) while others have a negative impact (Chia & Lim, 2015; Hsieh, 2013;

Humpe & Macmillan, 2009; Kim, 2003; Reddy, 2012; Valcarcel, 2012; Wongbangpo & Sharma, 2002). As a conclusion, the inflation determinant has an inconclusive effect on stock prices from different viewpoints.

Interest Rate

The interest rate is a vital factor in every economy as a variable or as a tool. Central banks use interest rate for controlling lending and borrowings of an economy in order to achieve its expected monetary targets. The viability of interest rate has a direct impact on the capital market. This was initially explained by John Maynard Keynes during

1930 as the Keynes's Theory of Money. This well-known theory says a negative relationship for investment money demand with respect to the interest rate (see figure I). In elaboration, investors prefer to invest in the equity market when the interest rate is low since they expect a higher return at the lowest risk. Figure I shows the graphical illustration of this explanation.

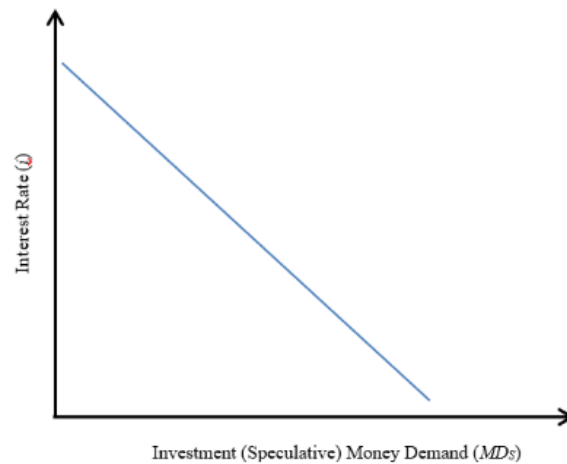**Figure 1.** Investment Money Demand

Table 5 shows the empirical results of the interest rate impact on stock price volatility comparing Develop, Emerging and Developing markets. It can be observed that the influence of the interest rate is inconclusive irrespective of the development status of the market. However, this inconclusive pattern is significantly higher in Emerging and Developing markets rather Develop markets.

Table 5. Market wise Interest Rate Impact

Market	Interest Rate is Significant	Interest Rate is Insignificant
Develop Market	Kim (2003)	Chaudhuri and Smiles (2004)
	Leigh et al. (2005)	Kurihara (2006)
	Rapach et al. (2005)	Korkeamäki (2011)
	Gan et al. (2006)	
	Alam and Uddin (2009)*	
	Chen (2009)	
	Humpe and Macmillan (2009)	
	Hsieh (2013)	
	Abbas et al. (2019)	
Emerging and Developing Markets	Wongbangpo and Sharma (2002)	Gupta et al. (2001)
	Maysami et al. (2004)	Mishra (2004)
	Alam and Uddin (2009)*	Ray (2012)
	Reddy (2012)	Malaolu et al. (2013)
	Addo and Sunzuoye (2013)	Al-tamimi et al. (2011)
	Hussain et al. (2013)	Mohsin et al. (2020)
	Andries et al. (2014)	
	Aamd (2015)	
	Chia and Lim (2015)	
	Khalid and Khan (2017)	
	Endri et al. (2020)	

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Moreover, the result is similar when the literature compares in individual market-vice. This can be observable in Australia, Italy, India, Indonesia, Japan, and UK (Refer Table 6 for a summary of references). Further, this evidence has been amplified by He (2006), which is a study for identifying the effects of monetary policy on the stock return in USA during the last longer period. Accordingly, the interest rate-stock price relationship does not provide consistent results in USA during the past four decades. Further, this inconsistent market-vice relationship was recognized by some authors within their same study (Abugri, 2008; Ferrer et al., 2016; Hyde, 2007).

Table 6. Country wise Interest Rate Impact

Country	Interest Rate is significant	Interest Rate is insignificant
Australia	Alam and Uddin (2009)	Chaudhuri and Smiles (2004)
Italy	Rapach et al. (2005)	Hyde (2007)
India	Reddy (2012) Andries et al. (2014)	Mishra (2004)
Indonesia	Wongbangpo and Sharma (2002)	Gupta et al. (2001)
Japan	Rapach et al. (2005) Alam and Uddin (2009)	Kurihara (2006)
UK	Rapach et al. (2005)	Hyde (2007)

In addition to that, the empirical variability appears even between long-term and short-term rate considerations. Hamrita and Trifi (2011), Olugbode et al. (2014), and Jayashankar and Rath (2017) have revealed that the short-term rate does not have an impact on stock prices while the log-term rate has a significant influence on stock variability. Conversely, according to Ratanapakorn & Sharma (2007), the interest rate is a significant determinant for stock volatility modeling irrespective of the short-term and long-term rate difference, but the impact has different directions (Positive and Negative). However, all these evidences prove the empirical inconsistency of the inflation rate with respect to the stock price volatility impact.

Money Supply

The monetary policy influence on the equity market was highlighted in the above two variables (Inflation Rate/ Interest Rate). The Money Supply is the main exogenous variable that determines the monetarist variables in an economy. This is totally an independent determinant of the Central Bank in order to align the monetary policy targets with economic expectations. Then, the investigation of money supply on stock market performance is important in both theoretical and empirical perspectives.

According to the Keynesian theory, higher money flow causes higher price levels of an economy. As discussed previously, investors add inflation premium into the discount rate which is used to value the expected cash flows. When the inflation rate is higher, the discount rate also tends to increase, ultimately the value of a share price would be a lower amount. Therefore, this Keynesian theory has found a negative influence from money supply on stock prices. However, this argument was contradicted by the same Keynesian theory from a different viewpoint. Because Keynesian Money Demand Thought

has a positive impact from money flow. In other words, higher money flow leads to lower interest rates and thereafter, higher demand for high return equity securities. Accordingly, the stock volatility increases as a result of the trading rush from the huge demand. Hence, the theory of Keynesian has a partial positive and partial negative explanation for money demand, but the variable significance has been confirmed under both views. The second explanation (Positive Relationship) is also the grounded rationale for the negative relationship between interest rate and stock volatility as explain under the Interest Rate variable.

Further, this positive argument is in line with a modern concept of investment portfolio theory. It says investors re-balance their portfolio into interest-bearing money assets (like equities, bonds) from non-interest-bearing money assets (like real assets, commodities). In addition to that, the higher money flow and lower interest rate have positive signals on expected corporate earnings and higher return. Thereto, it can be expected a positive impact from money supply on the stock volatility dynamics. However, the Friedman and Schwartz (1963) initiation is totally different from the above portfolio theory view. Their argument is, the narrow money supply expands the business actives and expected future cash flows, but this has limited applicability in the real environment. Finally, it can be seen a debatable theoretical background in money supply and stock volatility relationship, however, the positive influence is strong and dominant among other battles.

Table 7. Market wise Money Supply Impact

Market	Money Supply is Significant	Money Supply is Insignificant
Develop Market	Shiblee (2009)	Durham (2001)*
	Gan et al. (2006)	Morelli (2002)
	Maysami et al. (2004)	Rahman and Mustafa (2008)
	Ratanapakorn and Sharma (2007)	Wong et al. (2006)
	Wongbangpo and Sharma (2002)*	Chen (2009)
	Caginalp and Desantis (2011)	Rapach et al. (2005)
	Vychytilová et al. (2019)*	
Emerging and Developing Markets	Bekhet and Matar (2013)	Durham (2001)*
	Tian and Ma (2010)	Mishra (2004)
	Wongbangpo and Sharma (2002)*	Bhattacharya and Mukherjee (2006)
	Feigelson et al. (2018)	
	Hussain et al. (2013)	Malaolu et al. (2013)
	Chia and Lim (2015)	Almutair (2015)
	Aslam (2014)	Al-tamimi et al. (2011)
	Vychytilová et al. (2019)*	

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Empirical evidences have the same nature of inconsistency that was identified under the previous cases. There are favorable evidences on significance of money supply on stock price volatility while other studies do not provide reliable evidences on money supply in determining the stock price volatility. This is not different even the results are compared between Develop, Emerging and Developing markets (See Table 6). Similarly, this variability appears among the individual markets when the empirical studies are compared on the market basis. For instance, Ratanapakorn and Sharma (2007), Shiblee (2009), and Caginalp and Desantis (2011) argued that money supply as a significant determinant for modeling the USA stock volatility. Conversely, some evidences have provided that the money supply as an insufficient variable in USA equity market (Chen, 2009; Durham, 2001; Humpe & Macmillan, 2009; Rahman & Mustafa, 2008; Rapach et al., 2005; Wong et al., 2006). Similar results can be obtained for the New

Zealand equity market (Durham, 2001; Gan et al., 2006).

In addition to that, this inconsistency is observable with respect to the sign of the relationship (Positive/ Negative) even if the money supply stays as a significant determinant. According to Wongbangpo and Sharma (2002), Indonesia and Philippines have a negative impact while Singapore, Thailand, and Malaysia have a positive influence on share price behavior. Further, this sign difference can be recognized within the same territory. As an example, Hussain et al. (2013) argued a positive relationship and Almutair (2015) argued a negative relationship in Pakistan.

Moreover, the empirical inconsistency is possible when the results are compared based on the global viewpoint (Durham, 2001; Rapach et al., 2005). Finally, all these arguments lay a clear-cut conclusion that money supply has a questionable impact on stock price volatility.
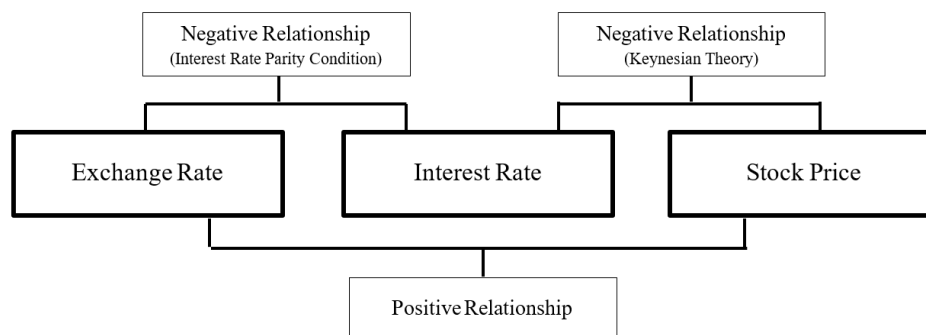
Exchange Rate

The above variables explain the deviation of a country's internal macroeconomic environmental change. The external economic bounces haven't been taken into the discussion. Therefore, the Exchange Rate is the most suitable variable for undertaking the above external economic impact. Additionally, the exchange rate has effectively recognized the link between internal and external environmental changes. Thereto, theoretical and empirical investigation of Exchange Rate impact is vital for better stock volatility modeling.

A strong theory for the Exchange Rate-Stock Price relationship is unobservable among the academic literature. This issue arises because different exchange rates are available in different currencies and the sensitivity of the currency is different based on the foreign exposure of the respective country. However, there are some arguments existing based on the rational existing theories.

As Interest Rate Parity conditions, the exchange rate and the interest rate have an inverse relationship. This foundation lays to build up a relationship between exchange rate and stock price volatility. Since the interest rate has a negative impact on stock price, the Interest Rate Parity condition can be merged to realize a positive relationship between Exchange Rate and Stock Prices. The Figure II illustrates the given argument graphically.

Figure 2. Exchange Rate and Stock Price Relationship

The former theories have based on the fluctuations of the current exchange rate on the adjustments of the stock prices. However, modern concepts assume appreciation and depreciation are vital for expected exchange rates than the current rates.

Table 8. Market wise Exchange Rate Impact

Market	Exchange Rate is Significant	Exchange Rate is Insignificant
Develop Market	Wu (2001)*	Nieh and Lee (2001)
	Kim (2003)	Ozair (2006)
	Hyde (2007)	Chen (2009)
	Katechos (2011)	Humpe and Macmillan (2009)
	Tsai (2012)*	Olugbode et al. (2014)
	Abbas et al. (2019)	
Emerging and Developing Markets	Wu (2001)*	Gupta et al. (2001)
	Aydemir and Demirhan (2009)	Smyth and Nandha (2003)
	Ahmad et al. (2010)	Mishra (2004)
	Tian and Ma (2010)	Bhattacharya and Mukherjee
	Walid et al. (2011)	(2006, 2003)
	Lin (2012)	Tabak (2006)
	Tsai (2012)*	Rahman and Uddin (2009)
	Muktadir-al-Mukit (2013)	Zhao (2010)
	Andries et al. (2014)	Malaolu et al. (2013)
	Chia and Lim (2015)	Ihsan et al. (2015)
	Khalid and Khan (2017)	Fahlevi (2019)
	Endri et al. (2020)	Mohsin et al. (2020)

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

The empirical evidences have the same inconsistent pattern as observed stated under the previous variables. This inconsistency was identified by different authors even within their own work (Abugri, 2008; Chue & Cook, 2008; Diamandis & Drakos, 2011; Granger et al., 2000; Inci & Lee, 2014; Nath & Samanta, 2003; Pan et al., 2007; Ramasamy & Yeung, 2002). According to Ramasamy and Yeung (2002), Nath and Samanta (2003), Pan et al. (2007), Abugri (2008), Chue and Cook (2008), and Diamandis and Drakos (2011) this empirical variability highly exists in the Emerging Markets and Asian Markets. The Table 7 shows the summary of the comparison of empirical evidences on Exchange Rate in determining the stock price volatility.

However, when the literature compares with in the same market, the uneven results can be observed (Refer Table 8 for a summary of references). In addition to that, the direction of the exchange rate impact also does not have consistent results. As an example, Kim (2003) and Aydemir and Demirhan (2009) have emphasized a negative influence of the exchange rate on the stock volatility, while Tian and Ma (2010) and Khalid and Khan (2017) argued a positive relationship between them. Therefore, these facts and comparisons are more than enough to conclude that the exchange rate has a variable impact on stock price volatility.

Table 9. Country wise Exchange Rate Impact

Country	Exchanges Rate is significant	Exchange Rate is insignificant
Bangladesh	Muktadir-al-Mukit (2013)	Rahman and Uddin (2009)
		Smyth and Nandha (2003)
China	Tian and Ma (2010)	Zhao (2010)
India	Andries et al. (2014)	Bhattacharya and Mukherjee (2006; 2003)
Malaysia	Chia and Lim (2015)	Granger et al. (2000)

Pakistan	Ahmad et al. (2010)	Smyth and Nandha (2003)
	Khalid and Khan (2017)	Rahman and Uddin (2009)
		Ihsan et al. (2015)
Singapore	Wu (2001)	Granger et al. (2000)
UK	Hyde (2007)	Olugbode et al. (2014)
USA	Kim (2003)	Ozair (2006)
		Chen (2009)
		Humpe and Macmillan (2009)

Company Fundamental Factors

Examine the microeconomic environmental change is important as identifying the macroeconomic impacts, for the intention of volatility modeling. Company fundamental factors represent the micro environmental behavior of a subject market or a firm. These are the inside determinants for stock price dynamics which consider by an investor before making the investments. On the other hand, company fundamentals are the bottom-line reflections of macro-environmental impacts. As an example, higher GDP expectation appears through the higher earnings expectations. The significance of the company fundamentals was tested by several authors and found that company fundamentals better explain the stock volatility (Lamdin, 2001; Mgbame & Ikhatua, 2013; Mylonakis et al., 2012; Pirie & Smith, 2008; Zhu & Niu, 2016).

Among the other specific fundamentals, earnings and dividend payments are two major insider fundamentals that highly influence the investors' decision-making. This is agreed since investors are too sensitive to the earning power of the stock as well as the distribution ability. It is pointless to invest in a company without having a good return from the investment.

Two basic valuation models individually accommodate the above-mentioned earnings and dividends into the share price. The DDM model captures the expected dividend payments and assumes that future dividend payments are the best estimates for the current value of a share. In addition to that PE multiple relies upon the future earning ability irrespective of the distribution of the stock.

However, the impact of the above two variables was identified one by one separately.

Earnings

The earnings of a firm have been extensively considered by market participants before the investment is made. This comprises two major components, current earnings, and future earnings. However, expected future earnings are dominant and important than the current earnings for price forecasting and volatility modeling.

Earnings measures the firm's ability to generate positive cash-flows from the business for distribution and investment. The main earning driver is the firms' revenue and this erodes from the cost of the business. Generating a higher revenue does not indicate good earnings, rather than it is required to minimize the cost of doing business. Sometimes earnings have different values depending on their definition. As an example, accounting earning has a different value than the earning calculated for discounted cash flow analysis. However, accommodating accurate earning expectations helps for better price forecasting and measuring (Bhojraj & Lee, 2002; Chen & Shen, 2009; Liu et al., 2002).

Measurement and prediction of future cash-flows is a challenging task due to the uncertainty in the business environment. If earnings have an optimistic nature, it increases the investor's expectations and confidence, resulting a higher volatility. Conversely, when the expected earnings are too low, less trading is occurred with minimal price volatility. Therefore, it can be identified a positive impact from the earnings and price

volatility. However, this theoretical argument was tested by the plethora of empirical studies.

Table 10. Market wise Earnings Impact

Market	Earnings is Significant	Earnings is Insignificant
Develop Market	Marquering and Verbeek (2004)	Bhargava and Malhotra (2006)
	Hussainey et al. (2011)	Nargelecekenler (2011)
Emerging and Developing Markets	Ilaboya and Omoye (2012)	Omran (2009)
	Wang et al. (2013)	Fun and Basana (2012)
		Zakaria et al. (2012)

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Empirical evidences have mixed results for stock volatility prediction and modeling irrespective of the development status of the market (See Table 9). This observation is not different from the observations of other macroeconomic fundamentals. Therefore, it is clear that empirical findings have a significant variability even with strong theoretical arguments.

Dividends Payments

Mainly, the dividend is considered as the shareholder's profit and distribution of the investment return to its owners. Most of the time, the dividend is a portion of the business income and earnings, since managers wish to retain a part of earnings for future investment purposes. Larger allocation on investments makes positive expectations of business earnings at the expense of return distributions. Therefore, there is a trade-off between dividend payment and investment retains. As a result of that, dividend is a vital measurement for both investors as well as managers.

Usually, dividends are made in terms of either cash or stocks. Payment of dividends is different not only to market vice but also firm vice. Gordon and Shapiro (1956) identified the DDM model and assumes that the present value of future dividend payments is the best estimate for equity price. According to DDM, the share price has an impact on the dividend policy of a firm, leading to a positive relationship. However, the influence of the dividend payment has a contradictory pattern both theoretically and empirically.

Miller and Modigliani (1958) have initiated the relationship between stock price volatility and dividend payment in their cost of capital model. Later, Black (1976) introduced a dividend puzzle by mentioning dividend is not an influential factor for measuring the company stock price since they are the owners of the firm. In other words, investors do not make any adjustments to the stock price whatever the dividend amount. Additionally, Black argued that equity holders do not prefer dividend payments due to tax expense on dividend receivables. This totally complies with the dividend irrelevance theory by Miller and Modigliani (1961). However, these dividend irrelevance and puzzle arguments have been completely rejected by DeAngelo et al. (1996), specifying that dividend is a reliable factor for stock price variability. Later, this relationship was developed and identified in several other concepts, such as stakeholders' theory, pecking order theory, agency cost, signaling theory, bird-in-hand fallacy, and clientele effect. However, the importance of the dividend payment is declining gradually and it will disappear in the future (Skinner, 2008).

The relationship between dividend policy and stock price behavior has attracted the interest of both academics and stock market traders, but despite of numerous academic papers, the area is still an unresolved issue (Frankfurter

& Wood, 2002). For instance, some studies support that the dividend is a vital factor in stock volatility modeling (Arslan & Zaman, 2014; Campbell & Shiller, 2001; Chen & Shen, 2009; Gunaratne et al., 2015; Hussainey et al., 2011; Jahfer & Mulafara, 2016; Lashgari & Ahmadi, 2014; Lewellen, 2004; Marquering & Verbeek, 2004; McManus et al., 2004; Suleman et al., 2011; Suwanna, 2012). However insignificant results are also observable for the dividend-price volatility relationship (Basse et al., 2013; Dewasiri & Weerakoon, 2014; Ilaboya & Omoye, 2012; Rashid & Rahman, 2009; Sum, 2013; Wolf, 2000; Zakaria et al., 2012). This observation is not different when the studies are compared between Developed, Emerging and Developing markets (See Table 10).

Table 11. Market wise Dividend Payment Impact

Market	Dividends is Significant	Dividends is Insignificant
Develop Market	Campbell and Shiller (2001)	Wolf (2000)
	McManus et al. (2004)	Basse et al. (2013)
	Chen and Shen (2009)	Sum (2013)
	Hussainey et al. (2011)	
Emerging and Developing Markets	Suleman et al. (2011)	Rashid and Rahman (2009)
	Suwanna (2012)	Ilaboya and Omoye (2012)
	Arslan and Zaman (2014)	Zakaria et al. (2012)
	Lashgari and Ahmadi (2014)	Dewasiri and Weerakoon (2014)
	Gunaratne et al. (2015)	

*The study was conducted in different markets with a mix of either Developed, Emerging and Developing markets.

Further, the direction of the impact also shows either positive or negative significance on price volatility (Hussainey et al., 2011; Lashgari & Ahmadi, 2014; Suleman et al., 2011). Hence, the similar empirical inconsistent is observable in dividend payments as identified under the previous determinants. This nature was identified separately by Camilleri et al. (2017), specifying that dividend payments have different results on volatility measurement.

Behavioral Determinants

Usually, Investors use microeconomic and macroeconomic fundamental factors to describe the stock price volatility. This method is under the rational investment decision-making process and assumes that all investors are rational decision-makers. However, investors make irrational decisions based on their behavioral biases. Behavioral biases are common to all investors with different degrees of influences depending on their personal cognitive and emotional thinking. In modern finance theory, the rational investor assumption is no longer valid and behavioral determinants also are too important for investigating the stock volatility behavior like fundamental factors.

Even though more advanced asset pricing models are available it is difficult to accommodate correct micro and macro fundamental factors in order to get the right value of the stock due to the lack of knowledge and/or data (Corredor et al., 2015). In other words, stocks that are hard to value and vulnerable for speculation subject to the market sentiment (Kumari & Mahakud, 2015). Hence, the irrational behavior is possible in each market irrespective of the market efficiency identified by Fama (1965). As Black (1986) stated, identifying behavioral factors is the best way to describe the impact of the investors who use non-fundamental factors for investment decisions.

Investors who use non-fundamental factors are technically called as "Noise Traders". Noise trading decisions are driven by herding behavior, loss aversion, status quo, and

overconfidence, etc. According to Kumari and Mahakud (2015), the actions of noise traders have a serious influence when the share price deviates from its intrinsic value. Therefore, the market is subject to volatile frequently on the basis of the sensitivity of behavioral biases. This Kumari and Mahakud argument is totally in line with Selden (1912). He also recognized that investors' psychological impact is reflected and mirrored by the price dynamics according to the mental attitude of buyers and sellers. Shefrin and Statman (1994) have developed a behavioral capital asset pricing theory in order to explain the relationship between asset prices and behavioral biases. Accordingly, if the bullish sentiment is more dominated among the traders, the price moves above the intrinsic value due to the larger number of buying orders than selling orders. Conversely, prices pull below the intrinsic value, when the bearish sentiment is comparatively dominated in the market. Both bullish and bearish noise trading can make stock markets more volatile (Baker & Wurgler, 2006, 2007).

A plethora of authors has confirmed that non-fundamental factors are highly significant in stock volatility modeling and prediction (Baker & Wurgler, 2006). For instance, the studies of De Long et al. (1987), Lee (1998; 2006), Stracca (2004), Coval and Shumway (2005), Kengatharan and Kengatharan (2014), and Daniel et al. (2020) has long-established that behavioral factors are more influential for price movements during the last four (04) decades. This significance highly appears in less developed markets than developed markets (Baker & Wurgler, 2006; Corredor et al., 2015; Schmeling, 2009). The influence of behavioral factors is not like the empirical evidences identified in previous cases (Macroeconomic/ Company Fundamental Factors), since there is a consistent significant nature in empirical studies.

V. Conclusion

It is clear that there is an empirical inconsistency in fundamental stock volatility determinants. All selected fundamental factors have inconclusive results on their influence in determining the stock volatility behavior irrespective of the development status of the market (Develop, Emerging and Developing market). This inconsistency is highly significant in terms of GDP, Inflation, Money Supply, Exchange Rate, Earnings, and Dividend Payments. Interest Rate is the only variable which has moderate inconsistence empirical results. However, most of non-fundamental factors deliver consistent conclusions for determining the stock price volatility dynamics. The significance of the non-fundamental factors is strong in Emerging and Developing markets than the Develop markets.

The observation of this study has been highlighted by previous authors within their same study (Abugri, 2008; Addo & Sunzuoye, 2013; Anari & Kolari, 2001; Chue & Cook, 2008; Ferrer et al., 2016; Fun & Basana, 2012; Hamrita & Trifi, 2011; He, 2006; Lee, 2010; Marquering & Verbeek, 2004; Qamri et al., 2015; Wongbangpo & Sharma, 2002). However, theoretically, the movement of stock prices are driven by general economic fundamentals (Fama & French, 1995; Ross, 1976; Sharpe, 1964). The theoretical argument is too acceptable since stock prices do not behave arbitrarily. Price volatility is based on the expected cash-flows captures by the general economic health condition. But, empirical evidences do not deliver consistent results for fundamental volatility determinants.

However, the non-fundamental factors (behavioral) have consistent results while fundamental factors are exhibiting this inconsistent influential problem. Therefore, investors are more confident with irrational decision making over rational decisions which are backed by fundamental factors. Generally, investors tend to behave in an irrational (behavioral) manner as a result of

either inability to adopt a proper valuation or unavailability of correct data at right time. This data unavailability issue dominates than the other reason since the proper valuation problem can be avoided with the help of an investment advisor or a stockbroker. Therefore, future research is needed for identifying the relationship between information distribution patterns and the stock volatility behavior in equity markets.

References

Aamd, A. (2015). Dynamic relationship between Exchange rate and Stock Returns ; Empirical Evidence from Colombo Stock Exchange. International Journal of Liberal Arts and Social Science, 6(4), 92–97. https://www.researchgate.net/publication/227411014%0AThe

Abbas, G., Bashir, U., Wang, S., Zebende, G. F., & Ishfaq, M. (2019). The Return and Volatility Nexus among Stock Market and Macroeconomic Fundamentals for China. Physica A: Statistical Mechanics and Its Applications, 526, 121025. https://doi.org/10.1016/j.physa.2019.04.261

Abugri, B. A. (2008). Empirical Relationship Between Macroeconomic Volatility and Stock Returns : Evidence from Latin American Markets. International Review of Financial Analysis, 17(2), 396–410. https://doi.org/10.1016/j.irfa.2006.09.002

Addo, A., & Sunzuoye, F. (2013). The Impact of Treasury Bill Rate and Interest Rate on the Stock Market Returns: Case of Ghana Stock Exchange. European Journal of Business and Economics, 8(2), 15–24.

Adusei, M. (2014). Does Stock Market Development Promote Economic Growth in Ghana? International Journal of Economics and Finance, 6(6). https://doi.org/10.5539/ijef.v6n6p119

Ahmad, M. I., Rehman, R. U., & Raoof, A. (2010). Do interest rate, exchange rate effect stock returns? a pakistani perspective. International Research Journal of Finance and Economics, 50, 146–150.

Al-tamimi, H. A. H., Alwan, A. A., & Rahman, A. A. A. (2011). Factors Affecting Stock Prices in the UAE Financial Markets. Journal of Transnational Management, 16(1), 3–19. https://doi.org/10.1080/15475778.2011.549441

Alam, M., & Uddin, G. S. (2009). Relationship between Interest Rate and Stock Price : Empirical Evidence from Developed and Developing Countries. International Journal of Business and Management, 4(3), 43–51.

Alexius, A., & Spang, D. (2018). Stock prices and GDP in the long run. Journal of Applied Finance & Banking, 8(4), 107–126.

Almutair, S. (2015). A Cointegration Analysis of Money Supply and Saudi Stock Price Index. International Journal of Economics and Finance, 7(5), 153–165. https://doi.org/10.5539/ijef.v7n5p153

Anari, A., & Kolari, J. (2001). Stock Prices and Inflation. Journal of Financial Research, 24(4), 587–602. https://doi.org/10.1111/j.1475-6803.2001.tb00832.x

Andries, A. M., Ihnatov, I., & Tiwari, A. K. (2014). Analyzing time-frequency relationship between interest rate, stock price and exchange rate through continuous wavelet. Economic Modelling, 41, 227–238. https://doi.org/10.1016/j.econmod.2014.05.013

Arslan, M., & Zaman, R. (2014). Impact of Dividend Yield and Price Earnings Ratio on Stock Returns : A Study Non-Financial listed Firms of Pakistan. Research Journal of Finance and Accounting, 5(19), 68–75.

Asaolu, T., & Ogunmuyiwa, M. (2011). An Econometric Analysis of the Impact of Macroecomomic Variables on Stock Market Movement in Nigeria. Asian

Journal of Business Management, 3(1), 72–78.

Aslam, W. (2014). Relationship Between Stock Market Volatility and Exchange Rate: a Study of KSE. Journal of Public Administration, 5, 62–72.

Aydemir, O., & Demirhan, E. (2009). The Relationship between Stock Prices and Exchange Rates Evidence from Turkey. International Research Journal of Finance and Economics, 23, 207–215.

Bai, Z. (2014). Study on the Impact of Inflation on the Stock Market in China. International Journal of Business and Social Science, 5(7), 261–271.

Baker, M., & Wurgler, J. (2006). Investor Sentiment and the Cross-Section of Stock Returns. Journal of Finance, 61(4), 1645–1680.

Baker, M., & Wurgler, J. (2007). Investor Sentiment in the Stock Market. Journal of Economic Perspectives, 21(2), 129–151.

Ball, L., & Romer, D. (2003). Inflation and the Informativeness of Prices. Journal of Money, Credit and Banking, 35(2), 177–196. http://www.jstor.org/stable/3649853

Basse, T., Reddemann, S., Riegler, J. J., & von der Schulenburg, J. M. G. (2013). Bank dividend policy and the global financial crisis: Empirical evidence from Europe. European Journal of Political Economy, 34(Supplement), S25–S31. https://doi.org/10.1016/j.ejpoleco.2013.09.001

Bekhet, H. A., & Matar, A. (2013). Co-integration and causality analysis between stock market prices and their determinates in Jordan. Economic Modelling, 35, 508–514. https://doi.org/10.1016/j.econmod.2013.07.012

Bhargava, V., & Malhotra, D. K. (2006). Do Price-Earnings Ratios Drive Stock Values? The Journal of Portfolio Management, 33(1), 86–92. https://doi.org/10.3905/jpm.2006.661379

Bhattacharya, B., & Mukherjee, J. (2006). Indian Stock Price Movements and the Macroeconomic Context – A Time Series Analysis. Journal of International Business and Economices, 5(1), 167–181.

Bhattacharya, B., & Mukherjee, J. (2003). Causal Relationship between Stock Market and Exchange Rate, Foreign Exchange Reserves and Value of Trade Balance: A Case Study for India. Fifth Annual Conference on Money and Finance in the Indian Economy, 05. http://oii.igidr.ac.in:8080/xmlui/handle/2275/185

Bhojraj, S., & Lee, C. M. C. (2002). Who is my peer? A Valuation-Based Approach to the Selection of Comparable Firms. Journal of Accounting Research, 40(2), 407–439. https://doi.org/10.1111/1475-679X.00054

Black, F. (1976). The Dividend Puzzle. Journal of Portfolio Management, 2, 5–8.

Black, F. (1986). Noise. Journal of Finance, 41(3), 529–543.

Brezina, C. (2012). Understanding the Gross Domestic Product and the Gross National Product. The Rosen Publishing Group, Inc.

Caginalp, G., & Desantis, M. (2011). Stock Price Dynamics : Nonlinear Trend , Volume , Volatility , Resistance and Money Supply. Quantitative Finance, 11(6), 849–861. https://doi.org/10.1080/14697680903220356

Camilleri, S. J., Grima, L., & Grima, S. (2017). The effect of dividend policy on share price volatility : an analysis of Mediterranean banks ' stocks. Managerial Finance, 45(2), 348–364. https://doi.org/10.1108/MF-11-2017-0451

Campbell, J. Y., & Shiller, R. J. (2001). Valuation Ratios and the Long-Run Stock Market Outlook: An Update (No. 8221). https://www.nber.org/system/files/working_papers/w8221/w8221.pdf

Chaudhuri, K., & Smiles, S. (2004). Stock market and aggregate economic activity: Evidence from Australia. Applied Financial Economics, 14(2), 121–129. https://doi.org/10.1080/09603100420001 76399

Chen, N., Roll, R., & Ross, S. A. (1986). Economic Forces and the Stock Market. The Journal of Business, 59(3), 383–403.

Chen, S. S. (2009). Predicting the bear stock market: Macroeconomic variables as leading indicators. Journal of Banking and Finance, 33(2), 211–223. https://doi.org/10.1016/j.jbankfin.2008.07 .013

Chen, S. W., & Shen, C. H. (2009). Is the Stock Price Higher than that Implied by the Fundamentals. International Research Journal of Finance and Economics, 1(29), 87–109.

Chia, R. C. J., & Lim, S. Y. (2015). MALAYSIAN STOCK PRICE AND MACROECONOMIC VARIABLES: AUTOREGRESSIVE DISTRIBUTED LAG (ARDL) BOUNDS TEST. Kajian Malaysia, 33(1), 85–103.

Chue, T. K., & Cook, D. (2008). Emerging Market Exchange Rate Exposure. Journal of Banking and Finance, 32(7), 1349–1362. https://doi.org/10.1016/j.jbankfin.2007.11 .005

Corredor, P., Ferrer, E., & Santamaria, R. (2015). The Impact of Investor Sentiment on Stock Returns in Emerging Markets: The Case of Central European Markets. Eastern European Economics, 53(4), 328–355. https://doi.org/10.1080/00128775.2015.1 079139

Coval, J. D., & Shumway, T. (2005). Do Behavioral Biases Affect Prices? Journal of Finance, 60(1), 1–34. https://onlinelibrary.wiley.com/doi/abs/10 .1111/j.1540-6261.2005.00723.x

Crosby, M. (2001). Stock Returns and Inflation. Australian Economic Papers,

40(2), 156–165. https://doi.org/10.2139/ssrn.1326501

Daniel, K., Hirshleifer, D., & Sun, L. (2020). Short- and Long-Horizon Behavioral Factors. The Review OfFinancial Studies, 33(4), 1673–1736. https://doi.org/10.1093/rfs/hhz069

De Long, J. B., Shleifer, A., Summers, L. H., & Waldmann, R. J. (1987). THE ECONOMIC CONSEQUENCES OF NOISE TRADERS.

DeAngelo, H., DeAngelo, L., & Skinner, D. J. (1996). Reversal of Fortune: Dividend Signaling and the Disappearance of Sustained Earnings Growth. Journal of Financial Economics, 40(3), 341–371. https://doi.org/10.1016/0304-405X(95)00850-E

Dewasiri, N. J., & Weerakoon, B. Y. K. (2014). Impact of Dividend Policy on Stock Price Volatility : Evidence From Sri Lanka. International Conference on Business Management, 15–27.

Diamandis, P. F., & Drakos, A. A. (2011). Financial liberalization , exchange rates and stock prices : Exogenous shocks in four Latin America countries. Journal of Policy Modeling, 33(3), 381–394. https://doi.org/10.1016/j.jpolmod.2010.11 .004

Dornbusch, R., & Fischer, S. (1994). Macroeconomics (Sixth Edit). McGraw-Hill.

Durham, J. B. (2001). The Effect of Monetary Policy on Monthly and Quarterly Stock Market Returns: Cross-Country Evidence and Sensitivity Analyses. معرفت ادیان. https://ssrn.com/abstract=293102

Endri, E., Abidn, Z., Simanjuntak, T. P., & Nurhayati, I. (2020). Indonesian Stock Market Volatility: GARCH Model. Montenegrin Journal of Economics, 16(2), 7–17. https://doi.org/10.14254/1800-5845/2020.16-2.1

Fahlevi, M. (2019). The Influence of Exchange Rate, Interest Rate and Inflation

on Stock Price of LQ45 Index in Indonesia. Advances in Social Science, Education and Humanities Research, 343, 157–163. https://doi.org/10.2991/icas-19.2019.34

Fama, E. F. (1965). The Behavior of Stock-Market Prices. The Journal of Business, 38(1), 34–105. http://www.jstor.org/stable/2350752 .

Fama, E. F. (1981). Stock Returns, Real Activity, Inflation, and Money. The American Economic Review, 71(4), 545–565. http://www.jstor.org/stable/1806180%5Cnhttp://www.jstor.org/stable/1806180

Fama, E. F., & French, K. R. (1995). Size and Book-to-Market Factors in Earnings and Returns. The Journal of Finance, 50(1), 131–155. https://www.sciencedirect.com/science/article/abs/pii/S0304405X06001164

Fama, E. F., & French, K. R. (2006). Profitability , Investment and Average Returns. Journal of Financial Economics, 82(3), 491–518. https://doi.org/10.1016/j.jfineco.2005.09.009

Feigelson, E. D., Babu, G. J., & Caceres, G. A. (2018). Autoregressive Times Series Methods for Time Domain Astronomy. 6(August). https://doi.org/10.3389/fphy.2018.00080

Feldstein, M. (1982). Inflation and the Stock Market: Comment. American Economic Review, 72(1), 243–246.

Ferrer, R., Bolós, V. J., & Benítez, R. (2016). Interest Rate Changes and Stock Returns: A European Multi-Country Study with Wavelets. International Review of Economics and Finance, 44, 1–12. https://doi.org/10.1016/j.iref.2016.03.001

Fisher, I. (1930). The Theory of İnterest (1st Editio). The Macmillan Company.

Floros, C. (2004). Stock Returns and Inflation in Greece. Applied Econometrics and International Development, 4(2), 55–68.

Frankfurter, G. M., & Wood, B. G. (2002). Dividend policy theories and their empirical tests. International Review of Financial Analysis, 11(2), 111–138. https://doi.org/10.1016/S1057-5219(02)00071-6

Friedman, M., & Schwartz, A. (1963). A Monetory History of the United States 1897-1960. Princeton University Press.

Fun, L. P., & Basana, S. R. (2012). Price Earnings Ratio and Stock Return Analysis (Evidence from Liquidity 45 Stocks Listed in Indonesia Stock Exchange). Journal of Management and Entrepreneurship, 14(1), 7–12. https://doi.org/10.9744/jmk.14.1.7-12

Gallegati, M. (2008). Wavelet analysis of stock returns and aggregate economic activity. Computational Statistics & Data Analysis, 52, 3061–3074. https://doi.org/10.1016/j.csda.2007.07.019

Gan, C., Lee, M., Yong, H. H. A., & Zhang, J. (2006). Macroeconomic Variables and Stock Market Interactions: New Zealand Evidence. Investment Management and Financial Innovations, 3(4), 89–101.

Gordon, M. J., & Shapiro, E. (1956). Capital Equipment Analysis: The Required Rate of Profit. Management Science, 3(1), 102–110. https://doi.org/10.1287/mnsc.3.1.102

Gospodinov, N., & Jamali, I. (2012). The effects of Federal funds rate surprises on S&P 500 volatility and volatility risk premium. Journal of Empirical Finance, 19(4), 497–510. https://doi.org/10.1016/j.jempfin.2012.04.009

Granger, C. W. J., Huangb, B. N., & Yang, C. W. (2000). A Bivariate Causality between Stock Prices and Exchange Rates: Evidence from recent Asian flu. Quarterly Review of Economics and Finance, 40(3), 337–354. https://doi.org/10.1016/s1062-9769(00)00042-9

Gunaratne, D., Priyadarshanie, W. A. N., & Samarakoon, S. M. R. K. (2015). Impact

of Dividend Policy on Stock Price Volatility and Market Value of the Firm: Evidence from Sri Lankan Manufacturing Companies. Corporate Ownership and Control, 13(3), 219–225. https://doi.org/10.2139/ssrn.2699697

Gupta, J., Chevalier, A., & Sayekt, F. (2001). Fuzzy Sets in Management, Economics and Marketing. In C. Zopounidis, P. M. Pardalos, & G. Baourakis (Eds.), The Causality between Interest Rate, Exchange Rate and Stock Price in Emerging Markets: The Case of the Jakarta Stock Exchange. Nanyang Technological University. https://doi.org/https://doi.org/10.1142/9789812810892_0010

Gupta, R., & Hartley, F. (2013). The Role of Asset Prices in Forecasting Inflation and Output in South Africa. Journal of Emerging Market Finance, 12(3), 239–291. https://doi.org/10.1177/0972652713512913

Hamrita, M. E., & Trifi, A. (2011). The Relationship between Interest Rate , Exchange Rate and Stock Price : A Wavelet Analysis. International Journal of Economics and Financial Issues, 1(4), 220–228. https://www.researchgate.net/publication/227411014%0AThe

Hassapis, C., & Kalyvitis, S. (2002). Investigating the links between growth and real stock price changes with empirical evidence from the G-7 economies. Quarterly Review of Economics and Finance, 42(3), 543–575. https://doi.org/10.1016/S1062-9769(01)00111-9

He, L. T. (2006). Variations in effects of monetary policy on stock market returns in the past four decades. Review of Financial Economics, 15(4), 331–349. https://doi.org/10.1016/j.rfe.2005.07.001

Hossain, M. K., & Hossain, A. (2015). An Empirical Relationship between Share Price and Economic Growth : New Evidence on Selected Industrialized Economies. American Journal of Economics, 5(3), 353–362. https://doi.org/10.5923/j.economics.20150503.07

Hsieh, W. (2013). The Stock Market and Macroeconomic Variables in New Zealand and Policy Implications. Journal of International and Global Economic Studies, 6(2), 1–12.

Humpe, A., & Macmillan, P. (2009). Can macroeconomic variables explain long-term stock market movements? A comparison of the US and Japan. Applied Financial Economics, 19(2), 111–119. https://doi.org/10.1080/09603100701748956

Hussain, A., Rafique, M., Khalil, A., & Nawaz, M. (2013). Macroeconomic Determinants of Stock Price Variations: An Economic Analysis of Kse-100 Index. Pakistan Journal of Humanities and Social Sciences, 1(1), 28–46. https://doi.org/10.52131/pjhss.2013.0101.0003

Hussainey, K., Mgbame, C. O., & Chijoke-Mgbame, A. (2011). Dividend policy and share price volatility : UK evidence. Journal of Risk Finance, 12(1), 57–68. https://doi.org/10.1108/15265941111100076

Hyde, S. (2007). The Response of Industry Stock Returns to Market, Exchange Rate and Interest Rate Risks. Managerial Finance, 33(9), 693–709. https://doi.org/10.1108/03074350710776244

Ihsan, A., Baloch, Q. B., & Kakakhel, S. J. (2015). Relationship between Exchange Rates and Stock Market Index: Evidence from the Indian Stock Market. Abasyn Journal of Social Sciences, 8(1), 17–36. https://www.ijsr.net/archive/v5i10/ART20162014.pdf

Ilaboya, O. J., & Omoye, A. S. (2012). Dividend Policy and Share Price Volatility

in Nigeria. Pakistan Journal of Social Issues, 3, 149–160.

Inci, A. C., & Lee, B. S. (2014). Dynamic Relations between Stock Returns and Exchange Rate Changes. European Financial Management, 20(1), 71–106. https://doi.org/10.1111/j.1468-036X.2011.00621.x

Jahfer, A., & Mulafara, A. H. (2016). Dividend policy and share price volatility : Evidence from Colombo stock market. International Journal Managerial and Financial Accounting, 8(2), 97–108.

Jayashankar, M., & Rath, B. N. (2017). The dynamic linkage between exchange rate, stock price and interest rate in India. Studies in Economics and Finance, 34(3), 383–406. https://doi.org/10.1108/SEF-02-2016-0043

Karmakar, M. (2005). Modeling Conditional Volatility of the Indian Stock Markets. Vikalpa: The Journal for Decision Makers, 30(3), 21–37. https://doi.org/https://doi.org/10.1177%2F0256090920050303

Katechos, G. (2011). On the relationship between exchange rates and equity returns: A new approach. Journal of International Financial Markets, Institutions and Money, 21(4), 550–559. https://doi.org/10.1016/j.intfin.2011.03.001

Kengatharan, L., & Kengatharan, N. (2014). The Influence of Behavioral Factors in Making Investment Decisions and Performance: Study on Investors of Colombo Stock Exchange, Sri Lanka. Asian Journal of Finance & Accounting, 6(1), 1–23. https://doi.org/10.5296/ajfa.v6i1.4893

Khalid, W., & Khan, S. (2017). Effects of Macroeconomic Variables on the Stock Market Volatility: The Pakistan Experience. Global Journal of Management and Business Research: B (Economices and Commerce), 17(4), 109–114.

Kim, K. (2003). Dollar exchange rate and stock price : evidence from multivariate cointegration and error correction model. Review of Financial Economics, 12(3), 301–313. https://doi.org/10.1016/S1058-3300(03)00026-0

Korkeamäki, T. (2011). Interest rate sensitivity of the European stock markets before and after the euro introduction. Journal of International Financial Markets, Institutions and Money, 21(5), 811–831. https://doi.org/10.1016/j.intfin.2011.06.005

Kryzanowski, L., & Zhang, H. (1992). Economic Forces and Seasonality in Security Returns. Review of Quantitative Finance and Accounting, 2, 227–244.

Kumari, J., & Mahakud, J. (2015). Does investor sentiment predict the asset volatility? Evidence from emerging stock market India. Journal of Behavioral and Experimental Finance, 8, 25–39. https://doi.org/10.1016/j.jbef.2015.10.001

Kurihara, Y. (2006). Relationship between Exchange Rate and Stock Prices during Quantitative Easing Policy in Japan. International Journal of Business, 11(4), 375–386.

Kuwornu, J. K. M., & Victor, O.-N. (2011). Macroeconomic Variables and Stock Market Returns : Full Information Maximum Likelihood Estimation. Research Journal of Finance and Accounting, 2(4), 49–64.

Kwofie, C., & Ansah, R. K. (2018). A Study of the Effect of Inflation and Exchange Rate on Stock Market Returns in Ghana. International Journal of Mathematics and Mathematical Sciences, 1–8. https://doi.org/10.1155/2018/7016792

Lamdin, D. J. (2001). New Results on Stock Prices and Fundamental Value. The Journal of Investing Spring, 10(1), 67–69. https://doi.org/doi.org/10.3905/joi.2001.319453

Laopodis, N. T. (2011). Equity prices and macroeconomic fundamentals : International evidence. Journal of International Financial Markets, Institutions & Money, 21(2), 247–276. https://doi.org/10.1016/j.intfin.2010.10.006

Lashgari, Z., & Ahmadi, M. (2014). Zahra, Mousa. Arabian Journal of Business and Management Review, 3(10), 273–283.

Lee, B.-S. (1998). Permanent, Temporary, and Non-Fundamental Components of Stock Prices. The Journal of Financial and Quantitative Analysis, 33(1), 1–32.

Lee, B.-S. (2006). An Empirical Evaluation of Behavioral Models Based on Decompositions of Stock Prices. The Journal of Business, 79(1), 393–428. https://doi.org/doi.org/10.1086/497415

Lee, B. S. (2010). Stock Returns and Inflation Revisited : An Evaluation of The Inflation Illusion Hypothesis. Journal of Banking and Finance, 34(6), 1257–1273. https://doi.org/10.1016/j.jbankfin.2009.11.023

Lee, J. (2010). The link between output growth and volatility : Evidence from a GARCH model with panel data. Economics Letters, 106(2), 143–145. https://doi.org/10.1016/j.econlet.2009.11.008

Leigh, W., Hightower, R., & Modani, N. (2005). Forecasting the New York stock exchange composite index with past price and interest rate on condition of volume spike. Expert Systems with Applications, 28(1), 1–8. https://doi.org/10.1016/j.eswa.2004.08.001

Lewellen, J. (2004). Predicting returns with financial ratios. Journal of Financial Economics, 74(2), 209–235. https://doi.org/10.1016/j.jfineco.2002.11.002

Lin, C. H. (2012). The Comovement between Exchange Rates and Stock Prices in the Asian Emerging Markets. International Review of Economics and Finance, 22(1), 161–172. https://doi.org/10.1016/j.iref.2011.09.006

Liu, J., Nissim, D., & Thomas, J. (2002). Equity Valuation Using Multiples. Journal of Accounting Research, 40(1), 135–172. https://doi.org/10.2469/dig.v32.n4.1163

Liu, M.-H., & Shrestha, K. M. (2008). Analysis of the long-term relationship between macro-economic variables and the Chinese stock market using heteroscedastic cointegration. Managerial Finance, 34(11), 744–755. https://doi.org/10.1108/03074350810900479

Liu, X., & Sinclair, P. (2008). Does the linkage between stock market performance and economic growth vary across Greater China? Applied Economics Letters, 15(7), 505–508. https://doi.org/10.1080/13504850500426277

Madsen, J. B., Dzhumashev, R., & Yao, H. (2013). Stock returns and economic growth. Applied Economics, 45(10), 1257–1271. https://doi.org/10.1080/00036846.2011.613802

Malaolu, V. A., Ogbuabor, J. E., & Orji, A. (2013). Determinants of Stock Price Movements in Nigeria: Evidence from Monetary Variables. Journal of Economics and Sustainable Development, 4(14), 61–67. http://www.iiste.org/Journals/index.php/JEDS/article/view/7822

Marquering, W., & Verbeek, M. (2004). The Economic Value of Predicting Stock Index Returns and Volatility. Journal of Financial and Quantitative Analysis, 39(2), 407–429.

Martinez, M., & Rubio, G. (1989). Arbitrage Pricing with Macroeconomic Variables: An Empirical Investigation using Spanish Data.

Maysami, R. C., Howe, L. C., & Hamzah, M. A. (2004). Relationship between

Macroeconomic Variables and Stock Market Indices: Cointegration Evidence from Stock Exchange of Singapore's All-S Sector Indices. Jurnal Pengurusan, 24, 47–77. https://doi.org/10.1007/978-3-319-29221-2_17

Maysami, R. C., & Koh, T. S. (2000). A vector error correction model of the Singapore stock market. International Review of Economics and Finance, 9, 79–96. https://doi.org/10.1016/S1059-0560(99)00042-8

McManus, I., Gwilym, O. A., & Thomas, S. (2004). The role of payout ratio in the relationship between stock returns and dividend yield. Journal of Business Finance and Accounting, 31(9–10), 1355–1387. https://doi.org/10.1111/j.0306-686X.2004.00577.x

Mgbame, C. O., & Ikhatua, O. J. (2013). Accounting Information and Stock Volatility in the Nigerian Capital Market: A Garch Analysis Approach. International Review of Management and Business Research, 2(1), 265–281.

Miller, M. H., & Modigliani, F. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. The American Economic Review, 48(3), 261–297. https://doi.org/10.2307/1286430

Miller, M. H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. The Journal of Business, 34(4), 411–433.

Mishra, A. K. (2004). Stock Market and Foreign Exchange Market in India: Are they Related? South Asia Economic Journal, 5(2), 209–232. https://doi.org/10.1177/139156140400500202

Mittnik, S., Robinzonov, N., & Spindler, M. (2015). Stock market volatility: Identifying major drivers and the nature of their impact. Journal of Banking and Finance, 58, 1–14. https://doi.org/10.1016/j.jbankfin.2015.04.003

Modigliani, F., & Cohn, R. A. (1979). Inflation, Rational Valuation and the Market. Financial Analysts Journal, 35(2), 24–44. https://doi.org/10.2469/faj.v35.n2.24

Mohsin, M., Naiwen, L., Zia-UR-Rehman, M., Naseem, S., & Baig, S. A. (2020). The volatility of bank stock prices and macroeconomic fundamentals in the Pakistani context: an application of GARCH and EGARCH models. Oeconomia Copernicana, 11(4), 609–636. https://doi.org/10.24136/oc.2020.025

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets : why do emerging markets have synchronous stock price movements. Journal of Fiancial Economics, 58(1–2), 215–260. https://doi.org/https://doi.org/10.1016/S0304-405X(00)00071-4

Morelli, D. (2002). The Relationship between Conditional Stock Market Volatility and Conditional Macroeconomic Volatility Empirical Evidence based on UK Data. International Review of Financial Analysis, 11(1), 101–110. https://doi.org/doi.org/10.1016/S1057-5219(01)00066-7

Muktadir-al-Mukit, D. (2013). Effects of Interest Rate and Exchange Rate on Volatility of Market Index at Dhaka Stock Exchange. Journal of Business and Technology (Dhaka), 7(2), 1–18. https://doi.org/10.3329/jbt.v7i2.16451

Mylonakis, J., Glezakos, M., & Kafouros, C. (2012). The Impact of Accounting Information on Stock Prices: Evidence from the Athens Stock Exchange. International Journal of Economics and Finance, 4(56–68). https://doi.org/10.5539/ijef.v4n2p56

Nargelecekenler, M. (2011). Stock Prices and Price/Earning Ratio Relationship: A Sectoral Analysis with Panel Data. Business and Economics Research Journal, 2(2), 165–184.

http://www.berjournal.com/wp-content/plugins/downloads-manager/upload/BERJ 2(2)2011 article10 pp165-184.pdf

Nath, G. C., & Samanta, G. (2003). Relationship Between Exchange Rate and Stock Prices in India – An Empirical Analysis (SSRN Scholarly Paper No. ID 475823). Social Science Research Network, Rochester, 1–11.

Nieh, C.-C., & Lee, C.-F. (2001). Dynamic relationship between stock prices and exchange rates for G-7 countries. Quarterly Review of Economics and Finance, 41, 477–490. https://doi.org/10.1016/S1062-9769(01)00085-0

Olugbode, M., El-Masry, A., & Pointon, J. (2014). Exchange Rate and Interest Rate Exposure of UK Industries using First-Order Autoregressive Exponential GARCH-in-mean (EGARCH-M) Approach. Manchester School, 82(4), 409–464. https://doi.org/10.1111/manc.12029

Omran, M. F. (2009). Price Earnings Multiples as Forecasters of Short Term Stock Returns in Egypt. Journal of Economic & Administrative Sciences, 25(1), 47–66.

Ozair, A. (2006). CAUSALITY BETWEEN STOCK PRICES AND EXCHANGE RATES [Florida Atlantic University]. https://search.proquest.com/openview/73eb55d85754ad0c8bdf04d65df10a81/1?pq-origsite=gscholar&cbl=18750&diss=y

Pan, M., Fok, R. C., & Liu, Y. A. (2007). Dynamic Linkages between Exchange Rates and Stock Prices : Evidence from East Asian Markets. International Review of Economics and Finance, 16(4), 503–520. https://doi.org/10.1016/j.iref.2005.09.003

Peng, J., Cui, J., Qin, F., & Groenewold, N. (2009). Economics Stock Prices and the Macro Economy in China. Economics Discussion, 09(20), 1–40.

https://www.digital.uwa.edu.au/__data/assets/pdf_file/0003/609186/09_20_Groenewold.pdf

Pirie, S., & Smith, M. (2008). Stock prices and Accounting Information: Evidence from Malaysia. Asian Review of Accounting, 16(2), 109–133. https://doi.org/10.1108/13217340810889924

Poon, S., & Taylor, S. (1991). Macroeconomic Factors and the UK Stock Market. Journal of Business Finance & Accounting, 18(5), 619–636.

Qamri, G. M., Abrar-ul-haq, M., & Akram, F. (2015). The Impact of Inflation on Stock Prices: Evidence from Pakistan. Microeconomics and Macroeconomics, 3(4), 83–88. https://doi.org/10.5923/j.m2economics.20150304.01

Rahman, A. A., Sidek, N. Z. M., & Tafri, F. H. (2009). Macroeconomic determinants of Malaysian stock market. African Journal of Business Management, 3(3), 95–106.

Rahman, M. L., & Uddin, J. (2009). Dynamic Relationship between Stock Prices and Exchange Rates: Evidence from Three South Asian Countries. International Business Research, 2(2), 167–174. https://doi.org/10.5539/ibr.v2n2p167

Rahman, M., & Mustafa, M. (2008). Influences of Money Supply and Oil Price on U.S. Stock Market. North American Journal of Finance and Banking Research, 2(2), 1–12.

Ramasamy, B., & Yeung, M. C. H. (2002). The Relationship Between Exchange Rates and Stock Prices : Implications for Capital Controls. The Asia Pacific Journal of Economics & Business, 6(2), 46–60.

Rapach, D. E. (2002). The long-run relationship between inflation and real stock prices. Journal of Macroeconomics, 24(3), 331–351. https://doi.org/10.1016/S0164-0704(02)00041-1

Rapach, D. E., Wohar, M. E., & Rangvid, J. (2005). Macro variables and international stock return predictability. International Journal of Forecasting, 21(1), 137–166. https://doi.org/10.1016/j.ijforecast.2004.05.004

Rashid, A., & Rahman, A. Z. M. A. (2009). Dividend Policy and Stock Price Volatility : Evidence from Bangladesh. Journal of Applied Business and Economics, 8(4), 71–81. http://www.tandfonline.com/doi/abs/10.1080/07350015.2000.10524844

Ratanapakorn, O., & Sharma, S. C. (2007). Dynamic analysis between the US stock returns and the macroeconomic variables. Applied Financial Economics, 17(5), 369–377. https://doi.org/10.1080/09603100600638944

Ray, S. (2012). Testing Granger Causal Relationship between Macroeconomic Variables and Stock Price Behaviour : Evidence from India. Advances in Applied Economics and Finance, 3(1), 470–481.

Reddy, D. V. 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.

Ross, S. A. (1976). The Arbitrage Theory of Capital Asset Pricing. Journal of Economic Theory, 13, 341–360.

Saleem, F., Zafar, L., & Rafique, B. (2013). Long Run Relationship Between Inflation and Stock Return: Evidence From Pakistan. Academic Research International, 4(2), 407–415. http://www.savap.org.pk/journals/ARInt./Vol.4(2)/2013(4.2-42).pdf

Sarkar, P. (2006). Stock Market Development , Capital Accumulation and Growth in India since 1950. International Conference on The Indian Economy in the Era of Financial Globalisation.

Schmeling, M. (2009). Investor sentiment and stock returns: Some international evidence. Journal of Empirical Finance, 16(3), 394–408. https://doi.org/10.1016/j.jempfin.2009.01.002

Schwert, G. W. (1989). Why Does Stock Market Volatility Change Over Time? The Journal of Finance, 44(5), 1115–1153. https://doi.org/10.1111/j.1540-6261.1989.tb02647.x

Selden, G. . (1912). Psychology of the Stock Market: Human Impulses lead to Speculative Disasters. Ticker Publishing.

Shang, Y., & Zheng, T. (2021). Mixed-frequency SV model for stock volatility and macroeconomics ☆. Economic Modelling, 95(January 2018), 462–472. https://doi.org/10.1016/j.econmod.2020.03.013

Sharpe, W. F. (1964). Capital Asset Prices: a Theory of Market Equilibrium Under Conditions of Risk. The Journal of Finance, 19(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Shefrin, H., & Statman, M. (1994). Behavioral Capital Asset Pricing Theory. The Journal of Financial and Quantitative Analysis, 29(3), 323–349.

Shiblee, L. (2009). The Impact of Inflation , GDP, Unemployment, and Money Supply on Stock Prices. https://ssrn.com/abstract=1529254

Singh, T. (2008). Financial development and economic growth nexus : a time-series evidence from India. Applied Economics, 40, 1615–1627. https://doi.org/10.1080/00036840600892886

Skinner, D. J. (2008). The evolving relation between earnings, dividends, and stock repurchases. Journal of Financial Economics, 87(3), 582–609. https://doi.org/10.1016/j.jfineco.2007.05.003

Smyth, R., & Nandha, M. (2003). Bivariate Causality between Exchange Rates and Stock Prices in South Asia. Applied Economics Letters, 10(11), 699–704. https://doi.org/10.1080/13504850320001 33282

Stracca, L. (2004). Behavioral finance and asset prices: Where do we stand? Journal of Economic Psychology, 25(3), 373–405. https://doi.org/10.1016/S0167-4870(03)00055-2

Suleman, M., Asghar, M., Ali Shah, S., & Hamid, K. (2011). Impact of Dividend Policy on Stock Price Risk: Empirical Evidence from Equity Market of Pakistan. October 2016.

Sum, V. (2013). Stock Market Performance: Variance Decomposition of Price-Earnings Ratio, Dividend Yield and Tobin's Q. Journal of Financial Transformation, 39, 63–67. https://doi.org/dx.doi.org/10.2139/ssrn.22 93532

Suwanna, T. (2012). Impacts of Dividend Announcement on Stock Return. Procedia - Social and Behavioral Sciences, 40, 721–725. https://doi.org/10.1016/j.sbspro.2012.03.2 55

Tabak, B. M. (2006). The Dynamic Relationship Between Stock Prices and Exchange Rates: Evidence for Brazil. International Journal of Theoretical and Applied Finance, 9(8), 1377–1396.

Tian, G. G., & Ma, S. (2010). The relationship between stock returns and the foreign exchange rate: The ARDL approach. Journal of the Asia Pacific Economy, 15(4), 490–508. https://doi.org/10.1080/13547860.2010.5 16171

Tsai, I. C. (2012). The Relationship between Stock Price Index and Exchange Rate in Asian Markets: A Quantile Regression Approach. Journal of International Financial Markets, Institutions and Money, 22(3), 609–621.

https://doi.org/10.1016/j.intfin.2012.04.0 05

Tursoy, T., & Faisal, F. (2016). Causality between stock price and GDP in Turkey: An ARDL Bounds Testing Approach. Romanian Statistical Review, 4, 3–19.

Valcarcel, V. J. (2012). The Dynamic Adjustments of Stock Prices to Inflation Disturbances. Journal of Economics and Business, 64(2), 117–144. https://doi.org/10.1016/j.jeconbus.2011.1 1.002

Vychytilová, J., Pavelková, D., Pham, H., & Urbánek, T. (2019). Macroeconomic factors explaining stock volatility: multi-country empirical evidence from the auto industry. Economic Research-Ekonomska Istraživanja, 32(1), 3333–3347. https://doi.org/10.1080/1331677X.2019.1 661003

Walid, C., Chaker, A., Masood, O., & Fry, J. (2011). Stock Market Volatility and Exchange Rates in Emerging Countries : A Markov-State Switching Approach. Emerging Markets Review, 12(3), 272–292. https://doi.org/10.1016/j.ememar.2011.04 .003

Wang, J., Fu, G., & Luo, C. (2013). Accounting Information and Stock Price Reaction of Listed Companies - Empirical Evidence from 60 Listed Companies in Shanghai Stock Exchange. Journal of Business & Management, 2(2), 11–21. https://doi.org/10.12735/jbm.v2i2p11

Wolf, M. (2000). Stock Returns and Dividend Yields Revisited: A New Way to Look at an Old Problem. Journal of Business & Economic Statistics, 18(1), 18–30. https://doi.org/10.1080/07350015.2000.1 0524844

Wong, W. K., Khan, H., & Du, J. (2006). Do money and interest rates matter for stock prices? An econometric study of Singapore and USA. Singapore Economic Review, 51(1), 31–51.

https://doi.org/10.1142/S0217590806002
214

Wongbangpo, P., & Sharma, S. C. (2002). Stock market and macroeconomic fundamental dynamic interactions: ASEAN-5 countries. Journal of Asian Economics, 13(1), 27–51. https://doi.org/10.1016/S1049-0078(01)00111-7

Wu, Y. (2001). Exchange rates, stock prices, and money markets: Evidence from Singapore. Journal of Asian Economics, 12(3), 445–458. https://doi.org/10.1016/S1049-0078(01)00107-5

Zakaria, Z., Muhammad, J., & Zulkifli, A. H. (2012). The Impact of Dividend Policy on the Share Price Volatility : Malaysian Construction and Material Companies. International Journal of Economics & Management Sciences, 2(5), 1–8. https://d1wqtxts1xzle7.cloudfront.net/447 55219/DIVIDEND_JOURNAL.pdf?1460 711326=&response-content-disposition=inline%3B+filename%3DTH E_IMPACT_OF_DIVIDEND_POLICY_ ON_THE_SHA.pdf&Expires=161993363 9&Signature=LsOwo5sMVpBswmC4pko fI6nOQxBue5rk3h0qVg~X4QUTqVxPT DA

Zhao, H. (2010). Research in International Business and Finance Dynamic relationship between exchange rate and stock price : Evidence from China. Research in International Business and Finance, 24(2), 103–112. https://doi.org/10.1016/j.ribaf.2009.09.00 1

Zhou, C., Wu, C., Li, D., & Chen, Z. (2012). Insurance Stock Returns and Economic Growth. Papers On Risk and Insurance-Issue Practice, 37, 405–428. https://doi.org/10.1057/gpp.2012.22

Zhu, B., & Niu, F. (2016). Investor Sentiment, Accounting Information and Stock Price: Evidence from China. Pacific-Basin Finance Journal, 38, 125–134. https://doi.org/10.1016/j.pacfin.2016.03.0 10