

**EFFECT OF INTEREST RATE AND EXCHANGE RATE ON STOCK MARKET
RETURNS IN UGANDA**

**BY
SALAMA YAHAYA
1153-05026-01184**

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DECLARATION

I **SALAMA YAHAYA** hereby declare that "This dissertation is my original work and has not been presented for a degree or any other academic award in any university or institution of learning".

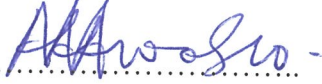
Signed Salama.....

Date: 12.4.2018.....

APPROVAL

"I confirm that the work reported in this research dissertation was carried out by the candidate under my supervision".

Name: Dr. AWOLUSI O. DELE

Signature 

Date: 12th April, 2018

Name: Dr. KIRABO KYEYUNE B. JOSEPH

Signature 

Date: 12th April, 2018

DEDICATION

I dedicate this research dissertation to my mum HAJAT ZAUJIA MBABAZI and my late dad HAJJ YAHYA NZABANITA, my supervisors Dr EMENIKE KALU O, Dr. AWOLUSI O DELE and Dr. KIRABO K. JOSEPH who guided me all through. My Beloved Husband UTHMAN KIRUNDA, my brothers and sisters for their financial and moral support, my friends especially MUGUME TOM and ASABA RONNIE who always gave me courage not give up on the struggle. May the Almighty bless you all.

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USE	Uganda Securities Exchange
BOU	Bank of Uganda
EMH	Efficient Market Hypothesis
GDP	Gross Domestic Product
APT	Arbitrage Pricing Theory
USD	United States Dollar
ADF	Augmented Dickey Fuller
TGARCH	Threshold Generalized Autoregressive Conditional Heteroscedasticity
WPI	Wholesale Price Index
M3	Money Supply
IR	Interest Rate
TD	Trade Deficit
FII	Foreign Institutional Investment
ER	Exchange Rate
CP	Crude Oil
GP	Gold Price

ABSTRACT

This study investigated the effect of interest rate and exchange rate on stock market returns in Uganda by analyzing monthly interest rate, exchange rate and stock indices from the Bank of Uganda and Uganda Securities Exchange for the period ranging from January 2006 to December 2015. The study employed ex-post-facto research design. The study adopted descriptive analysis and regression models in analyzing the data. The results of descriptive analysis show that the mean of lending interest rate, Shilling/USD exchange rate, and USE returns are 21.5%, 2301.3 shilling, 1160 respectively. The standard deviation values for the series show wide dispersion between the minimum and maximum values from their averages. The skewness coefficients show that all the series are positively skewed. The results of inferential statistics using regression models revealed that interest rate has a significant negative effect on stock returns in Uganda at the 5% significance level. The results further show that exchange rate has significant positive effect on stock returns in Uganda at the 5% significance level. It was therefore concluded, amongst others, that interest rate has negative effect on stock returns in Uganda, and that exchange rate has positive effect on stock returns in Uganda. The study consequently recommends that stock market investors should include interest rates and exchange rates stock valuation models as well as watch changes in interest rates and exchange rate so as adjust stock portfolio in accordance with such changes. It was further recommended that the regulators of the financial market should monitor changes in interest and exchange rates so as to formulate proactive policies to stabilize the market whenever there is expectation shocks from the variables.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter describes the background of the study (historical perspectives, theoretical perspective, conceptual perspective and contextual perspective), the statement of the research problem, purpose of the study, specific objectives of the study, the research questions, hypothesis, scope of the study, and significance of the study.

1.1 Background to the study

1.1.1. Historical perspectives

The stock market plays an important role in financial intermediation in developed and developing economies. That is because it provides a platform for surplus resources to be transferred to deficit areas. Growth and development of countries requires resources by organizations and the government. The stock market is an avenue where business organizations can raise capital by selling their shares to investors. Economies that are experiencing perceived sustainable growth have efficient stock markets. Laichena and Obwogi (2015) observe that the stock market plays an integral role in raising capital for corporate entities and the government to finance growth projects. It is also the market place where the capital surplus and capital deficient parties interact for mutual benefits. Investors are lured into the stock market by the expectations of returns in terms on price appreciation and dividends.

Interest rate is one of the important financial indicators, which is directly related to economic growth. Generally, interest rate is considered as the cost of capital, means the price paid for the use of money for a period of time. From the point of view of a borrower, interest rate is the cost of borrowing money (borrowing rate). From a lender's point of view, interest rate is the fee

charged for lending money (lending rate). Good investors always look for investing in an efficient market. In an inefficient market few people are able to generate extra ordinary profit. Exchange rate has probably been a characteristic of human history since money was adopted as a means of payment. This presupposes the existence of money, which evolved as an unplanned social institution by a number of inventions and innovations (Bemholz, 2003). Wolla (2012) posits that financial market indicators are reported daily in the news usually as prices, indexes, or interest rates. While these indicators provide direct information, for example inflation rate of 9.5%, they also give some indication of expected future economic growth, inflation, and stock market stability. Changes in these indicators can also affect decisions about portfolio composition, consumer spending, investment in the stock market or treasury bills, and monetary policy. Understanding how key financial market indicators behave is therefore important to making optimal investment decisions as well as effective regulation of the financial markets (Opara, Emenike and Ani, 2015).

The Uganda Securities Exchange (USE) is the principal stock exchange of Uganda. It was founded in June 1997. The USE is operated under the jurisdiction of Uganda's Capital Markets Authority, which in turn reports to the Bank of Uganda, Uganda's central bank. The exchange opened to trading in January 1998. At that time, the exchange had just one listing, a bond issued by the East African Development Bank. Trading was limited to only a handful of trades per week. The history of interest rate and exchange rate in Uganda cannot be divorced from the establishment of Bank of Uganda.

The Bank of Uganda (BoU) is the Central Bank of the Republic of Uganda. It was opened on the 15th August 1966. It is 100% owned by the Government of Uganda but it is not a government Department. Bank of Uganda conducts all its activities in close association with the Ministry of Finance, Planning and Economic Development. The bank's core activities include, amongst many others, Regulation of money supply through Monetary Policy. Monetary policy decisions of the Bank of Uganda include determination of interest rates and exchange rates.

1.1.2 Theoretical Perspectives

This study was based on flow oriented theory, the stock-oriented theory and the efficient market hypothesis theory.

The Flow-Oriented Theory postulates that any changes in exchange rates can cause changes in stock prices and stock returns. The theory holds that exchange rate movements should lead to stock price movements. It is based on a macroeconomic view and the efficient market hypothesis, because the stock prices represent the discounted present value of expected future cash flows of the company, and any phenomenon that affects the cash flow of the firm will be reflected in the firm's stock price. In other words, the Flow-Oriented theory assumes that the competitiveness of a firm is affected by the change or exchange rate fluctuation that in turn will affect the company's earnings and value-added, then the stock prices in general as well as stock returns.

The Efficient Market Hypothesis (EMH) was propounded in Fama (1965). The EMH holds that stock prices at all times fully incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and the only way an investor can possibly obtain higher returns is by purchasing riskier investments. If EMH holds, financial indicators such as interest rate and exchange rate will not have significant effect on stock returns since their effects would have contemporaneously reflected in stock prices.

1.1.3 Conceptual Perspectives

Exchange rate refers to the rate at which one currency exchanges for another (Jhingan, 2003). It is also regarded as the value of one country's currency in relation to another currency. Exchange rate is said to depreciate if the amount of domestic currency require buying a foreign currency increases, while the exchange rate appreciates if the amount of domestic currency require buying a foreign currency reduces. Exchange rate volatility hurt producers and investors alike because it affects their projected revenue and costs, including profits margin. For instance, business set out

the amount of money to be committed into acquiring raw materials and equipments/machines from abroad. In the same manner, stock market investors, especially foreign portfolio investors, estimate their future stream of incomes. Instability in the exchange rate may distort the realization of such estimates.

The interest rate is the price of savings determined by demand and supply of loanable funds (Obura & Anyango, 2016). The interest rate is a function of income. Its primary role is to help mobilize financial resources and ensure the efficient utilization of resources in the promotion of economic growth and development (Osoro & Ogeto, 2014). Interest rate is the proportion of a loan that is charged as interest to the borrower, typically expressed as an annual percentage of the loan outstanding.

Stock market return is the yield an investor obtains over a specified period. In finance, return is a profit on an investment. It comprises any change in value and interest or dividends or other such cash flows which the investor receives from the investment. It may be measured either in absolute terms (for example, dollars) or as a percentage of the amount invested. A strong market can be seen as one that incorporates new information on stock prices and hence making the stock prices for the firms stable and accurately valued (Mwangi & Mwiti, 2015). Stock returns determine how effective and efficient the stock market allocates shares and equities based on preference and availability of market information.

1.1.4 Contextual Perspectives

This study was carried out in Uganda. It aims identify the effect of interest rate and exchange rate on stock returns in Uganda. The Uganda Securities Exchange (USE) is the principal stock exchange of Uganda. It was founded in June 1997. The USE is operated under the jurisdiction of Uganda's Capital Markets Authority, which in turn reports to the Bank of Uganda, Uganda's central bank. The exchange opened to trading in January 1998. At that time, the exchange had just one listing, a bond issued by the East African Development Bank. Trading was limited to only a handful of trades per week. The stock returns can give us the idea of the overall health of economy. There are many factors that determine the stock market index's performance, including monetary and exchange rate policies. However, interest rate and exchange rate have

been chosen in this study. Changes in the exchange rate will stimulate the export and might have significant impact on the foreign investors as well as the local investors. Interest rate is expected to have negative impact on stock returns in Uganda. Thus decreasing the interest rate due to expansionary monetary policy may stimulate the stock market index because of increased economic activities. Similarly, slow economic growth which may be due to a tight monetary policy via a relatively high interest rate regime can lead to a bearish stock market.

There is need for evidence of the effect of interest rate and exchange rate on stock return in Africa given the very sparse and mixed findings on the study area. In view of the scant empirical evidence, this study will examine the effect of interest rate and exchange rate on stock returns in Uganda – a developing economy that has received little attention in the extant literature. If the findings are in conformity with the general perception, then financial market regulators can carefully entrench appropriate policies to minimize the effect so to enhance efficiency of the stock market and to attract the foreign investors into the bourse.

1.2 Statement of the problem

The nature of effect interest rate and exchange rate on stock market returns is crucial to the investors in the stock market as well as to capital market policy makers. It is therefore necessary for investors to understand the extent to which changes in interest rate and exchange rate affect their stock portfolio. This understanding would enable them to adjust their portfolio in response to expected changes in interest rate and exchange rate (Ali and Akujuobi, 2014). Similarly, financial market regulators are interested in understanding the nature and magnitude of response of stock market returns to changes in interest rate and exchange rate. This will provide the foundation for formulating policies that ensure stock market and macroeconomic stability.

Again, Acikalin, Aktas and Unal, (2008) observe that there are differences among economies in terms of the significance of domestic financial market indicators. These differences are consistent with the underlying economic environment, and may be associated with the stock at varying degrees. This implies that the effect of interest rate and exchange rate on stock market returns cannot be determined in advance since it varies across countries. Weaknesses in the macroeconomic environment, poor policymaking and implementation even in a sector may be

transmitted to other sectors in the economy. There is need therefore for economy-specific evidence of the response of stock market returns to changes in interest and exchange rates.

Despite the importance of evidence on the effect interest rate and exchange rate on stock market returns, majority of the existing literature dwell on developed economies and emerging economies of Eastern Europe and Asia. The few available studies on the Uganda economy, to the best of the researcher's knowledge, concentrated on exchange rate volatility and economic growth (see for example, Maswere & Kaberuka, 2013; Katusiime, Agbola & Shamsuddin, 2016; Alema & Odongo, 2016). Maswere and Kaberuka (2013) for example, dwelled on determinants of stock prices in Uganda. There is therefore an urgent need to empirically investigate the effect interest rate and exchange rate on stock returns in Uganda.

1.3 Purpose of the study

The purpose of this study was to examine the effect of interest rate and exchange rate on stock returns in Uganda.

1.4 Objectives of the Study

The specific objectives were the following:

1. To examine whether interest rate have significant effect on stock returns in Uganda.
2. To evaluate if exchange rate have significant effect on stock returns in Uganda.

1.5 Research Questions

To achieve the specific objectives, the following questions were asked:

1. What is the effect of interest rate on stock returns in Uganda?
2. What is the effect of exchange rate on stock returns in Uganda?

1.6 Hypotheses of the Study

Given the above specific objectives and the research questions, the following hypotheses were tested:

- H₀₁: Interest rate does not have significant effect on stock returns in Uganda.
- H₀₂: Exchange does not have significant effect on stock returns in Uganda.

1.7. Scope of the Study

1.7.1 Geographical Scope

The study was carried out in Uganda Securities Exchange, Kampala Uganda.

1.7.2 Theoretical scope

The study was guided by the following theories: the Flow-Oriented theory and the Efficient Market Hypothesis.

1.7.3 Content scope

This study focused mainly on identifying the specific effects of exchange rate and interest rate on stock returns in Uganda.

1.7.4 Time scope

This study period ranges from January 2006 to December 2015.

1.8 Significance of the study

The effect of interest rate and exchange rate on stock market returns is important to the investors in the stock market, financial market regulators as well as to the academics. Capital market regulators would want to know the nature and magnitude of effect interest rate and exchange rate on stock market returns. Such knowledge would be worthwhile if financial market regulators hope to formulate policies that ensure stock market and macroeconomic stability. Market participants, particularly institutional investor, would find such knowledge valuable, since it would enable them to adjust their portfolio in expectation of changes in interest rate and exchange rate.

This study equally contributed to knowledge and enrichment of the existing literature to be referred to by researchers of related subject. It also provided empirical evidence and therefore enhance our knowledge on the effect of interest rate and exchange rate on stock market returns.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the related theoretical, conceptual and empirical literature conducted by earlier researchers in related studies.

2.1 Theoretical Literature Review

To investigate the effect of exchange rate and interest rate on stock market returns in Uganda, the study will explore the flow oriented theory and the efficient market hypothesis theory.

2.1.1 The Flow-Oriented Theory

The first theory studying the linkage between stock market prices and exchange rate movements is the Flow-Oriented Theory (Dornbusch & Fischer, 1980: 39). Also known as the Traditional Theory, the Flow-Oriented Theory suggests that exchange rate movements should lead to stock price movements. It is based on a macroeconomic view and the efficient market hypothesis, because the stock prices represent the discounted present value of expected future cash flows of the company, and any phenomenon that affects the cash flow of the firm will be reflected in the firm's stock price. In other word, this theory assumes that the competitiveness of a firm is affected by the change or exchange rate fluctuation that in turn will affect the company's earnings and value-added, then the stock prices in general as well as stock returns. In particular, the Flow-Oriented Theory assumes that the exchange rate is determined largely by the current account of the country or the trade balance performance. On the other hand, the stock price is usually defined as the present value of the company's future cash flows (Bodnar & Gentry, 1993). According to this theory, international competitiveness and the balance of trade position are affected by currency movement, and any change in an exchange rate, which in turn affects the real economic variables such as output and real income of the country. In the case of multinational companies, exchange rate movements have an impact on their competitiveness, and thus, their earnings and stock prices; exchange rate movements affect the competitiveness of companies through its impact on the price of inputs and outputs (Biao, 2009).

As a result of the improvement of the local currency status, it will make exported goods relatively expensive, which in turn will lead to a decrease in external demand and sales, and therefore, the company's profits will decline and so will the stock price and the stock returns. On the other hand, when the local currency appreciates, the imported goods become relatively cheaper. Therefore, for importing companies, the relationship between the value of a company and exchange rate movements are just the opposite (Biao, 2009). Bodnar and Gentry (1993) also explained that fluctuation in stock prices might affect the company's prices and assets denominated in foreign currencies. Furthermore, the movement of exchange rate also has an impact on the future of the company in terms of the receivables or payables denominated in foreign currency. For those who import goods, the appreciation in the value of the local currency leads to profits increasing, while the devaluation of the local currency will reduce profits. The conclusion drawn from this review is that stock prices are affected by the exchange rate movements (Biao, 2009).

Other studies, which use the exchange rate models, also reach the same conclusion. For instance, Hekman (1985) suggests a value based financial valuation model for multinational companies, where exchange rate is the leading indicator of stock prices. Through exploring the effects of the exchange rate volatility on the firm value, Sercu and Vanhulle (1992) answered this equation in which the increase in the exchange rate volatility has a positive impact on the market value of companies. Granger, Huangb, and Yang (2000) also reached the result that the change in exchange rates leads to change the market value of all companies that conduct international trade. In addition, Granger et al. (2000) consider the impact of exchange rates on the firm's stock prices depending on the firm's status in terms of net importers or exporters. In other words, currency devaluation would benefit from the firm profit, and therefore their stock market values when the firms are exporters.

Moreover, changes in exchange rates affect the firm's transactions. In fact, the change of exchange rate has its effect on the firm's future concerning the receivable or payable denominated in foreign currency (Biao, 2009, pp. 9-31). Despite the fact that the growing use of derivatives, such as currency options and forward contracts, may work to limit the way in which

currency changes affect the profits of the company, most companies tend to be influenced in some way by changes in exchange rates. As Adler and Dumas (1984, pp. 41-50) have already reported, local companies and companies that have limited international business may encounter exchange rate risks because that exchange rate movement will affect their input, output prices, or demand of products. Therefore, on a macroeconomic basis, a country's international trades and the degree of the trade imbalance have an influence on the movements of exchange rates on stock prices. This change is confirmed by Bodnar and Gentry (1993), who stated that the firms that get involved in international trade activities could be exposed to foreign exchange rate risk at any time (Biao, 2009, pp. 9-31).

To sum up, the Flow-Oriented Theory suggests that any changes in exchange rates can cause changes in stock prices and stock returns. However, a company can be either the importer or the exporter, and the net impact of the stock market values cannot be clearly determined. The sign of the correlation between stock prices and exchange rates is thereby irrational, to some extent. The reduction of local currency value will make local firms who are exporters more competitive, and thus it raises the prices of its shares. Thus, the Flow Oriented Theory indicates that there is a positive relationship between stock prices and exchanges rates with direction of causation running from exchange rates to stock prices (Stavarek, 2005). According to Granger's causality; this positive relationship is known as the causal "unidirectional" runs from exchanges rates to stock prices or exchange rates is Granger - cause of stock price (Biao, 2009). Under these conditions, one may expect a positive causal relationship running from exchange rates to stock returns (Liu, 2009).

2.1.2 The Efficient Market Hypothesis (EMH).

This is an investment theory states which states that it is impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and the only way an investor can possibly obtain higher returns is by purchasing riskier investments. An efficient securities market is one where the prices of

securities traded on that market at all times “properly reflect” all information that is publicly known about those securities (Fama, 1970).

Efficiency is categorized into three different levels according to the information item reflected in the prices. The three levels of EMH are expressed as follows: weak-form, semi-strong, and strong-form efficiency. The weak-form version of EMH asserts that prices of financial assets already reflect all information contained in the history of past prices, trading volume or short interest. Semi-strong version postulates that stock prices already reflect all the publicly available information regarding the prospects of a firm. Lastly, the strong-form posits that the prices of financial assets reflect, in addition to information on past prices and publicly available information, information available only to company’s insiders (Emenike, 2009; Fama, 1970).

The EMH is one of the main theories explaining stock price changes and information. Under the efficient market hypothesis, the prices in stock market reflect all the available information, and rational investors react immediately to the new release information and adjust their investments. The goal that investors pursue is to maximize their value with lowest risk, as macroeconomic indicator variables such as consumer price index (CPI, proxy for inflation), interest rate and exchange rate are believed having significant impact on the returns, in asset pricing model financial indicator are taken into account to price stocks and are identified as macroeconomics risks. Therefore, the macroeconomic explanatory power in stock market is motivated by the sensitive of stock market returns to the macroeconomic conditions (Opara, Emenike and Ani, 2015).

Market prices are efficient with respect to publicly known information. The possibility, therefore, of inside information is not ruled out. Persons who possess inside information know more about the company than the market. if they wish to take advantage of their inside information, insiders may be able to earn excess profits on their investments. This is because the market prices of these investments do not incorporate the knowledge that insiders possess. Market prices reflect information that is available in the public domain. The market is efficient relative to the quantity and quality of publicly available information. There is nothing in the definition to suggest that the market prices always reflect real underlying firm value. Market prices can be wrong in the presence of inside information, for example. The definition does

imply, however, that once new or corrected information becomes publicly available, the market price will quickly adjust to this new information. This adjustment occurs because rational investors will revise their beliefs about future returns as soon as new information, irrespective of the source, becomes known. as a result, the expected returns and risk of their existing portfolios will change and they will enter the market to restore their optimal risk/return tradeoffs. The resulting buy-and-sell decisions will quickly change security prices to reflect the new information. This means that investors cannot expect to earn excess returns on a security, or portfolio of securities, over and above the normal expected return on that security or portfolio. One way to establish a normal return benchmark is by means of a capital asset pricing model.

An implication of securities market efficiency is that a security's market price should fluctuate randomly over time. The reason being anything about a firm that can be expected will be properly reflected in its security price by the efficient market as soon as the expectation is formed. The only reason that prices will change is if some relevant, but unexpected, information comes along and unexpected events occur randomly. Malkiel (1973) asserted his strong support of the efficient market hypothesis. He said that a blindfolded chimpanzee could throw darts at the wall street journal and choose investments that did just as well as the ones seasoned experts choose. He suggested investing in broad-based index funds that held all the stocks in the market and charged low interest rates.

2.2 Conceptual Review

2.2.1 Interest Rate

Interest, according to Uchendu (1993), can be defined as the return or yield on equity or opportunity cost of deferring current consumption into the future. This definition clearly shows that interest is a concept which can mean different things depending from the perspective it is viewed. Interest rate can therefore be seen as a nebulous concept, a position affirmed by the availability of different types of this rate (Acha and Acha, 2011). Some of which are; savings rate, discount rate, lending rate and Treasury bill rate.

Interest rate is an important financial market indicator. This is because whether seen from the point of view of cost of capital or from the perspective of opportunity cost of funds, interest rate

has fundamental implications for the economy. By either impacting on the cost of capital or influencing the availability of credit, by increasing savings, it is known to determine the level of investment in an economy. As the positive relationship between investment and economic development is well established, it therefore becomes expedient for any economy that wishes to grow to pay proper attention to changes in interest rate (Acha and Acha, 2011).

The interest rate can also be defined as the annual price charged by a lender to a borrower in order for the borrower to obtain a loan and is usually expressed as a percentage of the total amount loaned. The neoclassical theory of interest rate states that, the cost of loans for investment by entrepreneurs becomes costly when there is an upshot in interest rates, therefore, investment activities in an economy shrinks as a result (Barnor, 2014).

The interest rate is considered the cost of capital and an increase or a decrease in interest rate may affect the investment decision of the investors (Olweny & Omondi, 2010). Accordingly, Rehman, Sidek and Fauziah (2009) argue that higher interest rates or discount rates would reduce the present value of cash flows, hence a rise in the rate of interest increases the opportunity cost of holding cash, which later on leads to a substitution effect between stocks and other interest bearing securities like bonds. According to Barnor (2014), a rise in interest rate influences investing decisions, thus investors make changes in their investment structure, generally from capital market to fixed income securities. The other factors that determine changes in interest rate according to Bassey (2014) include:

- The level of inflation rate;
- The degree of uncertainty and risks economic agents face; and
- How developed and deep financial markets are
- The structure of the banking system and how competitive it is;
- The cost of funds to the banks including deposit rates;

2.2.2 Exchange Rate

Exchange rate is the rate at which one currency is being converted into another currency (Mohan & Chitradevi, 2014). Exchange rate changes can affect the relative prices, thereby the competitiveness of domestic and foreign producers. A significant appreciation of the domestic

currency makes domestic goods expensive relative to foreign goods resulting in a shift of demand away from domestic to foreign goods. When currency appreciates, in a situation where the country is export-oriented, it is expected that there will be a reduction in the competitiveness of her exports, and would therefore have a negative impact on the domestic stock market (Kirui, Wawire & Perez, 2014). The appreciation of a country's currency lowers the cost of imported goods, which in most cases constitute a large part of the production inputs for emerging market countries (Kuwornu, 2012). Accordingly, when the domestic currency depreciates against foreign currencies, export product prices will decrease and, consequently, the volume of the country's export will increase, assuming that the demand for this product is elastic (Kuwornu, 2012). From a macro perspective, foreign exchange rate has an effect on the country's economy whereas from a micro perspective it affects the firms. As such, exchange rate volatility has implications on a country's financial sector, the stock market to be precise (Obura & Anyango, 2016).

Instability and/or fluctuations in exchange rate hurt producers and investors alike because it affects their projected revenue and costs, including profits margin. For instance, businesses set out the amount of money to be committed into acquiring raw materials and equipments/machines from abroad. In the same manner, investors estimate their future stream of incomes. Instability in the exchange rate may distort the realization of such estimates. For example, exchange rate depreciation results in high cost of importing raw materials and capital goods. This in turn raises the cost of production and reduces the profits of the firms importing these items. In order to cushion the effects of high cost of production, they (firms) would pass it on to the consumers in form of higher prices. In addition, fluctuations in exchange rate increases investment risk and thus increase cost of capital (Emenike, 2016).

2.2.3 Stock Market Returns

Stock market return is the yield an investor obtains over a specified period. It is sometimes considered synonymous to stock prices. A strong market can be seen as one that incorporates new information on stock prices and hence making the stock prices for the firms stable and accurately valued (Mwangi & Mwiti, 2015). Stock market returns have predictive power for investment and output because stock market returns are a forward-looking variable that

incorporates expectations about future cash flows and discount rates. Stock market returns serve as an index to investors or governments in making their investment decisions. Investors of different financial capacity are able to invest in the stock market as long as they are able to get a return that is higher than their cost of capital (Wang, 2012).

Stock returns determine how effective and efficient the stock market allocates shares and equities based on preference and availability of market information. Increase or decrease in price of stock create uncertainty for the investors and in turn affect the demand and supply of stocks (Taofik and Omosola, 2013).

2.3 Empirical Review

The effect of interest rate and exchange rate on stock returns has received considerable attention in the literature.

2.3.1 Interest Rates and Stock Market

The effect of interest rate on stock market returns has been examined by numerous researchers in both developed and developing countries. Smirlock and Yawitz (1985), for example, using USA data provide evidence to show that interest rate changes can impact equity prices in two ways i.e. by affecting the rate at which the firm's expected future cash flows will be capitalized, and by altering expectations about future cash flows. They discovered that an increase in interest rates causes stock prices to decline and a decline in interest rates causes stock prices to rise. Further, they conclude that if both capitalization rates and expectations about future cash flows are impacted by interest rates, these effects would influence equity prices.

Hasan and Samarakoon (2000) studies the ability of interest rates, measured by treasury bill rates of three maturities; 3,6 and 12 months which tracks the expected monthly, quarterly and annual returns in the Sri Lankan stock market for the period 1990 to 1997. The stock return is measured by the continuously compounded monthly returns on the All Share Price Index (ASPI) and Sensitive price index. Through the application of the OLS method it was suggested that the short-term interest rates are positively related to future returns and they are able to reliably track

expected returns prospects. The authors also concluded that the 12 months maturity is the most powerful tool to track monthly and quarterly expected return among all the three maturities.

Lobo (2002) examines the impact of unexpected changes in the USA federal funds target on stock prices from 1988 to 2001; Measures of interest rate surprises are constructed from survey data and changes in the 3-month T-bill yield. It was discovered that surprises associated with decreases in the target cause stock prices to rise significantly. Surprises associated with increases in the target increase stock market volatility on the announcement day, with volatility reverting to pre-surprise levels on the day after the announcement. This volatility pattern is only evident since 1994. An implication is that concerns about immediate disclosure causing persistent and heightened stock market volatility might be misplaced.

Ologunde, Elumilade and Asaolu (2006), examines the relationships between stock market capitalization rate and interest rate in Nigeria. They found that prevailing interest rate exerts positive influence on stock market capitalization rate. They also found that government development stock rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative influence on government development stock rate.

Uddin and Alam (2007) examine the linear relationship between share price and interest rate as well as share price and changes of interest rate. In addition, they also explore the association between changes in share price and interest rate and lastly changes of share price and changes of interest rate in Bangladesh. They find for all of the cases that Interest Rate has significant negative relationship with Share Price and Changes of Interest Rate has significant negative relationship with Changes of Share Price.

Zhou (1996) also studied the relationship between interest rates and stock prices using regression analysis. He found that interest rates have an important impact on stock returns, especially on long horizons, but the hypothesis that expected stock returns move one-for-one with ex- ante interest rates is rejected. In addition, his results show that long-term interest rate explain a major part of the variation in price-dividend ratios and suggests that the high volatility of the stock

market is related to the high volatility of long-term bond yields and may be accounted for by changing forecasts of discount rates.

Lee (1997) used three-year rolling regressions to analyze the relationship between the stock market and the short-term interest rate. He tried to forecast excess returns (i.e. the differential between stock market returns and the risk-free short-run interest rate) index with the short-term interest rate, but found that the relationship is not stable over time. It gradually changes from a significantly negative to no relationship, or even a positive although insignificant relationship.

Jefferis and Okeahalam (2000) worked on South Africa, Botswana and Zimbabwe stock market, where higher interest rates are hypothesized to depress stock prices through the substitution effect (interest-bearing assets become more attractive relative to shares), an increase in the discount rate (and hence a reduced present value of future expected returns), or a depressing effect on investment and hence on expected future profits.

Harasty and Roulet (2000) worked on 17 developed countries and showed that stock prices are co integrated with earnings (a proxy for dividends) and the long-term interest rate in each country (except the Italian market for which the short-term interest rate was used). Spyrou (2001) also studied the relationship between exchange rates, interest rates and stock returns but for the emerging economy of Greece. Consistent with Kaul's results, Spyrou (2001) found that inflation and stock returns are negatively related, but only up to 1995 after which the relationship became insignificant.

Arango (2002) found that some evidence of the nonlinear and inverse relationship between the share prices on the Bogota stock market and the interest rate as measured by the inter bank loan interest rate, which is to some extent affected by monetary policy. The model captures the stylized fact on this market of high dependence of returns in short periods. These findings do not support any efficiency on the main stock market in Colombia. Hsing (2004) adopts a structural VAR model that allows for the simultaneous determination of several endogenous variables such as, output, real interest rate, exchange rate, the stock market index and found that there is an inverse relationship between stock prices and interest rate.

Zordan (2005) said that historical evidence illustrates that stock prices and interest rates are inversely correlated, with cycle's observable well back into the 1880's; more relevant to the period subsequent to World War II. From the late 1940's to the mid 1960's, inflation was low, and interest rates were both low and stable.

Onasanya and Ayoola (2012) in their study used VECM model and data from a period between 1985 and 2008. The researchers in their study were exploring the relationship between macroeconomic variables and stock returns. They arrived at a conclusion that there was no significant influence that the macroeconomic variables had on stock returns. Specifically the research suggested that interest rates had a negative relationship with stock returns in Nigerian stock market.

Addol and Sunzuoye (2013) examine the joint impact of interest rates and Treasury bill rate on stock market returns on Ghana Stock Exchange over the period between January 1995 and December 2011. Using Johansen's Multivariate Co integration Model and Vector Error Correction Model the study establish that there is co integration between Interest rate, Treasury bill rate and stock market returns indicating long run relationship. Their results also show that Treasury bill rate and interest rate both have a negative relationship with stock market returns but are not significant. These results lend support to the idea that interest rate and Treasury bill rate both have negative relationship but weak predictive power on stock market returns independently. The study conclude that interest rate and Treasury bill rate jointly impact on stock market returns in the long run.

Maswere and Kaberuka (2013) explored the determinants of stock market price in Uganda using macroeconomic variables from 2003 to 2011. Augmented Dickey Fuller and Phillip-Perron unit root tests were used to test the variables and the findings suggested that inflation was stagnant at first but the changes that were experienced later had a significant influence on the stock prices in the economy. The results of the study further suggested that in the long run, there was a negative relationship between interest rates and stock process in the country while in the short run, there were no significant changes recorded in the relationship.

variables it was concluded that there was a uni-directional causality from exchange rate to stock prices in Pakistan and Korea. Because of the existence of long-run relations for India and the Philippines the study used an error correction model to examine the causality for the two countries. The causal relation for India was from exchange rate to stock prices but the reverse was true for the Philippines; in each case the relation was unidirectional.

Using monthly data on four South Asian countries, including Pakistan, India, Bangladesh and Sri-Lanka, for the period January 1994 to December 2000, Muhammad and Rasheed (2002) employed co integration, vector error correction modeling technique and standard Granger causality tests to examine the long-run and short-run association between stock prices and exchange rates. The results of their study however show no short-run association between the said variables for all four countries. There is no long-run relationship between stock prices and exchange rates for Pakistan and India as well.

Adjasi and Biekpe (2005) investigate the relationship between stock market returns and exchange rate movements in seven African countries. Co integration tests showed that in the long-run exchange depreciation leads to increases in stock market prices in some of the countries, and in the short-run exchange rate depreciations reduce stock market returns.

In their study based on six Asian countries, Doong, Yang and wang (2005) investigate the relationship between stocks and exchange rates using the Granger causality test. According to their results, there is a significantly negative relation between the stock returns and change in the exchange rates for all the included countries except one.

Hristu-Varsakelis and Kyrtso (2008) investigate the nonlinear granger causality between stock index and exchange rate using bivariate noisy Mackey Glass model. The empirical evidence suggests that there is no long-run relationship; however, there is bidirectional linear and nonlinear granger causality between stock index and exchange rates. The findings of the study strongly support the micro and macroeconomic approach on the relationship between exchange rates and stock prices.

Kumar (2009) examines the dynamic relation between stock index and exchange rate by using the daily data for India by the application of the unit root and co integration tests to test for the long run relationship between the two variables. The study also uses linear and nonlinear granger causality tests after removing the volatility dependence from the series to examine the dynamic relationship between the two variables.

Ocran (2010) examined the empirical relationship between the rand and the USD exchange rate and the stock prices of South Africa and the US. The study was undertaken with the aid of the Johansen cointegration technique, the Granger causality test, generalized impulse response function and forecasting error variance decompositions. Monthly data of the three variables from January 1986 to November 2005 were used in the estimations. The Johansen co integration test could not identify a long-run relationship between the variables of interest.

Aurangzeb (2012) in his study also arrived at a similar conclusion in exploring the factors that influenced performance of stock market of countries in South Asia. The author used monthly data for the time period between 1997 and 2010 of India, Pakistan, and Sri Lanka; three South Asia countries. There was use of descriptive statistics method in the study for analysis. The results of the study suggested that in the three countries, the exchange rates had significant positive influence on the performance of stock markets. That means that there was a significant positive relationship between exchange rates and stock returns.

Barnor (2014) observes that variations financial indicators affect the performance of the stock markets. As a results examine the extent to which performance of the Ghana Stock Exchange (GSE) has been affected by financial indicators from January 2000 to December 2013 Time-series data analysis was used to determine whether there was a statistically significant relationship between stock market returns and inflation rate, exchange rate, interest rate, and money supply. The findings revealed that interest rates and money supply had a significant negative effect on stock market returns; however, exchange rates had a significant positive effect on stock market returns. Moreover, inflation rate did not significantly affect stock market returns in Ghana. The implications for positive social change include improved knowledge about the

effects of financial indicators on stock returns that could guide policy makers and household agents to improve investment decisions, thus increasing the net worth of these economic agents.

Alema & Odongo (2016) investigate the response of Uganda's traditional export crops to exchange rate volatility in the period 1997 and 2013. The study discovered that Uganda's traditional export crops respond negatively to exchange rate volatility in the short run but positively in the long run. This performance is possible because in the long run, many factors are at play that can possibly stimulate the export of Uganda's traditional crops from the country. Some of these factors may include; regional trade agreement which can diversify the export market for Uganda's traditional crops and also better production policies that can possibly increase the output of Uganda's traditional export crops available for export. The policy implications for this study include the following: Trade within the region should be encouraged in order to widen the market for Uganda's traditional export crops. Secondly, in order to broaden the export base of Uganda's traditional export crops, the list of Uganda's traditional export crops should be expanded to include even other nontraditional export crops.

Katusiime, Agbola & Shamsuddin (2016) adopted an autoregressive distributed lag model to investigate the effect of exchange rate volatility on economic growth in Uganda. Using data spanning the period 1960–2011, they find that exchange rate volatility positively affects economic growth in Uganda in both the short run and the long run. However, in the short run, political instability negatively moderates the exchange rate volatility–economic growth nexus.

2.4 Research gaps

Evidence for the effect of interest rate and exchange rate on stock return in Africa is very sparse and the findings are mixed (see, Ihendinihu and Onwuchekwa, 2012; Alajekwu and Achugbu, 2012;). In Uganda context, the few available empirical evidence concentrated on exchange rate volatility and economic growth (see for example, Katusiime, Agbola & Shamsuddin, 2016; Alema & Odongo, 2016). For instance, in a recent study, Katusiime, Agbola & Shamsuddin (2016) adopted an autoregressive distributed lag model to investigate the effect of exchange rate volatility on economic growth in Uganda. Using data spanning the period 1960–2011, they find that exchange rate volatility positively affects economic growth in Uganda in both the short run

and the long run. However, in the short run, political instability negatively moderates the exchange rate volatility–economic growth nexus. In view of the scant empirical evidence, this study examined the effect of interest rate and exchange rate on stock returns in Uganda – a developing economy that has received little attention in the extant literature.

3.3 Model Specification

Model specification presents a way of simplifying the complexities of real life. A model is, thus, an abstraction of reality. This study, therefore, employed a regression model to estimate the effect of interest rate and exchange rate on stock returns in Uganda. The study employed a regression model in undertaking the analysis. The application of regression model for this study agrees with prior studies in both developed and emerging stock markets (see for example, Lothian and McCarthy, 2001; Akmal 2007). The regression model was modeled thus:

$$Y_t = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \epsilon_t \quad (3.2)$$

Where,

Y= Stock return,

X1= interest rate,

X2= Exchange rate,

ϵ_t = error term.

3.4 Measurement of Variables

This section is devoted to display the chosen financial indicators. The first independent variable is interest rate and was measured through monthly Central Bank Interest rates. The second independent variable is exchange rate and was measured through monthly Shilling exchange rate against the U.S dollar. The dependent variable, stock return, was measured using weighted all share index of the Ugandan Securities Exchange (USE).

Table 3.1. Operationalization of Variables

	Variable	Measures
Y	Stock Return	Monthly Price-weighted All-share index of USE
X1	Interest Rate	Monthly Bank of Uganda lending interest Rate
X2	Exchange rate	Monthly end of the period Shilling exchange rate in relation to the U.S Dollar

3.5 Data Analysis

The data for this study was analyzed sequentially in accordance with the objectives stated in chapter one. The techniques of data analysis therefore comprised of descriptive statistics and regression analysis. The descriptive statistics involves computing the mean, standard deviation, skewness, kurtosis, and normality tests for the monthly stock market returns, interest rate and exchange rate. While the mean presents information on the average stock market returns and financial market indicators, the standard deviation shows the level of variation of the series from their average. The skewness and the kurtosis provide insight into the distributional pattern of the stock market returns and financial market indicators.

Regression analysis was used to establish the effect of interest rate and exchange rate on stock returns in Uganda. The regression model was estimated as follows:

$$SR_t = \alpha + \beta_1 FI_t + \epsilon_t \quad (3.3)$$

Where,

SR_t = Stock return at time t ,

FI_t = Financial indicator (interest rate and Exchange rate) at time t ,

ϵ_t = error term.

The assumption of the error term is absence serial correlation.

3.6 Test of Significance

The study used the P -value and t -statistic to determine the statistical significance of the models.

The study was conducted at the 5% level of significance.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter embodies data analyses, presentations of results, and their interpretation. It comprises descriptive statistics and inferential analysis. The descriptive statistics were not conducted to achieve objective or to test hypotheses. They include estimates of mean, standard deviation, minimum and maximum values of each variable, skewness and kurtosis coefficients. The inferential analysis, on the other hand, was conducted to achieve objective and to test hypotheses in order to show the effect of interest rate and exchange rate on stock return in Uganda.

4.1 Descriptive Statistics

The descriptive statistics involve computing the mean, standard deviation, skewness, kurtosis, and normality tests for the monthly stock market returns, interest rate and exchange rate. While the mean present information on the average stock returns, interest rate and exchange rate, the standard deviation shows the level of variation of the series from their average. The skewness and the kurtosis provide insight into the distributional pattern of the variables.

Notice from Table 4.1 that the mean of lending interest rate, Shilling/USD exchange rate, and USE returns are 21.5%, 2301.3 shilling, 1160 respectively. The standard deviation values for the series show wide dispersion between the minimum and maximum values from their averages. The skewness coefficients for lending interest rate (0.79), Shilling/USD exchange rate (0.61), USE returns (0.77) series are positive. These indicate that there are positive changes in all the series than predicted by normal distribution. The kurtosis coefficients show that lending interest rate and USE returns are flat, whereas Shilling/USD exchange rate is peaked. These suggest that the series may not be normally distributed. In a normally distributed series, skewness is zero and kurtosis is 3. The results presented in Table 4.1 show deviations from these rules. The major implication of descriptive statistics

presented in Table 4.1 is that changes in the variables are not normal. The series for example are positively skewed, suggesting that series are more likely to increase. This is clearly evident in Shilling/USD exchange rate which has consistently increased from Shs. 1820 in January 2006 to ShS. 3377 in December 2015.

Table 4.1: The descriptive statistics for the series of the variables

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
IR	120	18	28	21.53	2.404	.790	.221	-.022	.438
ExR	120	1590.1000	3695.3000	2301.344167	486.6296001	.610	.221	.096	.438
USR	120	597.0000	2076.0000	1160.973250	401.7333096	.776	.221	-.657	.438
Valid N (listwise)	120								

4.2 Unit-Root Test

Table 4.2 presents the results of unit root tests performed on levels and first differenced series of interest rate, exchange rate, and stock market index in Uganda for the study. Notice from table 4.2 that the level series do contain unit root for all the series. Note however that the first difference series of all the variables do not contain unit roots at the 5% significance level. This indicates that the series are good for regression analysis.

Table 4.2: Unit Root Test Result

	5% Critical t	Computed t		5% Critical t	Computed t
Log-level Series			Growth Series		
IR	-3.4848	-2.1034	RIR	-2.9117	-7.2801***
ExR	-3.4848	-1.5930	RExR	-2.9127	-3.6917***
USR	-3.4875	-2.3956	RUSR	-2.9117	-7.5098***

4.3. Effect of Interest Rate on Stock Returns in Uganda

This section reports the results of the regression model estimated to establish the effect of interest rate on stock returns in Uganda. Notice from Table 4.3 that interest rate has a negative

effect (-0.48) on stock returns in Uganda. This finding has provided an answer to the question asked in Section 1.5: how does interest rate affect stock returns in Uganda? This is shown in the empirical t-statistic (3.27) being greater than the theoretical t-statistic (-1.96) at the 5% significance level. This result suggests that an increasing interest rate is likely to decrease stock returns in Uganda.

The findings reported in Table 4.3 are not in agreement with the null hypothesis (H_{01}) stated in Section 1.6 since the p -value (0.001) of the interest rate coefficient is less than the adopted significance level (0.05). For this reason, there is significant effect of interest rate on stock return in Uganda. This finding is also supported by t-statistic. The computed t-statistic (-3.27) being greater than the theoretical t-statistic (-1.96) in absolute terms, at the 5% significance level. Consequently, the null hypothesis that interest rate does not have significant effect on stock returns in Uganda is rejected at the 5% significance level.

Table 4.3: Results of the Effect of Interest Rate on Stock Returns in Uganda

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.288 ^a	.083	.075	386.2908443

a. Predictors: (Constant), IR

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1597335.854	1	1597335.854	10.705	.001 ^b
	Residual	17608032.736	118	149220.616		
	Total	19205368.590	119			

a. Dependent Variable: USR

b. Predictors: (Constant), IR

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	123.754	318.975		.388	.699
	IR	-48.187	14.728	-.288	-3.272	.001

a. Dependent Variable: USR

4.4. Effect of Exchange Rate on Stock Returns in Uganda

This section reports the results of the regression model estimated to establish the effect of exchange rate on stock returns in Uganda. Observe from Table 4.4 that exchange rate has positive effect (0.64) on stock returns in Uganda. This finding has provided an answer to the question asked in Section 1.5: how does exchange rate affect stock returns in Uganda? This is shown in the empirical t-statistic (13.62) being greater than the theoretical t-statistic (1.96) at the 5% significance level. This result suggests that a depreciation in exchange rate is likely to increase stock returns in Uganda.

The findings reported in Table 4.4 are not in agreement with the null hypothesis (H_{01}) stated in Section 1.6 since the *p*-value (0.00) of the exchange rate coefficient is less than the adopted significance level (0.05). For this reason, there is significant effect of exchange rate on stock returns in Uganda. This finding is also supported by t-statistic. The computed t-statistic (13.62) being greater than the theoretical t-statistic (1.96) at the 5% significance level. Consequently, the null hypothesis that exchange rate does not have significant effect on stock returns in Uganda is rejected at the 5% significance level.

Table 4.4: Results of the Effect of Exchange Rate on Stock Returns in Uganda

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782 ^a	.611	.608	251.5047804

a. Predictors: (Constant), ExR

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	11741319.349	1	11741319.349	185.620	.000 ^b
Residual	7464049.240	118	63254.655		
Total	19205368.590	119			

a. Dependent Variable: USR

b. Predictors: (Constant), ExR

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-324.511	111.424		-2.912	.004
ExR	.645	.047	.782	13.624	.000

a. Dependent Variable: USR

4.5. Effect of Interest and Exchange Rates on Stock Returns in USE

This section reports the results of the regression model estimated to achieve the purpose of this study stated in Section 1.3 of the report. Notice from Table 4.5 that interest rate has a significant negative effect (-40.72) on stock returns in Uganda, and exchange rate has a significant positive effect (0.76) on stock returns in Uganda. The significance of the results is evident in the empirical t-statistic for interest rate (-3.64) and exchange rate (13.79) coefficients being greater than the theoretical t-statistic (± 1.96) at the 5% significance level. These results indicate that an increasing interest rate is likely to decrease stock returns in Uganda, whereas depreciation in exchange rate is likely to improve stock returns in Uganda.

More so, the findings reported in Table 4.5 indicate that interest rate and exchange rate causes variation in stock returns by 65% as this can be observed by the R-squared value. The *F*-value of the entire model is 109.4 and its associated *P*-value of 0.000, which is less than the stated level of significance and indicates that the entire model is significant.

Table 4.5: Results of the Effect of Interest and Exchange Rates on Stock Returns in Uganda

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.807 ^a	.651	.645	239.3475288

a. Predictors: (Constant), ExR, IR

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12502761.566	2	6251380.783	109.123	.000 ^b
	Residual	6702607.024	117	57287.240		
	Total	19205368.590	119			

a. Dependent Variable: USR

b. Predictors: (Constant), ExR, IR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	285.039	197.984		1.440	.153
	IR	-40.729	11.172	-.244	-3.646	.000
	ExR	.762	.055	.923	13.797	.000

a. Dependent Variable: USR

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The chapter focuses on discussion of findings, conclusions, recommendations, and suggestion of areas for further studies as well as contribution to knowledge.

5.1 Discussion of findings

This section provides discussions of the findings from the study.

5.1.1 Discussion on the Effect of Interest Rate on Stock Returns in Uganda

The study findings indicate that interest rate has negative effect on stock returns in Uganda. This is evident in the p -value (0.001) of the interest rate coefficient being less than the employed significance level (0.05). This evidence is also supported by the computed t -statistic (-3.27) being greater than the theoretical t -statistic (-1.96) in absolute terms, at the 5% significance level.

This finding of negative effect of interest rate on stock returns in Uganda is consonance with the findings of Uddin and Alam (2007), who examine the linear relationship between share price and interest rate as well as share price and changes of interest rate. In addition, they also explore the association between changes in share price and interest rate and lastly changes of share price and changes of interest rate in Bangladesh. They find, for all of the cases, that Interest Rate has significant negative relationship with Share Price and Changes of Interest Rate has significant negative relationship with Changes of Share Price. The finding is also in line with the findings of Arango (2002), who provide evidence to show inverse relationship between the share prices on the Bogota stock market and the interest rate as measured by the inter bank loan interest rate. Onasanya and Ayoola (2012) in their study using VECM model and data from a period between 1985 and 2008, also show that interest rates has a negative relationship with stock returns in Nigerian stock market. In Ghana, Addol and Sunzuoye (2013), using Johansen's Multivariate Cointegration Model and Vector Error Correction Model, report Treasury bill rate and interest rate both have a negative relationship with stock market returns. Similar evidence was also

documented in Kenya by Kirui, Wawire and Onono (2014), who used Threshold Generalized Autoregressive Conditional Heteroscedasticity (TGARCH) model to show that interest rate has a negative relationship with stock returns.

Although majority of the empirical studies find evidence of negative effect of interest rate on stock returns, there are dissent evidence on positive effect. Ologunde, Elumilade and Asaolu (2006) for example, found that prevailing interest rate exerts positive influence on stock market capitalization rate. They also found that government development stock rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative influence on government development stock rate.

5.1.2 Discussion on the Effect of Exchange Rate on Stock Returns in Uganda

The finding of this study shows that exchange rate has a positive effect on stock returns in Uganda. This is evident in the p -value (0.000) of the exchange rate coefficient is less than the adopted significance level (0.05). the p -value (0.00) of the exchange rate coefficient is less than the adopted significance level (0.05). This finding is also supported by t -statistic. The computed t -statistic (13.62) being greater than the theoretical t -statistic (1.96) at the 5% significance level. Hence, there is significant effect of exchange rate on stock returns in Uganda.

This finding is in-line with numerous studies in different countries on the effect of exchange rate on stock market returns. Adjasi and Biekpe (2005) for example, investigate the relationship between stock market returns and exchange rate movements in seven African countries. Cointegration tests showed that in the long-run exchange depreciation leads to increases in stock market prices in some of the countries, and in the short-run exchange rate depreciations reduce stock market returns. The finding is also similar to Aurangzeb (2012) who found that, in India, Pakistan, and Sri Lanka, the exchange rates had significant positive influence on the performance of stock markets using monthly data for the time period between 1997 and 2010.

In their study based on six Asian countries, Doong, Yang and wang (2005) investigate the relationship between stocks and exchange rates using the Granger causality test. According to their results, there is a significantly negative relation between the stock returns and change in the

exchange rates for all the included countries except one. This implies that the effect of financial indicators on stock returns may country-based.

5.1.3 Discussion on the Effect of Interest and Exchange Rates on Stock Returns in Uganda

The results of this study indicate that interest rate has a negative effect on stock returns, whereas exchange rate has a positive effect on stock returns in Uganda. These findings were based on the strength of the p -value (<0.05) of both the interest and exchange rates coefficients, and t -statistic (>1.96) at the 5% significance level.

These findings agree in totality with Barnor (2014) observes that variations financial indicators affect the performance of the stock markets. As a results examine the extent to which performance of the Ghana Stock Exchange (GSE) has been affected by financial indicators from January 2000 to December 2013 Time-series data analysis was used to determine whether there was a statistically significant relationship between stock market returns and inflation rate, exchange rate, interest rate, and money supply. The findings revealed that interest rates and money supply had a significant negative effect on stock market returns; however, exchange rates had a significant positive effect on stock market returns. Moreover, inflation rate did not significantly affect stock market returns in Ghana.

5.2. Conclusions

This thesis investigated the effect of interest and exchange rates on stock returns in Uganda by evaluating estimates obtained from descriptive statistics and regression models. From the analyses conducted in the study, the general conclusion is that interest rate and exchange rate have significant effects on stock returns in Uganda. In addition, the following specific conclusions were drawn:

- Movements of interest rate, exchange rate and stock returns are not normal. The variables are positively skewed, suggesting that series are more likely to increase than to decrease.
- Interest rate has a negative and significant effect on stock returns in Uganda.
- Exchange rate has a positive and significant effect on stock returns in Uganda.
- Interest rate and exchange rate are key variables valuing stock returns in Uganda

To Scholars: The study provides a reference material for other researcher in similar study area as well as enhances understanding in the effect of interest and exchange rates on stock returns in Africa.

REFERENCES

- Abdalla I. S. A. & Murinde, V. (1997). Exchange rate and stock price interactions: evidence on India, Korea, Pakistan and Philippines. *Applied Financial Economics*, 7, 25-35.
- Abdulrahim, S. (2011), Nigerian Stock Returns and Macroeconomic variables: Evidence from the Model, Eastern Mediterranean University, North Cyprus.
- Adel, A. (2004), The dynamic relationship between macroeconomic factors and the Jordanian stock market, *International Journal of applied econometrics and quantitative studies*, Vol 1-1(2004).
- AddoI, A. & Sunzuoye, F. (2013): The impact of treasury bill rate and interest rate on the stock market returns: case Of Ghana stock exchange. *Research Journal of Economics, Business and ICT*, 8, 245-259.
- Agrawal, G., Srivastav, A. K. & Srivastava A (2010), A Study of Exchange Rates Movement and Stock Market Volatility, *International Journal of business and management*, Vol 5, No 12..
- Ajayi R.A. & Mougoue, M. (1996). On the dynamic relation between stock prices and exchange rates. *Journal of Financial Research*, 19, 193-207.
- Alema, R. & Odongo, T. (2016). Exchange rate volatility and exports of Uganda's traditional crops. *American Journal of Economics*, 6(1), 41-49
- Amara, A. R., Naseem, M. A. and Sultana, N. (2013), Impact of macroeconomic variables on stock market index (A case of Pakistan), *Elixir International Journal*.
- Barnor, C. (2014). The Effect of financial indicators on stock market returns in Ghana (2000-2013). Retrieved online from: <http://scholarworks.waldenu.edu/dissertations/132/>
- Beirne, J., Caporale, G. M. & Spagnolo, N. (2009), Market, Interest Rate and Exchange Rate Risk Effects on Financial Stock Returns: A GARCH-M Approach, *Quantitative and Qualitative Analysis in Social Sciences* Volume 3, Issue 2, 2009, 44-68

- Damankeshideh, M. & Shanasaei, M. (2013), Impact of Real Exchange Rate Uncertainty on the Stock Index of Tehran Stock Exchange, *Journal of basic and applied scientific research*.
International Journal of Economics, Finance and Management
- Dimitrova, D. (2005), The Relationship between Exchange Rates and Stock Prices: Studied in a Multivariate Model, *Issues in Political Economy*, Vol. 14, August 2005.
- Doong, S.-Ch., Yang, Sh.-Y. & Wang, A. (2005). The dynamic relationship and pricing of stocks and exchange rates: Empirical evidence from Asian emerging markets. *Journal of American Academy of Business*, 7(1), 118-123.
- Emenike, K. O. (2016). Comparative analysis of bureaux de change and official exchange rates volatility in Nigeria. *Elsevier Intellectual Economics*, 10(1), 28-37.
- Fama, E. (1970). Efficient capital market: A review of theory and empirical tests, *Journal of Finance*, 25, 385-417.
- Girma, F. D. (2012), Relationship between Inflation and Economic Growth in Ethiopia: An Empirical Analysis, 1980-2011, University of Oslo.
- Hague, H. & Sarwar, A. (2012), Macro-Determinants of stock return in Pakistan, *Middle East Journal of scientific research* 12(4): 504-510, 2012.
- Hasan, T. & Samarakoon, L. P. (2000). Short-term interest rates and expected stock returns: evidence from Sri Lanka. *Advances in Pacific Basin Financial Markets*, 6, 337-348.
- Hosseini, S. M., Ahmad, Z. & Lai, Y. W. (2011), The Role of Macroeconomic Variables on Stock Market Index in China and India, *International Journal of Economics and Finance*, Vol 3, No 6.
- Hristu-Varsakelis, D. & Kystrou, C. (2007). Evidence for nonlinear asymmetric causality in U.S. inflation, metal and stock returns. *Technical Report, Working Group on Nonlinear Dynamics in Economic and Social Systems, University of Macedonia, Thessaloniki, Greece*.
- Hsing Yu (2013). The stock market and macroeconomic factors in Japan and policy implications. *International SAMANM Journal of Accounting and Finance*, 1 (1), 14-28.

- Jamil, M. & Ullah, N. (2013), Impact of Foreign Exchange rate on stock prices, Foundation University Institute of Engineering & management Sciences, IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X. Volume 7, Issue 3 (Jan. - Feb. 2013), PP 45-51
- Joseph, N. (2002). Modelling the impacts of interest rate and exchange rate changes on UK Stock Returns. *Derivatives Use, Trading and Regulation*, 7,306-323.
- Katusiime, L., Agbola, F. W. & Shamsuddin, A. (2016) Exchange rate volatility–economic growth nexus in Uganda, *Applied Economics*, 48(26), 2428-2442.
- Karoui, A. (2006), The correlation between FX rate volatility and stock exchange returns volatility: An emerging markets overview, Quebec, JEL.
- Kirui, E., Wawire, H.W., & Onono, P.O. (2014). Macroeconomic Variables, Volatility and Stock Returns: A Case of Nairobi Securities Exchange, Kenya. *International of Economics and Finance*, 6(8).
- Khan, M. and Yousuf, A. S. (2013), Macroeconomic forces and stock prices: Evidence from the Bangladesh Stock Market, Dhaka, Bangladesh.
- Kumar, M. (2009). A bivariate linear and nonlinear causality between stock prices and exchange rates. *Economics Bulletin*, 29(4), 2884-2895.
- Kuwornu, J. K. M. & Owusu, N. V. (2011), Macroeconomic Variables and Stock Market Returns: Full Information Maximum Likelihood Estimation, *Research Journal of Finance and Accounting*, Vol 2, No 4, 2011
- Kuwornu, J. K. M. (2012), Effect of Macroeconomic Variables on the Ghanaian Stock Market Returns: A Co-integration Analysis, *Agris on-line papers in Economics and informatics*, Vol IV, No 2.

- Makochehanwa, A. (2007), Zimbabwe's black market for foreign exchange, University of Pretoria, Department of Economics WP Series: 2007-13.
- Maku, O. E. and A. A. Atanda (2010): Determinants of Stock Market Performance in Nigeria: Long Run Analysis. *Journal of Management and Organizational Behaviour*. Vol. 1, No. 3 (November).
- Maswere, C., & Kaberuka, W. (2013). Determinants of Stock Market Price on Uganda Securities Exchange. *International Journal of Advanced Research*, 1(4), 360-377.
- 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(2004) 47-77.
- Menike L.M.C.S. (2006), The Effect of Macroeconomic Variables on Stock Prices in Emerging Sri Lankan Stock Market, *Sabaragamuwa University Journal*, Vol 6, No. 1, pp 50-67.
- Mlambo, C., Maredza, A. & Sibanda, K. (2013), Effects of Exchange Rate Volatility on the Stock Market: A Case Study of South Africa, *Mediterranean Journal of Social sciences*, Vol 4, No 14.
- Muhammad, N., & Rasheed, A. (2002). Stock prices and exchange rates: are they related? evidence from South Asian countries. *The Pakistan Development Review* 41(4), 535-550.
- Muktadir-Al-Mukit, D. (2012), Effects of Interest Rate and Exchange Rate on Volatility of Market Index at Dhaka Stock Exchange, Volume—VII, Number—02,
- Muhammad, N., & Rasheed, A. (2011), Stock Prices and Exchange Rates: Are they Related? Evidence from South Asian Countries. [Online]
- Mok, H.M.K. (1993). 'Causality of interest rate, exchange rate and stock prices at stock market open and close in Hong Kong'. *Asia Pacific Journal of Management* 10: 123-143.

- Laichena, K. E. & Obwogi, T. N. (2015). Effects of macroeconomic variables on stock returns in the East African community stock exchange market. *International Journal of Education and Research*, 3(10), 305-320.
- Ocran, M. K. (2010). South African and US stock prices and the rand/US dollar exchange rate. *South African Journal of Economic and Management Science*, 13(3), 362-375
- Ologunde A.O., Elumilade D.O. & Asaolu, T.O. (2006). Stock market capitalization and interest rate in Nigeria: a time series analysis. *International Research Journal of Finance and Economics*, 4, 12-23.
- Onasanya, O. K., & Ayoola, F. J. (2012). Does Macro Economic Variables Have Effect On Stock Market Movement In Nigeria? *Journal of Economics and Sustainable Development*, 3(10).
- Opara, C. C., Emenike, K. O. & Ani, W. U. (2015). Behaviour of Nigerian financial market indicators: Evidence from descriptive analysis. *American Journal of Economics, Finance and Management*, 1(5), 421 – 429
- Sangmi, M. and Hassan, M. M. (2013), Macroeconomic Variables on Stock Market Interactions: The Indian Experience, *Advances in management*, Vol 6(8).
- Sekmen, F. (2011), Exchange rate volatility and stock returns for the U.S. [Online] Available at: <http://www.academicjournals.org>
- Singh, P. (2014). An empirical relationship between selected Indian stock market indices and financial indicator. *International Journal of Research in Business Management*, 2(9), 81-92.
- Sohail, N. & Hussain, Z. (2012), Macroeconomic Policies and Stock Returns in Pakistan: A Comparative Analysis of Three Stock Exchanges, *Interdisciplinary Journal of contemporary research in business*, Vol 3, No 10.
- Uddin, M. G. S. and Alam, M. M. (2007) “The impacts of interest rate on stock market: empirical evidence from Dhaka stock exchange”, *South Asian Journal of Management and Sciences*, 1(2), 123-132.
- Wolla, S. A. (2012). What do financial market indicators tell us? *Economic Information Newsletter*, 8 (January), 1-9.

Zia, A. Z. and Rahman, Z. (2011), The Causality between Stock Market and Foreign Exchange Market of Pakistan, Interdisciplinary Journal of contemporary research in Business, Vol. 3, No 5.

APPENDIX I

Level Series of Interest Rate, Exchange Rate, and Stock Index

Year	Month	Interest Rate (Lending Rate)	Shilling/USD Exchange Rate	USE All-share Index
2006	Jan	19.7	1,820.2	730.00
	Feb	19.2	1,824.8	709.33
	Mar	18.9	1,823.5	736.56
	Apr	18.7	1,834.2	769.95
	May	18.2	1,851.4	830.49
	June	18.6	1,862.3	800.52
	Jul	18.2	1,855.9	782.06
	Aug	18.2	1,853.1	840.31
	Sept	19.2	1,861.1	892.13
	Oct	18.7	1,819.8	859.22
	Nov	17.9	1,808.5	903.81
	Dec	18.9	1,741.4	849.75
2007	Jan	18.9	1,759.5	956.85
	Feb	18.8	1,735.3	894.31
	Mar	19.2	1,746.6	857.56
	Apr	18.9	1,726.7	888.91
	May	19.7	1,693.1	846.05
	June	19.4	1,590.1	846.76
	Jul	19.4	1,661.5	824.43
	Aug	19.7	1,785.4	891.42
	Sept	19.0	1,752.1	936.71
	Oct	19.9	1,735.5	842.60
	Nov	18.3	1,738.7	989.84
	Dec	18.2	1,697.3	1,051.91
2008	Jan	19.4	1,726.0	845.95
	Feb	19.5	1,692.2	853.62
	Mar	20.1	1,693.5	987.61
	Apr	21.2	1,681.8	1,037.92
	May	19.9	1,628.2	1,067.64
	June	20.2	1,619.5	1,095.87
	Jul	22.0	1,640.7	1,037.20
	Aug	23.3	1,645.0	995.18
	Sept	21.2	1,670.0	923.60
	Oct	20.2	1,881.0	663.94
	Nov	19.4	1,973.9	785.18

	Dec	19.0	1,949.2	779.25
2009	Jan	18.9	1,977.5	725.18
	Feb	20.7	1,980.0	597.31
	Mar	21.0	2,118.4	652.27
	Apr	21.4	2,226.7	712.75
	May	22.2	2,234.3	714.00
	June	21.8	2,064.1	790.81
	Jul	21.0	2,104.5	822.93
	Aug	21.8	2,055.5	786.61
	Sept	20.7	1,924.0	724.03
	Oct	20.4	1,883.8	703.72
	Nov	21.6	1,870.7	703.59
	Dec	20.0	1,899.7	732.53
2010	Jan	19.6	1,949.2	806.94
	Feb	20.2	2,045.4	813.45
	Mar	21.1	2,084.3	886.30
	Apr	22.0	2,123.3	982.10
	May	20.6	2,208.9	1,005.43
	June	20.1	2,283.3	1,023.82
	Jul	19.6	2,231.6	1,022.01
	Aug	20.3	2,270.0	1,059.93
	Sept	18.8	2,244.1	1,117.90
	Oct	20.0	2,284.7	1,194.88
	Nov	20.1	2,313.7	1,199.24
	Dec	19.7	2,308.3	1,188.00
2011	Jan	20.1	2,302.7	1,213.00
	Feb	19.6	2,359.2	1,199.00
	Mar	20.0	2,397.3	1,136.31
	Apr	20.0	2,375.0	1,226.17
	May	19.9	2,390.4	1,198.78
	June	19.9	2,623.2	1,122.31
	Jul	21.7	2,610.6	1,024.47
	Aug	21.3	2,821.1	977.00
	Sept	23.3	2,845.0	879.09
	Oct	23.5	2,593.4	805.60
	Nov	26.0	2,566.2	808.00
	Dec	26.7	2,491.0	864.00
2012	Jan	27.3	2,326.8	817.46
	Feb	26.8	2,372.5	896.27

	Mar	27.6	2,518.4	994.00
	Apr	26.1	2,505.7	1,033.00
	May	26.7	2,488.0	998.00
	June	27.0	2,472.4	1,047.00
	Jul	26.9	2,478.7	1,072.00
	Aug	26.4	2,508.5	1,096.00
	Sept	25.7	2,545.2	1,112.00
	Oct	24.9	2,585.4	1,188.00
	Nov	23.7	2,688.4	1,187.00
	Dec	24.8	2,685.9	1,203.00
2013	Jan	24.2	2,665.2	1,349.00
	Feb	24.3	2,643.7	1,379.00
	Mar	24.0	2,594.8	1,531.00
	Apr	24.6	2,597.3	1,531.00
	May	23.5	2,594.5	1,676.00
	June	22.7	2,593.3	1,481.00
	Jul	23.1	2,584.1	1,583.00
	Aug	23.1	2,590.2	1,469.00
	Sept	22.5	2,561.0	1,564.00
	Oct	22.2	2,524.0	1,611.00
	Nov	22.7	2,524.5	1,609.00
	Dec	22.4	2,528.0	1,522.00
2014	Jan	21.9	2,475.2	1,474.00
	Feb	20.8	2,538.1	1,494.00
	Mar	21.9	2,549.5	1,504.00
	Apr	21.8	2,521.4	1,608.00
	May	21.9	2,557.7	1,614.00
	June	21.5	2,599.7	1,697.00
	Jul	21.6	2,625.2	1,748.00
	Aug	21.7	2,617.0	1,760.00
	Sept	21.2	2,651.6	1,821.00
	Oct	21.9	2,707.3	1,846.00
	Nov	22.1	2,779.9	1,923.00
	Dec	20.7	2,773.1	1,869.00
2015	Jan	21.7	2,866.8	2,007.00
	Feb	20.8	2,894.2	2,066.00
	Mar	20.1	2,970.6	2,076.00
	Apr	22.1	2,987.5	2,013.00
	May	22.7	3,054.3	1,885.00

	June	22.3	3,301.8	1,996.00
	Jul	21.8	3,425.8	1,850.00
	Aug	23.5	3,658.4	1,824.00
	Sept	23.3	3,695.3	1,924.00
	Oct	23.9	3,560.2	1,822.00
	Nov	24.5	3,357.1	1,758.00
	Dec	24.6	3,377.0	1,764.00

Source: Bank of Uganda and Ugandan Securities Exchange

APPENDIX II

Return Series Interest Rate, Exchange Rate, and Stock Index

Year	Month	Interest Rate (Lending Rate)	Shilling/USD Exchange Rate	USE All-share Index
2015	Jan	0.004073	0.00591	0.003407
	Feb	0.024795	-0.05874	-0.03576
	Mar	0.025425	-0.03725	-0.05447
	Apr	-0.00855	0.010036	0.053374
	May	0.07509	0.065691	-0.01415
	June	-0.02268	0.036867	-0.07596
	Jul	-0.01778	0.077917	0.057217
	Aug	0.026787	0.022114	-0.0657
	Sept	0.094858	0.005673	-0.03082
	Oct	-0.03423	0.026055	0.004829
	Nov	-0.04236	0.009512	0.028973
	Dec	0.047179	0.033231	0.071238
2014	Jan	-0.06544	-0.00245	-0.02848
	Feb	0.009091	0.026463	0.040865
	Mar	0.032485	0.020789	0.013635
	Apr	-0.02331	0.013135	0.034072
	May	0.004619	-0.00313	0.006842
	June	0.00464	0.009761	0.02961
	Jul	-0.01843	0.016288	0.050146
	Aug	0.004577	0.014294	0.003724
	Sept	-0.00458	-0.01108	0.066863
	Oct	0.051534	0.004481	0.006671

	Nov	-0.05153	0.025095	0.013477
	Dec	-0.02257	-0.02111	-0.03205
2013	Jan	-0.0133	0.001385	-0.05559
	Feb	0.022273	0.000198	-0.00124
	Mar	-0.01342	-0.01455	0.029608
	Apr	-0.02632	-0.01134	0.062665
	May	0	0.002358	-0.07474
	June	0.017468	-0.00355	0.066604
	Jul	-0.03464	-0.00046	-0.12369
	Aug	-0.04575	-0.00108	0.090489
	Sept	0.024693	0.000963	0
	Oct	-0.01242	-0.01867	0.104563
	Nov	0.004124	-0.0081	0.021995
	Dec	-0.02449	-0.00774	0.114545
2012	Jan	0.045369	-0.00093	0.013389
	Feb	-0.04939	0.039066	-0.00084
	Mar	-0.03162	0.015671	0.066111
	Apr	-0.02687	0.014524	0.014493
	May	-0.01876	0.011951	0.022141
	June	-0.00371	0.002545	0.023597
	Jul	0.011173	-0.00629	0.047931
	Aug	0.022728	-0.00709	-0.03447
	Sept	-0.05588	-0.00506	0.038485
	Oct	0.029414	0.05968	0.103495
	Nov	-0.01848	0.01945	0.09204
	Dec	0.022223	-0.06819	-0.05537
2011	Jan	0.026567	-0.02974	0.067011
	Feb	0.101096	-0.01054	0.002975
	Mar	0.008547	-0.09259	-0.0873
	Apr	0.089746	0.008436	-0.1056
	May	-0.01861	0.077547	-0.04744
	June	0.086593	-0.00481	-0.09121
	Jul	0	0.092934	-0.06592
	Aug	-0.00501	0.006463	-0.02259
	Sept	0	-0.00935	0.076109
	Oct	0.020203	0.016021	-0.0537
	Nov	-0.02519	0.02424	-0.01161
	Dec	0.020101	-0.00243	0.020825
2010	Jan	-0.0201	-0.00234	-0.00942

	Feb	0.004988	0.012613	0.003642
	Mar	0.061875	0.01793	0.066594
	Apr	-0.07676	-0.01148	0.053249
	May	0.035091	0.017061	0.036432
	June	-0.02519	-0.0229	-0.00177
	Jul	-0.02457	0.033127	0.018125
	Aug	-0.06575	0.039523	0.023477
	Sept	0.041769	0.018538	0.102638
	Oct	0.04359	0.01884	0.085771
	Nov	0.030153	0.048174	0.008035
	Dec	-0.0202	0.025723	0.096745
2009	Jan	-0.07696	0.015383	0.040308
	Feb	0.057158	-0.00698	-0.00018
	Mar	-0.0146	-0.02112	-0.02845
	Apr	-0.05178	-0.06611	-0.0829
	May	0.037388	-0.02356	-0.04514
	June	-0.03739	0.019384	0.039813
	Jul	-0.01818	-0.07923	0.102175
	Aug	0.036701	0.003407	0.001752
	Sept	0.018868	0.04986	0.088672
	Oct	0.014389	0.067564	0.088022
	Nov	0.090972	0.001263	-0.19398
	Dec	-0.00528	0.014414	-0.07191
2008	Jan	-0.02083	-0.01259	-0.00758
	Feb	-0.04041	0.048208	0.167721
	Mar	-0.04832	0.11898	-0.33009
	Apr	-0.09445	0.015083	-0.07464
	May	0.057411	0.002617	-0.04136
	June	0.08536	0.013006	-0.05502
	Jul	0.014963	-0.00536	0.026098
	Aug	-0.06328	-0.03239	0.028232
	Sept	0.053281	-0.00693	0.049686
	Oct	0.030305	0.000768	0.145802
	Nov	0.005141	-0.01978	0.009026
	Dec	0.063851	0.016768	-0.2179
2007	Jan	-0.00548	-0.0241	0.06082
	Feb	-0.08382	0.001842	0.161051
	Mar	0.046281	-0.00952	-0.10588
	Apr	-0.03618	-0.01883	0.049558

	May	0.015346	0.071922	0.078123
	June	0	0.043924	-0.02673
	Jul	-0.01535	-0.06276	0.000839
	Aug	0.041457	-0.01965	-0.04942
	Sept	-0.01575	-0.01146	0.035905
	Oct	0.021053	0.006491	-0.04196
	Nov	-0.00531	-0.01385	-0.06759
	Dec	0	0.01034	0.118704
2006	Jan	0.054361	-0.03781	-0.06168
	Feb	-0.04372	-0.00623	0.050594
	Mar	-0.02639	-0.02244	-0.03759
	Apr	0.053489	0.004308	0.059841
	May	0	-0.00151	0.071839
	June	-0.02174	-0.00344	-0.02333
	Jul	0.02174	0.00587	-0.03675
	Aug	-0.0271	0.009334	0.07569
	Sept	-0.01064	0.005851	0.044335
	Oct	-0.01575	-0.00071	0.03767
	Nov	-0.02571	0.002524	-0.02872
	Dec			

Source: Author's computation 2018

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