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DETERMINANTS OF FINANCIAL PERFORMANCE OF AUTOMOTIVE IMPORTING FIRMS IN ETHIOPIA

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June 2023

Addis Ababa, Ethiopia

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APPROVAL BY BOARD OF EXAMINERS

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STATEMENT OF CERTIFICATION

This is to certify that Mastewal Bekele has carried out her thesis on the topic entitled 'Determinant of financial performance of automotive importing firms in Ethiopia'. This work is original in nature and suitable for the award of Masters of Science (MSC) in Accounting and Finance.

Certified by:

Alem Hagos (PhD) _____ _____

Signature Date

STATEMENT OF DECLARATION

I, the undersigned, declare that this research is my original work, prepared under the guidance of **Alem Hagos (PhD)**. All sources of materials used for this research have been duly acknowledged, the researcher further confirm that the research has not been submitted either in part or in full t. any other higher learning institution for the purpose of earning any degree.

Mastewal Bekele

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

2SLS	Two Stage Least Square
ANOVA	Analysis of Variance
ARCH	Autoregressive conditional Heteroskedasticity
ARCHLM	Autoregressive conditional Heteroskedasticity Langrange Multiplier
ARIMA	Autoregressive integrated moving average
AVA	Additional Value Adjustment
CSA	Central statistical authority
ERV	Exchange rate volatility
FDI	Foreign direct investment
GARCH	Generalized Autoregressive conditional Heteroskedasticity
GCEXP	Government capital expenditure
GDP	Gross domestic product
GMM	Generalized method of moment
IGARCH	Integrated Generalized Autoregressive conditional Heteroskedasticity
MEC	Marginal efficiency of capital
MGDP	Manufacturing gross domestic product
MNCs	Multinational companies
MP	Market power
NBE	National bank of Ethiopia
NEER	Nominal exchange rate
NSE	National Stock Exchange
OLS	Ordinary least square
REER	Real exchange rate
RGDP	Real Gross Domestic Product
ROA	Return on Asset
TGARCH	Threshold Generalized Autoregressive conditional Heteroskedasticity

ABSTRACT

This study was conducted to examine of Determinates of financial performance of automotive importers in Ethiopia. Based on this aim, the study has analyzed foreign exchange volatility, performance of the firms, and examine effect of the exchange rate volatility on sales and profitability of the firms. The study has followed descriptive and explanatory research designs and used quantitative research approach. This study used 20 firms that import automotive and they operate in Addis Ababa. The study has used secondary data collected from the firms and NBE. The data was analyzed by using descriptive statistics and regression. The exchange rate volatility was estimated based on ARCH methods and existence of ARCH effect was examined by using ARCH LM test. For the volatility estimation, the study has included 120 months; from 2013 to 2022 business calendar. In addition, the effect of estimated exchange rate volatility on performance of the firms was estimated by using panel models; fixed effect and random effect models. In addition, exchange rate volatility, the estimation model included Size, liquidity, leverage, market power and Economic Growth. This study has identified that exchange rate in Ethiopia is frequently and unpredictably changes from time to time. Moreover, it was identified that the exchange rate volatility has no ARCH effect and this indicated that exchange rate volatility in Ethiopia is not predictable based on its volatility in previous period. In addition, size, leverage and liquidity have positive and significant effect on both profitability and sales performance of the firms. In contrast, leverage has negative and significant effect on performance of the firms. Moreover, economic growth has positive and significant effect on performance of the firms.

Keywords: Automotive Importers, Exchange Rate Volatility, Financial Performance

CHAPTER ONE

1. INTRODUCTION

This study intends to examine Determinants of Financial performance of automotive importing firms in Ethiopia. Based on this aim, this chapter presents introduction about the study. In particular, the chapter presents background of the study, statement of the problem, research questions, objective of the study, significance of the study, scope of the study and organization of the study.

1.1 Background of the Study

The currency rate movement creates significant risks and expenses for businesses, regardless of whether exchange rates float moderately or move more dramatically (Li & Miao, 2018). As a result, business institutions and policy leaders began to have serious concerns about the fluctuation in exchange rates. The main contention of Maskus (1986) was that exchange rate volatility lowers enterprises' exports by instilling uncertainty regarding the benefits that can be realized from global trade. Furthermore, ongoing volatility might reduce direct investment and portfolio investment, which can be harmful to global capital flows. Investors that are risk averse may become discouraged by high exchange rate fluctuation. By forcing traders to increase their risk premium to account for unforeseen exchange rate changes, exchange rate volatility may lead to higher pricing for items that are traded globally.

The volatility and uncertainty of the foreign currency market make it challenging to forecast future pricing. Due to their inherent exposure to currency risks, importers and exporters doing business internationally are at risk from these swings (Allayannis, Ihuing, & Weston, 2016). Due to fluctuations in the value of their raw materials and purchase costs, which are expressed in foreign currencies, businesses are susceptible to possible profits and losses. Thus, these businesses are subject to foreign exchange risks due to their export and import activity.

Exchange rate volatility is defined as the fluctuations over time in the exchange rate or the departures from an equilibrium or benchmark exchange rate. Volatility is a measure of risk in foreign exchange transactions and is characterized as instability, fickleness, or uncertainty. The danger posed by sudden changes in the currency rate is known as exchange rate volatility

(Ozturk, 2006). The unpredictability of exchange rate movement on the international foreign currency market is referred to as exchange rate volatility. As a result, exchange rate volatility reflects the degree of fluctuation in the exchange rate over time.

Exchange rates were divided into four categories by Moffett, Stonehill, and Eiteman (2017), including the fixed exchange rate, which is governed by the government and contingent on a nation's reserves for a set length of time. The controlled floating exchange rate is a rate determined by the supply and demand for particular currencies in accordance with specified government interactions. A freely floating exchange rate is one that is entirely determined by the forces of supply and demand in a free market, with no interference from the government. Changes in expectations, monetary policy, and political events all affect how volatile currency rates are. The relative pricing of goods in various nations determine the degree of exchange rate volatility over the long term (Samuelson and Nordhaus, 2001).

Unexpected exchange rate changes, according to Caporale and Khosrow (1994), have a negative effect on the volume of international trade and investment. High exchange rate volatility increases uncertainty about future exchange rates, which lowers the volume of trade flows and investment. Exchange rate volatility has an impact on business success in addition to economic growth (Ayobami, 2019). For instance, when an exchange rate depreciates, businesses must pay more for imported capital goods, which lowers domestic demand.

The import transaction process has two stages: the first stage involves the firm choosing where to obtain foreign currency from the bank, and the second stage involves the completion of the import transaction and the payment of input suppliers and the bank. Due to the preparation and shipment of the goods, which often takes a few weeks to several months to complete, there is a long timing gap between the two stages, which causes the exchange rate risk to appear. Because the import contract and borrowings are made in the first stage while the spot exchange rate is realized in the second, the company should forecast the exchange rate that will actually be realized in the future and negotiate with the suppliers on how to split the gains or losses from the fluctuating exchange rate. An insurance policy against exchange rate risks is typically purchased by a risk-averse company, increasing the company's production sunk costs (Héricourt & Poncet, 2013).

According to Hooper and Kohlhagen (1978), exchange rate fluctuation could have a significant negative impact on a firm's operations. Investors may adjust their investment decision to account for the danger of excessive volatility if they associate volatility with risk. Businesses may be reluctant to engage in international trade if the currency rate of a country's trading partner becomes more variable. It has been demonstrated by Hodrick and Flood (1984) and Fung (2008) that fluctuations in exchange rates cause uncertainty in input pricing estimates.

Because the import and use of intermediate inputs affect a firm's performance in many dimensions, including productivity, export performance, and the utilization ratio of high-skill personnel, firms' import decisions fluctuate in response to exchange rate volatility. Because businesses reduce their import volume, scope, and likelihood from trading partners in reaction to a higher level of exchange rate volatility, exchange rate volatility has a deterrent effect on firms' imports. Exchange rate volatility increases the pricing risks faced by importing companies, increasing their sunk costs as a result. This detrimental effect is particularly pronounced in businesses that are more financially vulnerable(Dai & Xu, 2017; Fan et al., 2015; Feng et al., 2016; Halpern et al., 2015; Kasahara et al., 2016; Li & Miao, 2017, 2018; López & Nguyen, 2015; Héricourt & Poncet, 2013).

1.2 Statement of the Problem

Many businesses were frustrated by the fluctuation and instability in the exchange rate, which put them in a precarious position because they primarily acquire their raw materials from abroad. Using various approaches, several authors have looked at how exchange rate volatility and business financial performance in industrialized and developing nations. Weak macroeconomic regulations, ongoing currency rate volatility, forex restrictions, and central bank distortions all have an adverse impact on the financial performance of importing companies. Because their anticipated revenue and costs, as well as their profit margin and profits per share, are impacted by ongoing exchange rate volatility, corporations are thus exposed to external risks (Kasahara et al., 2016).In Ethiopia, the average exchange rate of USD was 20.05 during last 25 years (NBE, 2020).

Few empirical studies to date have discovered a negative correlation between exchange rate volatility and the performance of the firms' imports, but the pertinent research in this field is still lacking in many crucial areas. In terms of the intense margin (import value), but not the extensive margin (import status), López and Nguyen (2015) find that exchange rate volatility decreases companies' import of intermediate inputs. The relationship between businesses' financial fragility and exchange rate volatility and their impact on importing goods, which is often regarded as a significant variable for examining the transmission mechanism in firms' importing decisions, is not examined in the existing research.

In their investigation into the effects of exchange rate volatility on exports, Bajo-Rubio, Berke, and McMillan (2020) found no conclusive evidence of how the countries under study were affected. This suggests that because financial markets are sufficiently advanced, exchange rate volatility has little impact on exports. Different studies on the impact of exchange rate risk on businesses' exporting performance have been conducted recently in various nations.

The findings of empirical studies about effect of exchange rate volatility are mixed even for studies that applied the same methodologies. Majority of the studies indicated that exchange rate volatility negatively affects performance of firms negatively. However, there are significant number of studies that indicated insignificant effect; for example, Musa (2016), Osundina, Osundina, Jayeoba, and Olayinka (2016), Majok (2015), Sangosanya (2016). Moreover, previous studies mainly focused on export trade. However, in Ethiopia, the currency appreciation provides high attention to discourage import especially luxury goods, e.g, import and purchase of vehicles. Import of vehicles is highly dependent on exchange rates because of price of the vehicles. Hence, it is important to conduct further studies to reach on generalizable finding about effect of exchange rate volatility on firm performance and to assess effectiveness of the currency exchange policy in discouraging domestic sales.

However, there is lack of empirical evidence taking account of the role that exchange rate volatility play in the import of intermediate inputs thus prompting to examine the issue. In particular, there is lack of studies about effect of foreign exchange volatility on performance of firms in both export and import trade. Further, automotive importers in Ethiopia are highly linked with high demand for foreign currency; hence, highly linked with impacts of the foreign

exchange volatility. Hence, this study intends to estimate foreign exchange volatility in Ethiopia, assess financial performance and foreign currency management of automotive importing firms, and the effect of foreign exchange volatility on financial performance of the firms.

1.3 Research Questions

- What is effect of exchange rate volatility on performance of automotive importing firms in Ethiopia during 2013 to 2022?
- What is the effect of size on performance a case of automotive importing firms in Ethiopia period from 2013 to 2022?
- What is the effect of leverage of a firm on its performance a case of automotive importing firms in Ethiopia period from 2013 to 2022?
- What is the effect of liquidity of a firm on its performance a case of automotive importing firms in Ethiopia period from 2013 to 2022?
- What is the effect of market power on financial performance a case of automotive importing firms in Ethiopia period from 2013 to 2022?
- What is the effect of Economic Growth on financial performance a case of automotive importing firms in Ethiopia during 2013 to 2022?

1.4 Objective of the Study

1.4.1 General Objective

Generally, this study was conducted to examine Determinants of financial performance of automotive importing firms in Ethiopia during period from 2013 to 2022.

1.4.2 Specific Objectives

i. To examine the effect of foreign exchange volatility on performance of automotive importing firms in Ethiopia period from 2013 to 2022;
ii. To analyze the size of firm on performance of automotive importing firms in Ethiopia period from 2013 to 2022;
iii. To identify the effect of leverage of a firm on its performance a case of automotive importing firms in Ethiopia period from 2013 to 2022;

iv. To identify the effect of liquidity of a firm on its performance a case of automotive importing firms in Ethiopia period from 2013 to 2022;
v. To examine the effect of market power on financial performance a case of automotive importing firms in Ethiopia period from 2013 to 2022; and
vi. To analyze the effect of *Economic Growth on financial performance a case of automotive importing firms in Ethiopia during 2013 to 2022.*

1.5 Significance of the Study

This study intends to contribute to different parties related to the study area. First, this study helps to policy makers that are related to foreign exchange rate volatility and its effects. Hence, the study will be helpful for policy makers at National Bank of Ethiopia (NBE) and Ministry of Economy Commission (MEC). Second, the study will be important for automotive importing companies in Addis Ababa because the study evaluates performance of the firms and foreign currency management by the firms. Third, the study will be important source of further studies in the area of foreign exchange volatility and performance of importing companies.

1.6 Scope of the Study

To manage limitations and effectively meet the research objectives, this study was scoped based on important dimensions in a way that the study results best possible finding. First, although there are different automotive importers in Ethiopia that use the same exchange rate, this study geographically was scoped to automotive importing firms in Addis Ababa. Second, based on the time dimension, this study was scoped to include 10 years; period from 2013 to 2022. Conceptually, mainly, this study uses exchange rate volatility and financial performance as independent and dependent variables respectively. Although different empirical studies have used different indicators of financial performance, this study has used sales and earning performances as indicators of the financial performance. Moreover, this study used size of a firm, market power of a firm, leverage of a firm and liquidity of a firm in a business as a mediator of effect of the exchange rate volatility on the performance.

1.7 Limitations of the Study

This study tried to reach on generalizable conclusions. However, the study has some limitations. First, the study might have few limitations from the response of the companies to be included in the study. The study used secondary data from the companies and other sources. It is expected that the data must be audited data. Third, the study uses the firms in Addis Ababa and fails to include firms in other part of the country. Hence, finding of the study will be affected if firms in other part of the country are included and the finding cannot be generalized for firms out of Addis Ababa. Finally, this study will have limitations because of lack of studies in the area in Ethiopia.

1.8 Organization of the Study

This paper is organized into five chapters. The first chapter highlights the introduction section, the second chapter presents the review of related literatures that includes theoretical review, empirical reviews and conceptual framework. Chapter three be about methodology of the study that includes research design, population and sampling, data type and method of collection, methods of data analysis. Chapter four presents results and discussion. Finally, chapter five present conclusion and recommendations based on the findings.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1 Introduction

As introduced in previous chapter, this study was conducted to examine determinants of financial performance of automotive importing firms in Ethiopia. Based on this, this study has reviewed theoretical and empirical studies in the area of the study. In addition, based on the literature review and objectives of the study, conceptual framework of the study is formulated. This chapter presents review of the related literature. This first section presents theoretical review and the second section presents empirical review. Third, the chapter presents research gap and justification of the study. Finally, the chapter presents conceptual framework.

2.2 Theoretical Reviews

2.2.1 Exchange Rate Volatility

The volatility and uncertainty of the foreign currency market make it challenging to forecast future pricing. Due to their inherent exposure to currency risks, importers and exporters doing business internationally are at risk from these swings (Allayannis, Ihuing, & Weston, 2016). Due to fluctuations in the value of their raw materials and purchase costs, which are expressed in foreign currencies, businesses are susceptible to possible profits and losses. Thus, these businesses are subject to foreign exchange risks due to their export and import activity.

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2.2.2 Foreign Exchange Risk

Foreign currency risk was described as the "variability in the firm's value that is caused by uncertain exchange rate changes" by Shapiro in 1992. Foreign exchange risk is described by Glaum (1990) as the "probability of changes, for better or worse, in the home currency value of an asset, liability, or cash-flow stream caused by unexpected future exchange rate changes." This definition is predicated on the suppositions that the company is run on behalf of its owners, who are motivated by gains in wealth in their home currency, that exchange risk only arises from unanticipated future changes in exchange rates, and that exchange risk is not limited to businesses with international operations but also domestically focused businesses.

Foreign exchange risk is the possibility that unanticipated changes in exchange rates will reduce the value of the home currency if foreign cash payments and receipts are anticipated from an external source. Forex-related businesses, according to Taggert and McDermott (2000), are exposed to foreign currency risk on their payables and receipts in foreign currencies. In order to reduce exchange rate risk and preserve a firm's economic worth, they define foreign exchange risk procedures as a program of assessment (identification and quantification) and counterstrategies. Foreign currency risk is a financial risk that may be managed by internal and external financial tools to manage value creation and loss prevention in a corporation, continues Kirt. Forex risk, according to Featherson, Littlefield, and Mwangi (2006), appears when changes in the relative prices of currencies have an impact on an organization's ability to compete or remain viable. Financials for a company's project are dependent on unanticipated fluctuations in exchange rates if they are exposed to forex risk. According to Salifu et al. (2007) and El-Masry

(2006), companies are typically exposed to Transaction exposure, Economic exposure, and Translation exposure.

When the value of the current obligations is harmed by currency rate fluctuation, there is a transaction risk. Future cash flows and the value of existing obligations are the sources of transactional vulnerability when exchange rates fluctuate. Economic risk is the possibility of a sharp, unanticipated shift in exchange rates having a negative effect on firm income for both domestic and international operations. Currency mismatch causes translation exposure, which is linked to assets or revenue from overseas businesses (Madura, 2003).

Foreign exchange risk is the possible impact of changes in foreign exchange rates on a company's financial strength. Measures of financial strength may drop as a result of the possibility of negative FX rate volatility. Companies that deal in other currencies run the risk of unanticipated changes in foreign exchange rates, which are calculated in terms of exposures. Exposure is characterized as a predicted or contingent cash flow that depends on the value of foreign exchange rates and whose magnitude is uncertain at this time. According to Kothari (2011), exchange risk management is the process of determining the risks a corporation faces and putting that strategy into practice to defend against those risks through financial or operational hedging.

Every firm's decision regarding foreign currency exposure must take into account forex rate risk (Allayannis, 2001). The goal of currency risk hedging strategies is to minimize or eliminate these risks. To do this, one must be aware of the potential effects of exchange rate risk on business operations as well as effective risk management measures (Barton, Shenkir, and Walker, 2002). Choosing hedging techniques is frequently a difficult undertaking since it is challenging to quantify present risk exposure effectively and determine the appropriate level of risk exposure that should be managed. After the collapse of the Bretton Woods system and the removal of the U.S. dollar's gold-peg in 1973, the necessity for managing currency risk emerged (Papaioannou, 2001).

Their corporate treasuries typically handle the problem of currency risk strategies for financial and non-financial organizations since it is unrelated to their core industry. To oversee the

treasury's approach to controlling currency rate risk, the majority of multinational corporations also establish risk committees (Lam, 2003). This demonstrates the value businesses place on risk management concepts and methods. Any organization engaged in foreign exchange transactions is subject to three foreign exchange risks: translation risk, transaction risk, and economic risk. The necessity to convert accounts with foreign currency denominations into local currency gives rise to the idea of translation vulnerability. The risk of currency exchange is when a corporation owns assets, obligations, or revenue denominated in foreign currencies and anticipates their values to fluctuate as a result of changes in the exchange rate.

When a transaction involves the conversion of one currency into another and there is a change in foreign exchange rates between when the transaction is completed and when it is settled, the transaction is said to be exposed. Economic exposure is the extent to which exchange rate variations have an impact on a firm's current value of future cash flows (Shapiro, 2002). Exchange rate volatility makes it riskier to conduct business because it's difficult to predict future earnings and costs. These are made worse in particular in nations with underdeveloped hedging measures against FX risk, which is the case in many developing nations (World Bank Report, 2006).

The cost of servicing debt in relation to revenues can grow significantly in the event of an unanticipated depreciation of the local currency against the USD. A company's creditworthiness, which affects its capacity to raise further funds, might also suffer and even produce negative net revenues, both of which have major implications for the firm's long-term financial stability (Moles, 2002). Businesses are especially susceptible to the forex risk in emerging nations where there is a significant chance of currency depreciation. Depending on factors including the company's size, the nature, and the complexity of its operations, different banks have different forex risk management procedures. However, a comprehensive plan for managing currency risk should at the very least cover effective management information systems, emergency preparedness, and other managerial and analytical methods.

2.2.3 Measuring Exchange Rate Volatility

In the literature, a variety of exchange rate volatility metrics are frequently used. The measurement of exchange rate volatility depends on a number of variables, including the

measurement of risk associated with exchange rate uncertainty and whether the exchange rate being addressed is real or nominal, bilateral or effective. The degree of uncertainty and dispersion market players attribute to an exchange rate is measured by its volatility. According to Muhammad et al. (2005), exchange rates are modeled as forward-looking relative asset prices that take unforeseen changes in the relative demand and supply of domestic and foreign currencies into account.

The nominal exchange rate, which is the amount of domestic currency that will be obtained for one unit of foreign currency on the foreign exchange market, refers to the exchange rate that was in effect at a specific date. The nominal exchange rate, however, is adjusted for relative pricing between the nations under consideration to provide the real exchange rate. Real effective exchange rate (REER) and nominal effective exchange rate (NEER) should be distinguished from one another. The average change in a country's exchange rate relative to all other currencies is measured by the NEER. The NEER is converted to REER by accounting for price changes. Either a bilateral or multilateral trade weighted index is used to calculate the NEER. In this process, weights are given to different foreign currencies to reflect how important they are to their respective home nations. A bilateral or multilateral trade-weighted index for real exchange rates is used to calculate the REER, which measures the relative competitiveness of a home currency against the rest of the world.

De Grauwe (1994) came to the conclusion that when measuring exchange rate volatility, the real exchange rate is the more important metric because the uncertainty that arises from changes in the nominal exchange rate is likely to be partially offset by changes in prices and costs. The percentage change in exchange rate, variance, and exchange rate standard deviations are some of the indicators of exchange rate volatility that have been employed in the literature. The time horizon taken into consideration (short-run vs. long-run) is one of several variables that influence the decision.

A variation in the standard deviation of the difference in the annual or monthly exchange rate is frequently included in the volatility metric. These approaches, according to Jasen (1989), exclude information about the stochastic process that determines how exchange rates are determined. They serve as an unqualified measure. Additionally, other investigations (Hassan

and Tufte (1998) and Cushman (1983)) used the moving sample standard deviation technique. It also captures the temporal fluctuation in the absolute magnitude of changes in real exchange rates (Aqeel and Nishat, 2006). This method is used to account for times of high and low exchange rate uncertainty.

Following Engle's study (1982), Autoregressive Conditional Heteroskedasticity (ARCH) models and their generalizations (GARCH, IGARCH, TGARCH, etc.) serve as the primary definitions of exchange rate volatility. To represent the dynamic behavior of conditional variance, a high ARCH order is required. Because it is based on an infinite ARCH specification, which reduces the number of estimated parameters from infinity to two, the Generalized ARCH model of Bollerslev (1986) satisfies this condition. Leptokurtosis and volatility clustering are captured by GARCH models.

Pozo (1992) employed two different methods to evaluate volatility in order to act as a stand-in for exchange rate uncertainty. By calculating the standard deviation of monthly percentage changes in the real exchange rate, the first measurement was created. This method of measuring volatility is unconditional. The real exchange rate series was estimated as a GARCH process to calculate the conditional volatility, the second method used in the paper. Because it employs more data regarding exchange rate behavior than previous methods, this alternative measure of volatility is said to better capture exchange rate uncertainty. De Grauwe (1994) asserted that the GARCH technique is appropriate in a long-term time horizon. In order to calculate volatility, Cady and Gonzalez-Garcia (2007) used the standard deviation of the first difference of the natural logarithm of the daily nominal exchange rate between the two countries. Because nominal volatility is one of the primary factors influencing real exchange rate volatility over short time horizons, nominal and real exchange rates are highly connected.

2.2.4 Performance of Firm

Return on Assets, which examines a company's capacity to produce income based on its assets, belongs to the category of financial performance measurements. Donations and non-operating income are not included in the ratio. As a reflection of the manufacturing company's profit margin, ROA is anticipated to be positive; otherwise, it will reflect a loss. According to Babalola (2014), return on assets is a measure of how much profit a business made for every naira of

assets. It can also be used to estimate a company's asset intensity. As a measure of a company's profitability in relation to its total assets, ROA suggests that businesses with larger asset bases should be able to generate greater levels of income.

Investors may see from the ROA numbers how well the business is turning its invested capital into revenue. The better the ROA number, the more money the business is recouping from its initial investment. The return on asset also gauges the efficiency with which a business can recoup its investment in assets. In other words, ROA demonstrates the effectiveness with which a business can turn the capital spent to buy assets into net income or profits.

Some investors attempt to ignore the cost of obtaining the assets in the return estimated by adding back interest expenditure because all assets are either funded by equity or debt. A higher ratio makes perfect sense because it demonstrates that the company is successfully managing its assets to generate more net income (Casu, Girardone, & Molyneux, 2006). Although ROA is a useful indicator of a company's financial performance, equity investors do not prioritize it. The issue with ROA is that it understates asset value by leaving some off-balance sheet elements, such as assets bought through a lease, out of the total assets calculation. Although ROA has traditionally been a very good indicator of business financial success, this might eventually lead to a favorable bias where it is inflated in the evaluation.

2.2.5 Theoretical Framework

2.2.5.1 Interest Rate Parity Theory

Forecasting exchange rates typically uses the Interest Rate Parity (IRP) method. Projections are created by keeping track of the current interest rates and currency rates in the United States and other nations, respectively. According to this hypothesis, the difference between the interest rates in two nations equals the difference between the forward and spot exchange rates. By linking interest rates, spot exchange rates, and foreign exchange rates, interest rate parity plays a critical role in the foreign exchange markets (Roll and Yan, 2000).

According to Huang (2009), the economic theory that attempted to link the variations in interest rates between nations to cyclical fluctuations in exchange rates appears to have failed. Other

economic theories, such as the purchasing power parity, have not been shown to significantly improve the accuracy of random walk forecasts of exchange rates for time horizons of one year or fewer by Meese and Rogoff (1983). These researches have demonstrated a substantial rejection of uncovered interest rate parity. These findings have also been supported by subsequent investigations. There is additional theoretical literature that looks to see if market segmentation or risk aversion, rather than market inefficiency, is to blame for the failure of uncovered interest parity. Roll and Yan (2000) contend, however, that there is no actual issue with forward premium and that forward exchange rates are objective predictors of future spots.

2.2.5.2 Purchasing Power Parity

A country's exchange rate and its national price level in comparison to that of a foreign country are correlated with purchasing power parity. According to absolute purchasing power parity, when domestic currency is changed into foreign currency at the absolute PPP exchange rate, its purchasing power is precisely the same in the foreign economy. According to relative purchasing power parity, changes in nominal exchange rates between the relevant currencies must equal changes in national price levels. According to this theory, a change in the equilibrium rate of exchange between the two currencies would be roughly comparable to a change in the purchasing power parity for any currency pair under a floating exchange system when measured as a ratio of the prices of traded items.

According to purchasing power parity, a country's exchange rate will decline in relation to other nations when its price level rises, maintaining the equality of relative prices for equivalent items between nations. According to this theory, the Law of One Price ought to apply. The law of one price, which holds that identical items would sell for same prices when valued in the same currency in competitive markets, is the foundation of PPP. It pertains to a certain product, and its generalization is PPP's absolute form. Rather than focusing on absolute price levels, relative PPP considers changes in prices and currency rates.

For the assumptions of PPP to hold, goods must be equal, be able to be traded, have no transportation expenses, tariffs, or trade prohibitions, and exchange rates should only be affected by comparable inflation rates. Assumptions and the breach of the law of one price led to the use

of monetary models for determining exchange rates. The asset approach maintains that currency rates are influenced by expectations for the future, much like other asset values.

2.2.5.3 International Fisher Effect Theory

Irving Fisher published the theory in 1930. The Fisher Effect has a worldwide counterpart called the worldwide Fisher Effect. It can be viewed as combining the relative version of the Purchasing Power Parity with the generalized version of the Fisher Effect. On the premise that changes in the spot exchange rate between two currencies will be proportional to variations in their nominal interest rates, the International Fisher Effect is built. Furthermore, according to the International Fisher Effect theory, higher nominal interest rates will cause currencies to lose value because they mirror higher expected inflation.

According to the International Fisher's Theory, there are correlations between differences in interest rates between two countries and their corresponding differences in inflation (Ebiringa & Anyaogu, 2014). As a result, countries with high inflation rates would have nominal interest rates that are higher than those with low inflation rates. According to the hypothesis, real interest rates are comparable across nations because capital flows across financial markets frequently present chances for arbitrage.

Real interest rate equality means that the country with a higher interest rate needs to have a greater inflation rate, which defines a country's optimum currency value drop over a specific time period (Lagat & Nyandema, 2016).Lagat and Nyandema (2016) pointed out that the International Fisher Effect model builds on the Fisher Effect by proposing that currency changes are proportional to the difference between the nominal interest rates of the two countries because nominal interest rates reflect expected inflation rates and currency exchange rate changes are driven by inflation rates.

It has been argued that the International Fisher Effect is applicable in the long run because average yearly deviation, a gauge of long-term validity, approaches to zero. However, the greatest annual variation was too high to provide short-term support for the theory. Robinson and Warburton (2005) also contested the validity of the International Fisher Effect and contended that the medium-term potential for earning a higher interest return would be diminished by the

appreciation of the currency with the lower interest rate relative to the currency with the higher interest rate. They came to the conclusion that higher returns could be obtained and claimed that the International Fisher Effect is not empirically supported. A relationship between interest rates and exchange rates is presented by the International Fisher Effect Model, which suggests that changes in the spot exchange rate between two currencies will be equal to variations in their nominal interest rates.

2.2.5.4 Trade-Off Theory

According to this idea, every source of funding has advantages and disadvantages as well as benefits and costs (Awan & Amin, 2014). Therefore, the tradeoff between the advantages and disadvantages of debt financing serves to identify and define the capital structure of a corporation that is thought to be optimal (Myers, 1984). According to the trade-off theory, businesses with large earnings will be able to use borrowed money more frequently without running the risk of experiencing financial hardship, which assumes that the business in question is able to employ a high amount of debt in their capital structure (Kausar, 2014).However, the trade-off theory came under heavy fire since, according to Myers (1984), it can only be fixed when it is assumed that there is no cost associated with adjustment. Furthermore, the retained profits effect on the capital structure is disregarded by the theory because these earnings may be risk-free or have no cost (Frank & Goyal, 2019).

The equity-to-asset ratio is a crucial balance sheet ratio that has drawn a lot of attention in this context. The balance sheet structure may also have an impact on a company's profitability. Different signals of the association with profitability are assumed by theoretical explanations for this ratio. According to financing theory, taking on more risk only makes sense when the expected return is expected to rise; otherwise, taking on more risk has no advantages. raising risk is accomplished through raising leverage, which lowers the equity-to-asset ratio and raises expected return. The risk-return tradeoff is the name given to this theoretical justification (Van, 2011).

There are also theoretical justifications for the inverse relationship, according to which profitability is positively impacted by a larger equity-to-asset ratio. The signaling and bankruptcy cost hypotheses serve as the foundation for these arguments. According to the signaling

hypothesis, a larger equity ratio sends a strong signal to the market about how valuable a company is (Berger, 1995). Such a signal cannot be achieved by a less profitable company because it will further hurt their profits. In this sense, a lower leverage shows that a company performs better than its rivals who are unable to raise equity without further harming profitability. According to the bankruptcy cost hypothesis, a company should maintain more equity to prevent a time of financial crisis in cases where bankruptcy costs are unanticipatedly high (Berger, 1995).

2.2.5.5 Structure Conduct Performance (SCP) Hypothesis

The literature analyzes company performance in light of market structure using the conventional structure conduct performance (SCP) theory. The SCP hypothesis is based on the illustrious writings of Bain (1951), which contend that market structure affects business behavior through prices or investment strategies, which in turn affects performance (Ye et al., 2012). According to this theory, companies can achieve very profitable performance in increasingly concentrated markets by setting prices that are less advantageous to customers (buyers) (Berger, 1995). The framework's basic premise is that the conduct of businesses operating in a market is influenced by its observable structural qualities. According to the SCP paradigm, business behavior would be determined by market structure, which would then affect performance (Bain, 1956). The SCP hypothesis, which claims that market concentration and performance are positively correlated. It suggests that the profitability's fundamental driving force is the market structure (or market power).

2.2.5.6 Efficiency Hypothesis

The structure performance hypothesis was first refuted by Demsetz (1973) and Peltzman (1977), who argued that the cause of the positive relationship between profit and market concentration is not market power but rather the greater efficiency of firms with a larger market share, which leads to higher concentration and higher profitability. The relationship between profitability and market structure variables will become unimportant and economically worthless if efficiency is taken into account. As a result, according to the efficiency hypothesis, efficiency influences both market concentration and profit.

As a result, the efficiency of the firm is what propels the process of attaining a huge market share, and consequently increasing concentration. The most effective businesses will also increase their market share and generate financial gains. As the efficiency hypothesis has gained popularity, the second technique has been improved by include a new independent variable, market share, which acts as a stand-in for efficiency. As previously indicated, the SCP paradigm truly tests the relative market power hypothesis in accordance with Berger's classification by including the market share variable. Shepherd (1982) discovered that not every market participant in a crowded market may profit and make more money. He made the claim that, according to the Relative-Market-Power hypothesis (RMP), only businesses with sizable market shares and distinctive products can use market power and generate above-average profits. The market becomes more concentrated as a result of more cost-effective enterprises being able to increase their market share and earnings. Businesses that run more effectively may use two different approaches to increase profitability. The first option is to increase prices while maintaining current output levels in order to maximize profits. The second option is to increase profits by lowering prices and growing operations. This can be done either through internal growth or external growth, which involves purchasing less-efficient competitors in the market. As a result, the process of market concentration is driven by efficient enterprises obtaining market share.

Despite having very different views on the direction of causality between market structure and performance, the two competing broad categories of hypotheses (structure performance and efficiency structure) do in fact reflect the same positive relationship between market power and profitability. Just how market power may be attained in the first place is where they diverge. In other words, the structure performance hypothesis assumes that market power, which derives from market concentration or market share, is exogenous and that the relationship between the market structure of an industry and business profitability flows through firm behavior like collusion or pricing strategy. Contrarily, the efficiency hypothesis postulates that the higher efficiency is what causes the market structure, rather than that it is exogenously driven. According to the efficiency hypothesis, market power is obtained by maintaining or increasing firm-specific efficiency.

In addition to being fascinating from an empirical standpoint, the relationship between company performance and market structure has significant policy consequences. If the structure performance hypothesis is supported, the increasing market concentration and larger market share will allow businesses to set prices that are less advantageous to consumers. Therefore, antitrust legislation and regulatory action would be required to stop the development of market dominance. However, if the efficiency hypothesis is supported by the data, mergers and acquisitions that are driven by increased efficiency ought to be supported because they should boost consumer and producer surplus. Therefore, proponents of the efficient structure hypothesis think antitrust and regulatory policy is socially costly whereas proponents of the structure performance hypothesis think it is socially advantageous (lower unit cost, more attractive price, and greater output).

2.2.6 Exchange Rate Volatility and Firm Performance

Numerous theoretical and empirical research have been carried out to investigate the relationship between the exchange rate and investment, production, and international trade. According to Clark (1973), changes in exchange rates cause uncertainty in the prices that businesses will have to pay or get in the future. It was revealed that there is a definite inverse association between trading volume and exchange rate volatility. When the danger is greater, a risk-averse company may import more to prevent a revenue decline. A less risk-averse person, on the other hand, could not be concerned about a significant drop in revenue because they would find the return less alluring. When risks are greater, these businesses may elect to import less (Arize, 1997).

However, some transactions can be easily hedged in industrialized economies with well-developed forward markets, minimizing exposure to unanticipated changes in exchange rates. For the markets of the majority of emerging nations, this is not the case. The propensity for some currency rates to fluctuate in opposite directions will also offer some protection to a company's total exposure to exchange rate risk when it trades with a lot of different nations (Clark et al., 2004).

According to Hooper and Kohlhagen (1978), exchange rate fluctuation could have a significant negative impact on a firm's operations. Investors may adjust their investment decision to account for the danger of excessive volatility if they associate volatility with risk. Businesses may be

reluctant to engage in international trade if the currency rate of a country's trading partner becomes more variable. It has been demonstrated by Hodrick and Flood (1984) and Fung (2008) that fluctuations in exchange rates cause uncertainty in input pricing estimates.

Both models from 1973 concentrated on the choices the firm makes when placing an order, including the quantity of items to be imported and the amount of forward exchange rate insurance to be obtained. The model made the assumption that a firm would be affected by fluctuating exchange rates in terms of both the magnitude and domestic cost of its imports. The market structure, competitor policies, the exchange rate sensitivity of the firm's product demand, the time between borders, and the degree to which consumers anticipate price changes are some of the elements that affect the magnitude of the firm's imports. The model demonstrates that trade volume is unaffected by exchange rate uncertainty, merely the extent of forward cover. Additionally, the level of trade will be more sensitive due to the uncertainty around how the firms' revenue would depend on the future exchange rate.

Hooper and Kohlagen (1978) made the important claim that if exporters and importers are risk averse, a rise in exchange rate volatility will decrease trade volume and have a shaky impact on pricing. Quantitative evidence from the study showed that exchange risk has a higher impact on quantity and a smaller impact on pricing the more elastic importers' demand for tradeable commodities is. However, the impact of exchange risk will be larger on price and less so on quantity the more elastic the demand for tradable is.

The portion of transaction that is not hedged is impacted by volatility. According to Hooper and Kohlagen (1978) and Arize et al. (2000), more exchange rate volatility results in higher costs for risk-averse traders and less international commerce. This is due to the fact that although the exchange rate is decided upon at the time of the trade transaction, payment is not made until the actual future delivery is made. Changes in exchange rates that are unpredictable limit the advantages of global trade by raising uncertainty about the earnings that businesses will realize. Risk averse individuals are likely to allocate their resources into less risky economic pursuits as a result of the heightened risk associated with volatility. Thus, changes in exchange rates have an impact on the profit variability of businesses. When maximizing expected utility of profit is the

firm's goal, a rise in exchange rate volatility will necessitate a significant decrease in trade to protect against the risk brought on by high volatility.

According to Goldberg and Kolstad (1995), enterprises that make investment decisions in the current period in order to achieve gains in future periods have lower expected profit functions as a result of higher exchange rate volatility. According to Campa and Goldberg (1999), risk-neutral companies often decide against entering international markets when currency rate volatility is significant. The significance of exchange rate fluctuation for marginal productivity and investment is clearly influenced by the firm's international orientation, as shown by the proportion of its productive inputs that is exported and by the export markets.

In order to illustrate how these decisions on exports and domestic sales will affect productivity by altering a firm's scale of production, exchange rate uncertainty will have an impact on these decisions. Exchange rate changes have two opposing effects on a company's sales. As a result, domestic firms face more intense rivalry when their own currency appreciates since it raises their relative costs to international competitors. Each domestic firm sells less because of the cost disadvantage; as a result, some enterprises are forced to close their doors; yet, those that survive may see an increase in their market shares and revenues. The relative relevance of sales declines brought on by increased costs and market share gains brought on by exits determines the impact of exchange rate variations on the volume of production of enterprises (Fung, 2008).

According to Nucci (2001), exchange rate shocks have an impact on the marginal labor product, which in turn affects labor demand. variations in a producer's local and international sales as well as variations in the cost of imported inputs cause this effect. As a result, the employment impact of exchange rate changes is growing in industries that are export-oriented and have high import penetration in their domestic markets. Given that the industrial sector uses imported productive inputs, domestic labor and imported inputs may serve as either complements or replacements in the production function. This shows that in industries where firms have pricing power and when manufacturing is less labor-intensive, the role of exchange rates in determining labor demand is growing.

The impact of currency rate fluctuation on investments is unclear, as Diallo (2007) showed. Businesses that heavily rely on imported capital goods see a reduction in profits due to exchange rate volatility. In relation to this, Serven (2003) noted that currency rate volatility makes it harder to anticipate the benefit and cost of investment operations, which in turn creates an uncertain environment for foreign investors.

2.3 Empirical Reviews

In their study from the years 2010 to 2019, Ezenwa, Ogbebor, and Alalade (2021) looked at the impact of currency rate volatility on the return on assets of Nigerian enterprises that manufacture consumer goods. An ex-post facto research design was used in the study. From among the listed companies, a sample size of fourteen (14) consumer products companies was chosen using a purposive selection technique. In the study, panel data were employed, panel regression models were estimated using fixed-effect and random-effect models, and the exchange rate volatility (ERV) was calculated using the GARCH method. The study's conclusions demonstrated that exchange rate fluctuation was detrimental and significantly impacted return on assets. The study came to the conclusion that return on assets is significantly influenced by exchange rate volatility. The report recommended that the monetary authorities implement exchange rate management strategies that would help local businesses boost return on assets and boost company productivity.

Osho and Efuntade (2019) looked into how Nigerian multinational corporations' performance ratings were impacted by exchange rate fluctuations. The study's goal was to determine how foreign currency rates impact multinational corporations' financial results in Nigeria. To ascertain the impact of currency rate fluctuation on the performance of multinationals in Nigeria, the Ordinary Least Square (OLS) regression analysis was conducted. As a result, return on assets (ROA) was regressed on the following three variables: interest rate (INTr), inflation rate, and exchange rate (EXCHr). The total regression findings demonstrated that the performance of multinational corporations in Nigeria is significantly impacted by exchange rate fluctuations. This led to the conclusion that fluctuating exchange rates have an impact on how businesses in Nigeria conduct their business with other nations around the world.

In Nigeria, Harley (2018) investigated how exchange rate variations affect a firm's performance. Seven research questions that were developed for their study were used to test seven hypotheses. The study's main goal was to objectively evaluate how exchange rate variations affected the asset's return. The descriptive and ordinary least squares methodologies were employed in the investigation. The study covered panel data from 2012 to 2016 in its breadth. The study's conclusions showed that because most banks engage in exchange rate transactions, the exchange rate has a major impact on Return on Assets. The regression's outcome also revealed a favorable correlation between exchange rate and return on asset.

In their 2018 study, Orji, Ogbuabor, Okeke, and Anthony-Orji examined the effects of exchange rate (EXCH) changes on the financial results of manufacturing firms in Nigeria from 1981 to 2016. In their investigation, time series data and the ordinary least square (OLS) estimate approach were used to address the particular target. Return on Asset (ROA), exchange rate, manufacturing GDP (MGDP), capital spending by the government, foreign direct investment (FDI), credit to the private sector, and import value were the variables examined. The outcome showed that exchange rate fluctuations impacted Nigerian manufacturing enterprises' return on assets. In particular, the results demonstrated that whereas lending to the private sector was negatively connected to manufacturing GDP, exchange rate, government capital expenditure (GCEXP), imports, and foreign direct investment were positively related. According to the survey, the top corporations should keep a closer eye on the currency rate and develop modern policies that would eventually improve exchange rate stability. Both immediately and later on, this will have a significant impact on the growth of the manufacturing industry.

Mahat, Dahir, Sahabuddin, and Mahi (2017) looked into how Malaysian agriculture enterprises' financial results were impacted by exchange rate volatility. For the years 2001 and 2015, the authors used GARCH (1, 1), wavelet coherence, and GMM dynamic panel approaches. The results demonstrated that the financial performance of Malaysian agribusiness enterprises is negatively impacted by the erratic nature of the Malaysian Ringgit (RM) exchange rate. For the entire sample, the ARME and AVA showed a favorable influence on financial performance at the 1% significance level. The results also showed that changes in interest rates, consumer price index, exchange rate, and financial performance were detected using wavelet coherence.

Musa (2016) investigated how foreign currency rate fluctuation affected the return on assets (ROA) of Kenyan oil marketing enterprises. With a p-value of 0.392, the results showed that there is no correlation between inflation and financial performance. With a p-value of (.497), the analysis also showed that there was no correlation between performance and interest rates. With a p-value of (.306), the study also revealed no connection between foreign exchange volatility and return on asset. The report also suggested that instead of using global tactics that might be impacted by currency volatility, oil marketing organizations should think about using domestic or multi-domestic methods that are appropriate for the local economic climate. The report also noted and suggested combining measures for managing foreign exchange rate risk that are most appropriate for oil marketing firms.

Using cross-sectional data for the twenty (20) most active companies listed on the Nigerian Stock Exchange, Kelilume (2016) examined the impacts of exchange rate volatility clustering on the firm's performance in Nigeria. The empirical study created three dynamic panel models that take into account company heterogeneities, and it builds on earlier research by enabling foreign investors and corporations to base their investment choices on the exchange rate volatility between the Nigerian Naira and particular home currencies. The findings demonstrated that exchange rate fluctuation significantly reduces return on assets. The study concluded that there was a negative correlation between company performance and efficiency and exchange rate volatility.

Okolo, Ugwuanyi, and Okpala (2016) assessed how exchange rate fluctuation affected the financial results of Nigerian manufacturing enterprises. Macroeconomic factors like the trade balance, trade openness, and net foreign investment were taken into consideration when the flow and stock market theories of exchange rate determination were adopted. Additionally, the output of the manufacturing sector was used to predict the impact of changes in the parallel exchange rate, official exchange rate, and actual effective exchange rate. The macroeconomic drivers of exchange rate volatility in Nigeria were investigated, as well as the impact of exchange rate volatility on the output of the manufacturing sector in Nigeria, using vector autoregression approaches and vector error correcting mechanisms. The movement of the exchange rate in Nigeria was erratic and fluctuating, which had a detrimental impact on the return on assets of Nigerian manufacturing enterprises. Sixty-one percent (61%) of the variation in the

manufacturing sector production in Nigeria was due to shock to previous manufacturing sector output, which was heavily impacted by the official exchange rate. The exchange rate in Nigeria was not considerably influenced by trade balance, trade openness, or net foreign investments. However, ninety-five (95%) of the variety in exchange rate volatility in the short- and long-term might be attributed to one's own shock.

In Nigeria, over a ten-year period between 2005 and 2014, Osundina, Osundina, Jayeoba, and Olayinka (2016) looked at the impact of currency rate fluctuations on bank performance. They calculated exchange rate volatility by returning the ten-year average yearly values of the US dollar to the naira, and they used the ARCH LM test to demonstrate the volatility of the exchange rate. The preferred choice for fixed and random effect was tested using the Hausman method. The study discovered that while exchange rate variation had a negligible impact on bank profitability when measured by return on assets (ROA), it had a large adverse impact on bank liquidity when measured by loan to deposit ratio (LDR). The study came to the conclusion that, depending on the individual performance measure employed in the research, the impact of exchange rate volatility on enterprises' performance is subjective. However, the findings imply that additional naira devaluation will result in a decline in the enterprises' liquidity situation.

From 2002 to 2014, Majok (2015) examined the effects of exchange rate variations on the financial results of 43 Kenyan commercial banks. The study employed a descriptive research design using ANOVA to analyze the significance of the effects of changes in the exchange rate on the financial performance of commercial banks, using the return on asset (ROA) of the forty-three (43) commercial banks as a performance indicator. The Central Bank of Kenya and the consolidated financial accounts of the banks provided secondary data for the study. The findings showed a weakly negative correlation between exchange rate changes and the financial success of Kenyan commercial banks.

Mustafa and Demir (2016) looked into how Turkey's manufacturing enterprises with varying access to financing, domestic equity, and foreign equity were able to increase their productivity. For the model, a dynamic Generalized Method of Moment (GMM) estimation method was used. The GARCH (1,1) model was used to measure exchange rate volatility. Additionally, the standard deviation of the initial difference of the logarithm of the monthly exchange rate was

utilized to test the robustness. They discovered that while productivity is negatively impacted by exchange rate volatility, these effects are not lessened in Turkey by having access to the domestic or foreign equity or debt markets. Additionally, publicly traded or foreign owned businesses don't seem to fare any better than private, regional businesses. Additional data showed that access to external loans is favorably correlated with the productivity of businesses. According to this finding, export-oriented businesses are more susceptible to exchange rate volatility even though they are less impacted by exchange rate appreciation.

Wang (2016) studied that currency rate fluctuations' effects on stock returns and unforeseen gains at multinational corporations (MNCs). The Autoregressive Integrated Moving Average Model (ARIMA) was used to specify the exchange rate variable, and the resultant residual was estimated for ARCH. The findings showed that all businesses in the industries are unaffected by exchange rate movements save for unanticipated operating profits. This implies that all sectors of the economy could make use of related or derivate financial instruments to avoid exchange rate risk, which affects MNCs' sales revenues and purchasing costs. It was found that changes in exchange rates are inversely connected to enterprises' unanticipated operating earnings. The Texile and Glass sectors, which rely on imported petrochemical raw materials from America, are more affected to a greater extent.

In 2016, Mustafa and Firat investigated how exchange rate uncertainty affected the growth outcomes of Turkish enterprises that were domestic versus overseas and publicly traded versus unlisted. The study used the GMM method according to Bundell and Bond (1998), specifically the dynamic panel estimation technique. It has been proposed that the system GMM technique is effective at reducing simultaneity bias, state dependence, and endogeneity. The empirical results showed that currency crises and exchange rate turbulence significantly slow down job growth. However, it was discovered that the domestic equities market significantly reduced these adverse consequences. After accounting for company heterogeneity caused by variations in size, export orientation, external indebtedness, industrial features, profitability, and productivity rates, these conclusions remain valid.

Using a modified version of the technique used by Mustafa and Firat (2016), Kandilov and Leblebicioglu (2016) examined the effect of exchange rate volatility on firms' investment

decisions in Colombian manufacturing firms. The system GMM technique was used to estimate a dynamic investment equation in the study, which included plant-level data from manufacturing companies. The GARCH method and a straightforward exchange rate standard deviation were used to estimate volatility and compare the results. The study discovered a large and detrimental impact of currency rate volatility on businesses' investment in Colombia, as determined by the GARCH model or standard deviation. The results demonstrate that the adverse effect is accentuated for factories that import a greater amount of intermediates and is mitigated for businesses who mark up their exports more highly.

Sangosanya (2016) used financial data from 45 manufacturing firms listed on the NSE to analyze the dynamics of firm growth in Nigeria's manufacturing sector. The model used was based on theories of management effectiveness, optimum business size, and neoclassical economics. The panel regression model was estimated using a fixed effect method. The study used information on sales, profit after tax, net profit after tax, total asset, book value of debt, gross fixed asset, retained profit, and depreciation for each manufacturing company between 1994 and 2013.The findings showed that operating effectiveness, capital reserve, and governmental policies are important factors of the growth dynamics of manufacturing enterprises in Nigeria. According to further data from the study, the growth rate of the manufacturing sector in Nigeria can be adjusted because the prior growth rate had a big impact on the current growth rate. The exchange rate was not thought to have any impact on how well businesses operated.

By taking into account the import demand of nations outside of the Asian continent, Sato et al. (2018) used bilateral real exchange rates that were industry-specific and completed products exports of Asian trade partners. There were created two metrics of exchange rate volatility. The first is the standard deviation of the log difference of the bilateral real exchange rate that is industry-specific, and the second is the conditional volatility of that rate that is estimated by the GARCH (1,1) model. The study considers time-varying nation and time-fixed effects from the years 2008 to 2015 using a pooled OLS estimator. It was discovered that the effects of exchange rates on regional trade vary by industry. Only the general machinery business and a portion of the electric machinery industry with more distinctive goods are negatively and significantly impacted by exchange rate volatility. When the demand for the final processed exports is taken into consideration, the outcome remains unchanged. These results imply that the features of

traded commodities in the various industries are what account for the varying effects of exchange rate volatilities.

In 2013, Atella et al. looked into the connection between the uncertainty of currency rates and business investment in Italy. The annual average standard deviation of the quarterly real exchange rate was used to calculate exchange rate variability. The impacts of real exchange rate volatility on output and return on investment were examined using a dynamic error correction model. According to the study, corporations' investment spending decreases when exchange rate volatility rises. The sector a firm operates in and the market power both affect how the exchange rate affects that firm. High market power companies can mitigate the impact of high exchange rate volatility by engaging in forward exchange rate transactions and hedging against exchange rate risk.

In their 2015 study, Tarek et al. looked at the relationship between investment and exchange rates in Canadian manufacturing industries between 1995 and 2007. For comparison, the standard deviation of the monthly growth rate of the exchange rate as well as the coefficients of variation in monthly exchange rate level were calculated. A GARCH model was used to quantify exchange rate volatility. Two stage least squares and GMM estimation were used to obtain a thorough estimate. The empirical results show that there is no statistically significant overall impact of exchange rate on investment in Canadian manufacturing industries. The analysis offers many proofs regarding investing in various sectors. There is a tendency for industries to cut investment when exchange rate volatility is high. Manufacturing investments rise in a low volatility environment. In large samples, the GMM estimation techniques of Arellano and Bond (1991) are more effective than 2SLS estimation.

From 1985 to 2014, Tang (2016) looked studied the effects of intra-Asian exchange rate volatility on trade in primary, intermediate, equipment, and consumer commodities within Asia. On all the relevant variables, the study ran panel unit root and panel cointegration tests. Regression analysis with random and fixed effects was used to examine the models. Despite the fact that the Hausman test provides the foundation for adopting either a fixed or random effect, this was not mentioned in the study. The long-term link between the variables under consideration can be ascertained through estimation of panel unit root and cointegration tests.

The study made the observation that for Asia, intra-regional exports of these products decrease when intra-regional exchange rate volatility rises. The Association of Southeast Asian Nations (ASEAN) subregion, which includes ASEAN members as well as the People's Republic of China, Hong Kong, Japan, the Republic of Korea, and Taipei, is more adversely affected. These findings highlight the enormous influence that exchange rate fluctuation has on the industrial networks in the region. Exchange rate volatility in South Asia has a favorable effect on exports.

The impact of fluctuating currency rates on the investment of Japanese enterprises was studied by Hotei (2017). The variables used in the study were analyzed using a two-step GMM approach. Investment, sales, import, export, and actual exchange rates are among the variables used. It was discovered that enterprises with larger export ratios invest less when the exchange rate appreciates. However, it has a favorable impact on businesses that import more. The findings imply that the export/import ratio of the exchange rate and its fluctuation are likely to have an impact on Japanese enterprises' investments. It was also demonstrated that enterprises with less market power and firms that are dealing with financial restrictions are more affected by an exchange rate appreciation's effects on investment.

Both firm-level data and cross-country data were used by Geng and N'Daiye (2017) to describe the dynamics of investment in China. Corporate capital expenditure (in relation to sales) is the dependent variable. Past capital expenditures, the square of the capital output ratio, stock market capitalization in relation to GDP, real interest rates, changes in real effective exchange rates, real GDP growth, current account balance in relation to GDP, the ratio of foreign debt to GDP, the relative cost of capital to output, and output volatility are among the explanatory variables. Dynamic panel data estimator was used to estimate the model from 1995 to 2014 with an unbalanced panel of 1908 enterprises in China and an unbalanced panel of 27,997 firms from 53 different economies. Correlation was used together with the explanatory factors as instruments to address simultaneity lagged values of the contemporaneous. Financial factors like interest rates, currency rates, and the size of the local capital market were found to be significant predictors of corporate investment. More proof is needed to support the claim that financial sector reform, particularly measures to increase real interest rates and strengthen the real effective exchange rate, would reduce investment and assist in shifting the growth away from exports and investment toward domestic consumption.

Anubha (2018) investigated the effects of changes in real exchange rates on the productivity of Indian manufacturing enterprises from 2005 to 2017. The random effect estimator was used to specify and estimate a panel regression model. A new equation was estimated by swapping out output growth for income and sales growth in order to test for robustness. The findings unequivocally show that changes in the actual exchange rate significantly affect the performance of Indian enterprises both in terms of costs and revenues. The effect is determined by the proportion of imports and exports as well as the level of market power. More data demonstrates that the presence of overvaluation counteracts the advantageous impacts of the operation of the exchange rate appreciation through the lower input cost channel.

2.4 Hypotheses

According to Clark (1973), changes in exchange rates cause uncertainty in the prices that businesses will have to pay or get in the future. Hooper and Kohlhagen (1978) also suggested that substantial exchange rate fluctuation could have a negative impact on a firm's operations. Investors may adjust their investment decision to account for the danger of excessive volatility if they associate volatility with risk. Businesses may be reluctant to engage in international trade if the currency rate of a country's trading partner becomes more variable. Exchange rate fluctuations, in particular, cause uncertainty in the prices of inputs and cause a drop in a firm's profit (Hodrick & Flood, 1984; Fung, 2008; Ezenwa, Ogbebor & Alalade, 2021; Osho & Efuntade, 2019; Mahat, et.al, 2017). Hence, it is hypothesized as;

H1: Foreign exchange volatility has negative and significant effect on performance of a firm.

H1a: Foreign exchange volatility has negative and significant effect on profitability of a firm.

H1b: Foreign exchange volatility has negative and significant effect on sales of firms.

Numerous studies have shown that operating costs for small businesses are greater than operating costs for large businesses, which is the primary support for the importance of company size arguments (Agiomirgianakis et al., 2013). The main reason why large businesses are more profitable than small ones is because of economies of scale. However, because they are frequently fresh entrants to the market, small businesses are able to capture the market and the revenues of big businesses (Papadogonas, 2007). According to RBV theory, a larger company's

ability to access capital and its aptitude for utilizing the principles of the economies of scale, which eventually result in better profitability, are the causes of the positive connection between size and profitability. Other research, such as those by Gschwandtner (2005), Nunes et al. (2009), Fukao (2006), Asimakopoulos et al. (2009), and Stierwald (2010), support the idea of a positive association. The total assets, total revenue, total profit, total expense, and market value each serve as indicators of the company's size and success. According to several research, a company's size might affect its profitability (Alarussi et al. 2018; Khan et al. 2018; Isik et al. 2017; Ghasemi and Razak, 2017; Azdanfar, 2013).

H3: Size of a firm has positive and significant effect on its performance

H2a: Size of a firm has positive and significant effect on its profitability

H2b: Size of a firm has positive and significant effect on its sales performance

According to Pecking-order theory, debt finance and profitability have a markedly unfavorable relationship (Hamid, Abdullah, & Kamaruzzaman, 2015). Any profitable business that choose to use debt as part of its capital structure must abide by the terms and conditions of the lenders. This raises the possibility of an antagonistic interaction between profitability and leverage (Nadaraja et al., 2011). Pecking order proposes an inverse relationship between profitability and leverage, but trade-off hypothesis posits a direct correlation asserting that improved profit enhance debt utilisation with tax shield on interest payment. Toy, Stonehill, Remmers, Wright, and Beekhuisen (1974); Rajan and Zingales (1995); Silva Serrasqueiro and Rêgo Rogão (2009) equally supported this negative association empirically. The likelihood of a company failing increases with increasing operating leverage, and the risk of bankruptcy weighs more heavily on financing decisions. The capital structure is also impacted by fixed production expenses, which over time can exacerbate the volatility of future earnings. Operating leverage and debt level are said to be negatively correlated, according to agency and bankruptcy theories. Therefore, once the operating leverage rises, the bankruptcy costs theory predicts a drop in the quantity of debt in the capital structure (Baral, 2004). Hence, it is hypothesized as follows;

H3: Leverage has negative and significant effect on performance of a firm.

H3a: Leverage has negative and significant effect on profitability of a firm.

H3b: Leverage has negative and significant effect on sales performance of a firm.

A company's current ratio is a gauge of its liquidity and effective use of its assets. Deloof (2003) found that by lowering accounts receivable and inventory, a business can achieve higher levels of profitability. As a result, a company becomes more liquid and profitable by turning over its goods more quickly and getting paid more quickly. Gill, Biger, and Mathur (2010) investigated the relationship between current ratio and profitability and discovered a favorable relationship. Companies can more specifically affect their profit rate by managing cash conversion and account receivables effectively. An analogous investigation on working capital management and its effects on profitability was conducted by Nazir & Afza in 2009. The findings revealed that by using prudent and effective working capital management techniques, business managers can add more value or stimulate a better degree of profitability. Because of the following factors, a company will generate higher amounts of profit if it has a more efficient current ratio: Less risk associated with excess and perishable inventory, greater liquidity in the event of an economic downturn, and faster cash conversion cycles all lower the risk of nonpayment or bad debt by customers. Therefore, effect of liquidity on performance of a firm is hypothesized as;

H4: Liquidity positively and significantly affect performance of a firm;

H4a: Liquidity positively and significantly affect profitability of a firm.

H4b: Liquidity positively and significantly affect revenue of a firm.

The efficiency of the company is what propels the process of acquiring a significant market share, and consequently increasing concentration. In the same way, the most effective businesses will increase their market share and generate financial gains. Shepherd (1982), however, discovered that not every market participant in a concentrated market may profit and make more money. He argued that only businesses with significant market shares and distinctive products may use market power and generate profits that are above average. Market power, which allows companies to make monopolistic or abnormal profits, results from lower competition caused by a higher level of market concentration. Alternatively, it is argued that the significant impact of competition (concentration) on firm profitability does not arise from market power but from higher efficiency of firms with larger market share. This Efficient Structure Hypothesis (ESH), as indicated by Demsetz (1973), suggests that the firms with higher efficiency have higher ability to increase their market shares and firms' sizes, while this higher efficiency allowed the firms to concentrate and the resulting lower competition leads to higher profit(Lloyd-Williams et al.,

1994).The SCP theory is supported by a variety of studies, including those conducted by Rose and Fraser (1976), Heggestad and Mingo (1977), Berger and Hannan (1989), Lloyd-Williams et al. (1994), and Samad (2008). Hence, it is hypothesized as;

H5: Market Power has positive and significant effect on financial performance of a firm.

H5a: Market Power has positive and significant effect on profitability of a firms.

H5b: Market Power has positive and significant effect on revenue of a firms.

An improvement in economic conditions is more likely to have an impact on the firm's profitability by affecting aggregate demand and supply (Lee, 2009; Pattitoni et al., 2014; Voulgaris & Lemonakis, 2014). The profitability is positively and statistically influenced by economic growth when firms consider the impact of GDP, indicating that an improvement in the state of the economy increases firm profits. Hence, it is hypothesized as follows;

H6: Economic growth has positive and significant effect on performance of firms.

H6a: Economic growth has positive and significant effect on profitability of a firm.

H6b: Economic growth has positive and significant effect on salesof a firm.

2.5 Research Gap and Justification for the Study

As presented in previous sections, this study has reviewed different theoretical and empirical literatures. It was reviewed that the studies were mainly conducted at country level and there is low consideration at the firm level. In addition, it was identified that the focuses of previous studies were about export performance of firms and a country. Further, the studies were conducted in developed countries that there is low volatility of exchange rate and the sensitivity is low when compared to situation in developing countries. Furthermore, there is no generalizable theoretical framework while identifying the effect of exchange rate volatility on performance of firms. Moreover, majority of the studies fail to include mediating factors to effect of the exchange rate volatility on performance of forms. Finally, the findings of the studies were contradicting that it was reviewed that foreign exchange rate volatility has positive, negative and no effect on performance of the firms. Therefore, this study was conducted based on these limitations and it tries to minimize limitations in the area. Accordingly, this study was conducted at firm level and it includes the mediators of effect of foreign exchange on performance of

automotive importers in Ethiopia that almost entirely depend on foreign exchange. Hence, this study includes firm related factors such as size, age, leverage, and market power; and macroeconomic factors such as real interest rate and economic growth.

2.6 Conceptual Framework

Based on its objectives and research gaps, this study is conceptualized as follows and presented in Figure 2.1.

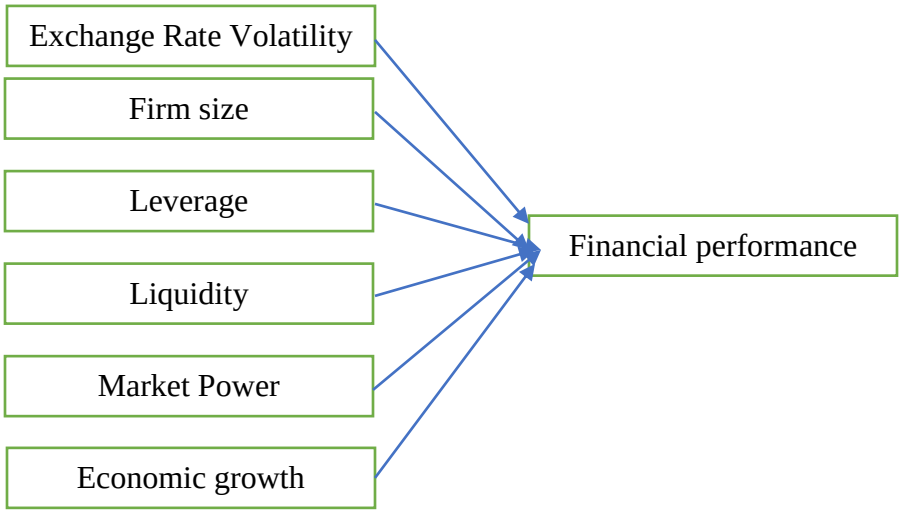

Figure 2.1: Conceptual Framework

CHAPTER THREE

3. RESEARCH METHODOLOGY AND DESIGN

3.1 Introduction

This chapter presents research methodology and design that discusses about methodology of the study. It includes research design, population and sampling, data type and method of collection, methods of data analysis.

3.2 Research Design

The conceptual framework through which a study is carried out is established by the research design. It serves as the guide for gathering, measuring, presenting, and analyzing obtained data. According to Solomon (2011), research design aids in the organization of ideas so that gaps and weaknesses can be identified. According to Burns & Grove (2001), research designing is the process of organizing and carrying out a study in order to achieve the desired findings, improving the likelihood of receiving data that could be related to the real world.

As a method of analysis, this study has followed descriptive and explanatory research designs. Before running the explanatory analysis, the descriptive design was implemented intended to describe about foreign exchange and its volatility, firm-specific factors that mediate the effect of exchange rate volatility on financial performance of the firms. Moreover, the explanatory design was applied to examine the effect of exchange rate volatility on performance of the firms. Furthermore, the explanatory analysis was conducted based on panel data analysis strategy that the dataset contains cross-section of firm in Ethiopia and yearly data about the firms in the dataset. Panel data has the advantage of giving more informative data as it consists of both the cross-sectional information, which captures individual variability, and the time series information, that captures dynamic adjustment. The study has used yearly reports of firms for 10 years from 2013 to 2022.

3.3 Research Approach

There are three typical ways for doing business and social research in investigative studies: mixed methodologies, qualitative research, and quantitative research (Creswell, 2003). By analyzing the relationship between variables, quantitative research is a method for testing objective theories. It entails measuring and counting events and statistically analyzing a set of numerical data. A qualitative research approach, on the other hand, is a way to investigate and comprehend the meaning that individuals or groups attribute to a social or human situation with the goal of building a theory or pattern inductively (Creswell 2009). Finally, a mixed methods strategy is one in which the research challenge is highlighted and all methodologies are used to comprehend the problem (Creswell, 2003).

According to Zikmund et al. (2011), quantitative research requires a lot of work measuring concepts using scales that either directly or indirectly offer numerical values that can subsequently be employed in statistical calculations and hypothesis testing. The concepts examined in this study are quantified using numbers. As a result, this study used a quantitative research approach, which uses a systematic, scientific approach to analyze quantitative features, phenomena, and correlations between study variables.

3.4 Data Type and Sources

This study has used secondary data for the objective of the study. All data used in study was quantitative data. The data was about firm specific and macroeconomic factors. The secondary data was about exchange rate, financial performance of the firms, firm-specific and macroeconomic factors that mediate the effect of exchange rate volatility on performance of the firms. As the financial performance indicators, ROA and sales growth of the firms were used. The control variables are selected based on previous theoretical and empirical studies. The firm-specific factors include size of the firm, leverage of the firm, liquidity of a firm and market power; and the macroeconomic factor include economic growth.

Data about firm-specific variables was collected from secondary source such as financial statements and balance sheets of the firms. Data of macroeconomic factors was collected central statistical authority (CSA) and NBE.

3.5 Target population and Sampling Methods

Hair et al., (2010) states target population as a specified group of people or object for which questions can be asked or observed to collect required data structures and information. The target population of this study is licensed automotive importers in Ethiopia that operate in Addis Ababa. According to Ministry of Trade (2022) there are 75 licensed importers and sellers of vehicles in Addis Ababa. Hence, target population of this study is 75 firms and respective managers.

Alreck & Settle (2005) noted that the choice of sample size is made after considering statistical precision, practical issues and availability of resources. There is no a single and precise way to determine size of sample; hence there are a number of inadequacies for deciding on sample size. As the size of the target population is small, sample size determination strategy is not implemented and all 75 firms were included in the study. Moreover, the study has not implemented sampling technique; instead, the study follows the census method.

3.6 Data Analysis

This study has used data about 20 firms during period from 2013 to 2022. Hence, the study dataset contains cross-sections and time variables and the study was analyzed by using panel data analysis strategy. The panel data has advantage over cross sectional and time series data by combining time series of cross section observations give more informative data, more variability, less co-linearity among variables, more degrees of freedom and more efficiency (Gujarati, 2004).

The collected panel data was analyzed by using the descriptive statistics and multiple regressions based on Generalized Method of Moments (GMM). For the descriptive analysis, the study has used descriptive statistics such as the mean, standard deviation, maximum and minimum.

The study has used Stata 16 computer software to conduct the data analysis.

3.7 Model Specification

The empirical estimation model of this study is specified as follows;

$$ROA_{it} = \beta_0 + \beta_1 EXR_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 LQD_{it} + \beta_5 MP_{it} + \beta_6 EG_t + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 ERV_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 LQD_{it} + \beta_5 MP_{it} + \beta_6 EG_t + \varepsilon_{it}$$

$$SG_{it} = \beta_0 + \beta_1 EXR_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 LQD_{it} + \beta_5 MP_{it} + \beta_6 EG_t + \varepsilon_{it}$$

$$SG_{it} = \beta_0 + \beta_1 ERV_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 LQD_{it} + \beta_5 MP_{it} + \beta_6 EG_t + \varepsilon_{it}$$

ROA is Return on asset and it is measured as ratio of Profit after tax to the total asset of the firms; SG is annual sales growth of a firm. EXR is annua exchange rate of the country, ERV is estimated exchange rate volatility; FS is Firm Size proxied by natural log of total asset of a firm. LEV is an average leverage of a firms and it measured as the ratio of debt to a total asset of the Firms. LQD is liquidity of a firm and measured as liquidity ratio. MP is market power and measured as market share of a firm in a pool of firms in this study. EG is economic growth measured by real GDP growth of a country in period time t.

3.8 Ethical Consideration

Every person involved in the study was entitled to the right of privacy and dignity of treatment, and no personal harm were caused to subjects in the research. Information obtained is held in strict confidentiality by the researcher. All assistance, collaboration of others and sources from which information was drawn were acknowledged.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This study was mainly conducted to examine Determinates of financial performance of automotive importing firms in Ethiopia. For this purpose, the study has used automotive importing companies in Addis Ababa and that were in automotive sales business for at least for 10 years. Hence, the study has used 10 years data about the firms and foreign exchange rate. The exchange rate is exchange rate of USD at end of month during period from July 2012 to June 2022. First, the study has estimated exchange rate volatility based on the monthly data and computed annual average exchange rate volatility. Then, the study has examined effect of the volatility on sales performance and profitability. This chapter presents result of the data analysis and discussion on the results. First section presents the result of estimation of exchange rate volatility and second section presents the result of econometric estimation conducted to examine effect of the volatility on performance of the firms.

4.2 Exchange Rate Volatility

Exchange rate and its volatility was analyzed by using descriptive statistics and econometric procedures. This study assessed monthly exchange rate for 10 business years of the firms from 2013 to 2022. Hence, the exchange rate data included 120 months; months from July 2012 to June 2022. From the exchange rate data, this study computed exchange rate growth and volatility. Finally, average annual exchange rate and its volatility were computed based on the monthly exchange rate. Hence, this study analyzed the monthly exchange rate trend, computed monthly average growth of exchange rate and estimated monthly exchange rate volatility.

Summary of exchange rate, growth rate and percentage growth are presented in Table 4.1 below by using descriptive statistics; such as mean, standard deviation, minimum and maximum. Further, summary is presented by splitting the study period into two; 2013-2017 (63 months) and 2018-2022 (57 months) based on sudden shift of exchange rate in October 2017.Furthermore, the exchange rate and its growth trend are presented in Figure 4.1 below by using time series graph.

Table 4.1: Summary Statistics - Exchange Rate

	Obs	Mean	Std.Dev.	Min	Max
Exchange Rate	120	27.52	9.58	17.84	51.99
2013 - 2017	63	20.367	1.638	17.841	23.391
2018 - 2022	57	35.425	8.426	27.023	51.994
Growth Rate	119	0.29	0.46	0.01	3.63
2013 - 2017	62	0.09	0.03	0.05	0.21
2018 - 2022	57	0.50	0.60	0.01	3.63
Growth (%)	119	.009	.015	.0002	.144
2013 - 2017	62	.004	.001	.003	.010
2018 - 2022	57	.014	.021	.0002	.144
Annual EXR	**10**	**27.519**	**9.943**	**18.231**	**48.851**

Source: Author's computations, 2023

As shown in Table 4.1, it is computed that an average exchange rate during the study period was 27.52 Birr and this ranges from 17.84 Birr to 51.99 Birr at beginning and end of the study period, respectively. Further, it was shown that, as depicted in Figure 4.1, exchange rate was steadily growing from month to month. The average monthly growth rate was 0.29 Birr with lowest and highest growth of 0.01 Birr and 3.63 Birr, respectively. It was further indicated that, during the study period, on average, the exchange rate was increasing by 0.9% from month to month with lowest growth rate of 0.02% and largest growth rate of 14.4% monthly. Based on the monthly exchange rate, it is computed that an average annual exchange rate during the study period was 27.52 Birr. In addition, it was computed that the minimum and maximum exchange rate was 18.23 Birr and 48.85 Birr, respectively.

During months of 2012 to 2017, the exchange rate was growing with constant growth rate with an average of about 0.04 Birr increase per month. For the first five years (for 63 months), an average exchange rate was 20.37 Birr; with minimum of 17.84 Birr and maximum of 23.39Birr. Moreover, the standard deviation of 1.63 was computed and it is indicated that the there was small variation from the average exchange rate; hence, risk of exchange rate increase was low for

the firms. On overall, during this period, the exchange rate rises by 0.4% from month to month; ranging from 0.26% to 0.96% monthly increase.

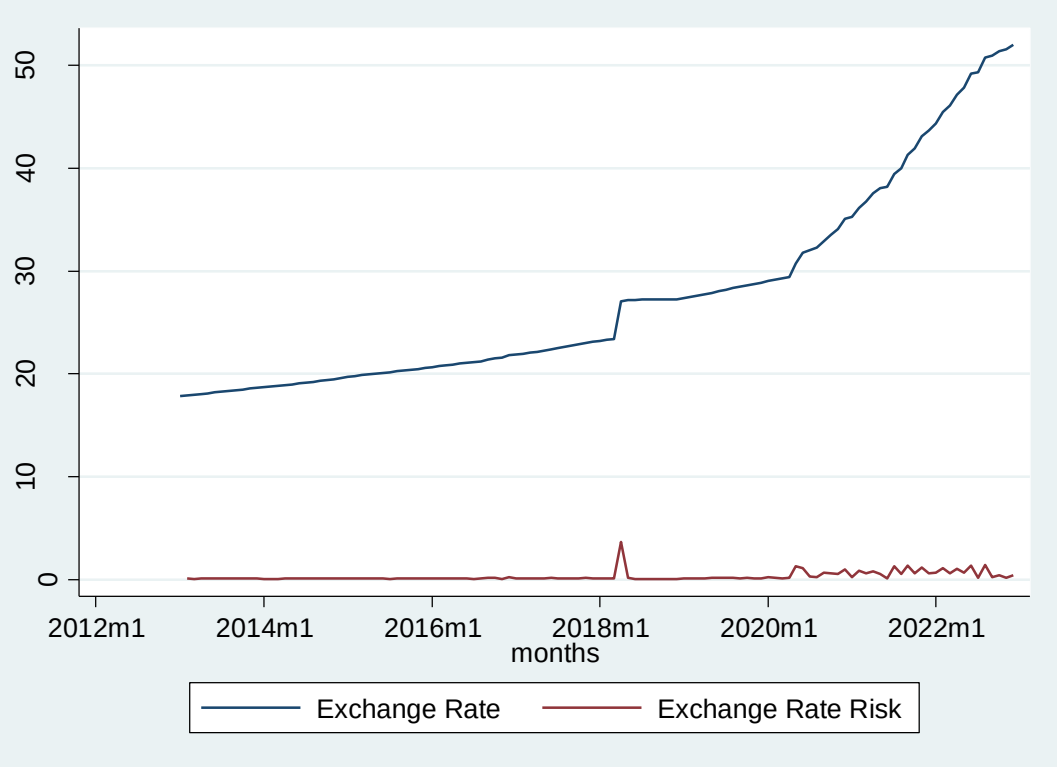

Figure 4.1: Trend of Monthly exchange Rate in Ethiopia (2013-2022)

However, in the second five years, 2018 to 2022, the exchange rate growth has changed. It suddenly increased by 3.63 Birr. During this period, the monthly exchange rate became 35.43 Birr and it ranges from minimum of 27.0234 Birr during biggening of the period to maximum of 51.99 at end of the period. In addition, it is indicated that the slope of the graph has changed and it became steep that indicates there is high increase of exchange rate from month to month. Further, the graph of growth presented frequent ups and downs that shows there, in addition to highly growing exchange rate, the rate of growth is unpredictable and it signals risk of exchange rate in recent periods.

Hence, this study has identified that the exchange rate has not shown any decrease in last 10 years and in recent 2 years, the exchange rate has shown high rate and changing growth rate. This indicates that, in Ethiopia, exchange rate is increasing from time to time with differing rate. Comparatively, at beginning of last 10 years, the growth rate constant and it was predictable;

however, recently, the exchange rate has fast growth and it became unpredictable. This might be risk for business that related to foreign exchange, in general, and automotive importing firms in particular.

For the objective of the study, it is important to find out exchange rate volatility during the study period. Based on the monthly data, the result of descriptive analysis shows presence of exchange rate volatility in Ethiopia during 2013 – 2022. However, this result fails to estimate trend and level of the volatility. Hence, it is important to follow econometric approach to predict the exchange rate volatility.

Gujarati (2004) suggested standard classical methods of estimation to be conducted on stationary variables that results of non-stationary time series may be spurious. It may imply as if a relationship is existed among variables, when no relationship is actually existed. However, most economic variables do not qualify this condition; instead, they have unit roots. Therefore, it is important to identify stationarity of variables and their level of integration. There are different methods that helps to check stationarity of time series data. different studies suggested that Augmented Dickey-Fuller model (ADF)is the best method to conduct stationarity test and it shows existence of unit root and the level of integration.

Based on the theoretical suggestions, this study has conducted stationarity test for exchange rate. The exchange rate data includes monthly exchange rate of 120 months from July 2012 to June 2022. This time is about business calendar of automotive importing firms in Addis Ababa. As suggested by theoretical studies and applied by different empirical studies, this study has used ADF method to check stationarity of exchange rate. The result of unit root test is presented in Table 4.2 below.

Table 4.2: Unit Root Test

Order of Integration	Test Statistics	Interpolated Dickey-Fuller		
		1% Critical values	5%Critical values	10%Critical values
Level	5.850	-3.504	-2.889	-2.579
First Difference	-8.433***			

****, **, * significant at 1%, 5%, and 10% critical values respectively*

Source: Own Computation, 2023

As shown in Table 4.2 above, the absolute value of ADF statistics is positive at level. This indicates monthly exchange rate is not stationary at level; instead, it has unit root. Hence, stationarity test is conducted at first difference by using difference of exchange period from month to month. Accordingly, it computed that absolute value of the ADF statistics (-8.433) is higher than 5% critical values (-2.889) at first difference. This indicated that exchange rate is not stationary at level instead it is integrated at I(1). Hence, this result suggests existence exchange rate risk in Ethiopia during months from July 2012 to June 2022.

Therefore, the exchange rate volatility is predicted by using differenced values of exchange rate (DEXR). Empirically, volatility is estimated by using following equation (4.1).

$$DEXR_t = \beta_0 + \mu_t \tag{4.1}$$

Based on this estimation (see Appendix A), exchange rate volatility was predicted by using variance of estimation error (μ_t). The trend of exchange rate volatility is presented in Figure 4.2 below.

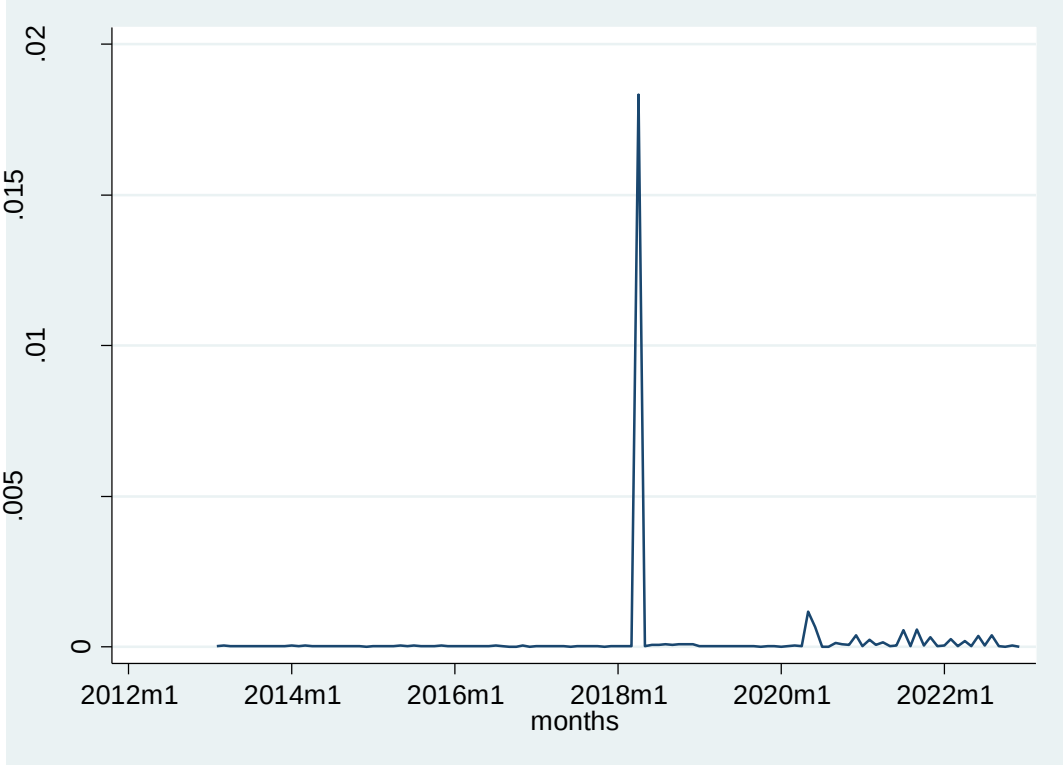

Figure 4.2: Exchange Rate Volatility

As shown in Figure 4.2 above, exchange rate growth was constant before first few months of 2018 business calendar of the firms. However, later the exchange rate suddenly raised and started constantly growing for few years based on newly set rate. This implied exchange rate risk for the firms. Nevertheless, this constant growth was not sustained after two years and the exchange rate growth became varying from month to month. Again, this resulted exchange rate risk and the exchange rate become unpredictable.

In addition to predicting the exchange rate volatility, this study has examined existence of ARCH effect. For this purpose, this study has used ARCH LM test based on the result of equation (4.1) above. The result of LM test for ARCH is presented in Table 4.3 below.

Table 4.3: LM Test for ARCH

lags(p)	chi2	df	Prob > chi2
1	0.053	1	0.8171

H0: no ARCH effects *vs.* H1: ARCH(p) disturbance

Source: Author's Computations, 2023

The result of ARCH LM test has shown that the exchange rate volatility has no ARCH effect that implies current volatility is not function of previous period volatility. In addition, trend of predicted volatility has shown that exchange rate volatility fails to meet ARCH effects that higher volatility is not followed by higher volatility and lower volatility is not followed by lower volatility. As a result, this study has not applied ARCH models to predict exchange rate volatility.

The results of ARCH LM test and trend of the volatility has shown that that exchange rate volatility has no conditional variance and exchange rate risk in Ethiopia is not predictable based on variation of exchange rate in previous periods (months). Therefore, this study revealed that NBE is not considering previous period variation of exchange rate to set the current exchange rate. Instead, it is considering other factors not included in this study.

4.3 Characteristics of Automotive Importing Firms

Based on the previous studies, this study has used profitability and sales to measure performance of the firms. The study has used ROA and sales growth proxy to profitability and sales, respectively. As stated in the table 4.4above, mean of ROA for the firms is 2.9%. This is to mean that an average annual net income of the firms obtained from 100 Birr investment is 2.9 Birr. Minimum value of ROA of the firms during the study period was -3.95%. This indicates least profitable automotive importer faced loss of 3.95 Birr from 100 Birr investment. In contrast, firm that was best performing during 2013 to 2022 earned net income of 6.72 Birr from 100 Birr investment.

Table 4.4: Descriptive Analysis

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA	200	2.91	1.309	-3.953	6.717
SG	180	23.33	7.234	2.658	42.43
Asset (in millions)	200	123.759	102.956	32.101	552.712
Market Share	200	10	3.544	2.602	19.776
Leverage	200	39.452	12.469	22.964	88.538
Liquidity	200	59.585	7.85	40.491	89.117
GDP	200	9.872	1.414	7.562	12.551

Source: Author's computation, 2023

Another indicator of financial performance of automotive importers is sales performance. This study has identified that an average annual sale over 10 years from 2013 to 2022 was 23.33%. This suggests that investment in automotive importing is business with high turnover for the investors. The best performing earned growth of sales by 42.43% and least performing firm earns sales growth by 2.69 percent.

Size of a firm is considered as an important factor of its financial performance. In different studies, size of a firm is measured by its total asset. As depicted in the Table 4.4 above, an average asset held by the firms from 2013 to 2022 was 123.8 million Birr. The smallest firm size was 32.1 million birr and the largest size was 552.7 million Birr.

The market share of firms ranges from 2.6% to 19.78% that shows most powerful firm has market share of 19.78% and market share of the least competitive firm is only 2.6%. On overall, market share of the firms is 10%. This indicates there is no monopoly of single firm in the market; instead, the market is competitive.

Capital structure is important factor in determining performance of a firm, especially, when there is uncertainty in a market. Automotive importers in the study have leverage ratio of 39.45% that indicates 39.45% of source of finance for the firms is liability. This ratio ranges from 22.96 to 88.54.

Liquidity varies from firm to firm and an average liquidity ratio during the study period was 59.58 that shows the firms have liquid asset for 59.58% of current liability. However, least liquid firm has liquidity ratio of 40.49 and most liquid firm has 89.12 liquidity ratio. This indicates that the firms have favorable liquidity to absorb shocks from exchange rate volatility.

This study has used both firm specific and macroeconomic variables that affect the financial performance of the firms. Among the macroeconomic factors, this study has used GDP proxy to economic growth to control effect of exchange rate volatility on performance of the firms. During the study period, an average annual economic growth of the country was 9.87 percent. It was observed that the minimum and maximum growth rate of the country was 7.56 and 12.55 respectively.

4.4 Regression Analysis

In addition to examining exchange rate volatility, this study was conducted to examine effect of the exchange rate volatility on performance of automotive importers in Addis Ababa. The exchange rate volatility was indicated by annual exchange rate and an average annual exchange rate volatility computed based on the monthly exchange rate volatility. Further, the effect of exchange rate volatility was identified on profitability and sales performance of the firms. In addition to effect of exchange rate volatility, this study has examined effect of firm's financial factors and economic condition on performance of the firms. The firm-specific factors include size, leverage, liquidity and market power of a firm. Moreover, the macroeconomic factor include economic growth and it is intended to measure demand for products. For these purposes,

this study has applied regression models. This section of the study presents results of regression analysis.

The regression analysis was conducted by using two dependent variables; ROA and Sales growth and 6 independent variables; exchange rate volatility, size of a firm, leverage of firm, liquidity of a firm, market power of a firm and economic growth. Exchange rate volatility is represented by annual exchange rate itself and estimated exchange rate volatility. However, these variables were not included in the same model; instead, they were used in separate models. As a result, the regression analysis included four estimation models; two models for both profitability and sales growth.

Before conducting the regression analysis, this study has checked existence of multicollinearity problem in the estimation models. Multicollinearity describes the relationship among explanatory variables. Cooper and Schindler (2009) and Hailer et al. (2006) suggested that multicollinearity problem should be corrected when the correlation extent to be above 0.8 and 0.9 respectively. This study has conducted correlation analysis to identify relationship among the independent variables and to detect the multicollinearity. The result correlation analysis is presented in 4.5 below.

Table 4.5: Multicollinearity Test

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
(1) EXR	1.000						
(2) EXV	0.056	1.000					
(3) FS	0.670	0.107	1.000				
(4) mp	0.000	-0.000	-0.221	1.000			
(5) LV	0.177	-0.076	-0.277	-0.051	1.000		
(6) LQD	0.334	-0.055	0.295	-0.239	0.336	1.000	
(7) EG	-0.396	0.014	-0.259	-0.000	-0.232	-0.291	1.000

Source: Own Computation, 2020

As indicated in table 4.5 above, the correlation matrix shows that all correlations that have occurred among explanatory variables are weak and well below from the standards of correlation coefficients, 0.8 and 0.9, for existence of multicollinearity. This indicates independent variables

in the models have no functional relationship; hence, the regression models are free from multicollinearity problem.

Since this study has used panel data, random effects and fixed effects model applied for empirical estimations. Hausman Test was applied to identify appropriate model for empirical estimation. This test is conducted to select appropriate model from random effects and fixed effects model. According to Hausman and Taylor (1981), the null hypothesis for the Hausman test is that the random effect model is appropriate. Since the fixed effect model allows for the correlation of unobserved individual specific heterogeneity with other explanatory variables in the model, it has an advantage over the random effect model. Random effect models, on the other hand, have two key advantages over fixed effect models: they yield effective estimators under serial correlation and they enable estimation of the effect of explanatory variables that remain constant over time.

This study has estimated four models by using 8 regression (four random effect and four fixed effect models) and the Hausman Test was conducted for each model select appropriate model between random effect model and fixed effect model. The result of Hausman Test for ROA and SG model is summarized in Table 4.6 below (see appendix B for estimation result of each model and details of Hausman Test).

Table 4.6: Hausman Test for ROA Model

Model	Chi-square	P-value	Decision
ROA_ER	8.671	.797	Random Effect
ROA_EV	8.671	.797	Random Effect
SG_ER	39.355	.000	Fixed Effect
SG_EV	39.355	.000	Fixed Effect

Source: Author's Computation, 2023

As depicted in Table 4.6 above, similar results were computed for ROA models. The chi-value (8.67) is not significant (p = 0.797). Therefore, the null hypothesis is not rejected and it is indicated that random effect model is appropriate for this model. On the other hand, for sales models, it is computed that chi-square value is 39.35 and it is significant (p = .000) at 1%

significance level. This indicates fixed effect model is appropriate for sales growth estimations. Based on these results, this study has estimated effect of exchange rate and its volatility on ROA and Sales growth by using random effect model and fixed effect model, respectively. The results of these models are summarized in Table 4.7; where column (1) and column (2) present results of random effect models conducted to examine effects of exchange rate and exchange rate volatility on ROA, respectively; and column (3) and column (4) presents estimation results of Fixed effect models conducted to examine effect of exchange rate and exchange rate volatility on sales growth, respectively.

Table 4.7: Effect of Exchange Rate on ROA

	(1)	(2)	(3)	(4)
VARIABLES	ROA_ER	ROA_EV	SG_ER	SG_EV
EX	0.057***	1.680***	-0.607	-2.086
	(0.000)	(0.000)	(0.257)	(0.257)
FS	-0.463***	-0.463***	6.327***	6.327***
	(0.000)	(0.000)	(0.000)	(0.000)
MP	0.032**	0.032**	0.351**	0.351**
	(0.041)	(0.041)	(0.029)	(0.029)
LV	-0.097***	-0.097***	-0.566***	-0.566***
	(0.000)	(0.000)	(0.000)	(0.000)
LQ	0.027***	0.027***	0.221***	0.221***
	(0.001)	(0.001)	(0.000)	(0.000)
EG	0.618***	-0.232	-0.999	2.993***
	(0.000)	(0.181)	(0.769)	(0.000)
Constant	0.183	8.287***	16.169	-45.028**
	(0.879)	(0.000)	(0.731)	(0.018)
Observations	200	200	180	180
R-squared			0.621	0.621
Number of FIRM	20	20	20	20

Source: Own Computation, 2020

4.4.1 Effect of Exchange Rate Volatility on Performance

Coefficient of EXR ($\beta = 0.057$) is positive and statistically significant ($p = 0.000$) at 1% significance level. This result is interpreted as, for unit increase of exchange rate, ROA of the

firms is increased by 0.057 units. This suggested that profitability of the firms is increased by 5.7% from 1 Birr increase of exchange rate during 2013 to 2022.

Moreover, coefficient of VEXR (1.68) is positive and significant (p = 0.000) at 1% significance level. This indicates as exchange rate becomes volatile by 1%, ROA of the firms vary by 1.68% from year to year. In particular, this is explained as when volatility of the exchange rate is high, the return is high; in contrast, when the volatility is lower, profitability of the firms is low. This indicates that automotive importing firms in Ethiopia are benefited from frequently rising exchange rate in Ethiopia. Furthermore, this suggests that automotive importing firms are earning higher return than the associated costs of exchange rate rise. Hence, the rate of price rise is higher than the exchange rate rise.

Coefficient of EXR (β = -0.607) is negative but it is statistically insignificant (p = 0.257). This indicates that sales of the firms is not influenced by exchange rate volatility in Ethiopia from 2013 to 2022. In particular, on average, sales of the firms reduced by only 0.61% for 1 Birr rise of exchange rate. In addition, coefficient of VEXR (β = -2.09) is statistically insignificant that suggests, during 2013 to 20122, for unit variation of exchange rate, sales of the firms vary by only 2.09%. In particular, this indicates that when exchange rate risk rises by 1 Birr, revenue of the firms is reduced by only 2.09%. In contrast, when exchange rate risk falls by 1 unit, revenue of the firms is increased by 2.09% while other factors are similar for the firms. This suggests that revenue of the firms is not affected by the exchange rate increase and the firms are rising price following the exchange rate rise. Moreover, this indicates that demand for automotive is inelastic for price increase following exchange rate rise. Hence, this study suggests that automotive importing firms in Ethiopia were not significantly harmed by the exchange rate rise in the country.

Findings of this study about effect of exchange rate volatility on performance were similar different studies conducted in different period of time. Particularly, this study is similar to Clark (1973) indicated that exchange rate movements lead to uncertainty in the prices which firms ought to pay or receive in the future. In addition, Hooper and Kohlhagen (2018) indicated that high volatility in exchange rates could have adverse consequence on firm's activities. If investors equate volatility with risk, they may alter their investment decision in other to accommodate the

risk of excessive volatility. If the exchange rate of a country's trading partner becomes more volatile; firms may be reluctant to engage in international trade. In particular, for input importing firms, exchange rate movements lead to uncertainty in the prices of inputs and leaders to decrease in profit of a firm (Hodrick & Flood, 1984; Fung, 2008; Ezenwa, Ogbebor & Alalade, 2021; Osho & Efuntade, 2019; Mahat, et.al, 2017).

4.4.2 Effect of Size of Firm on its Performance

Coefficients of FS in profitability and sales models are statistically significant ($p = 0.000$) at 1% significance level. This indicates performance of the firms is significantly affected by their size. However, the coefficients have different sign and magnitude with values of $\beta = -0.463$ and $\beta = 6.327$ in profitability model and sales model, respectively. This indicates that size of the firm has negative and significant effect on profitability of the firms. In contrast, it has positive and significant effect on sales growth of the firms. These results indicated that for 1% rise in total asset, profitability declined by 0.46% but sales raised by 6.33% while other factors are constant. This indicates that there are diseconomies of scale of the firms in managing return from investment that larger firms have lower return growth than the smaller firms. On the other hand, sales performance of the larger firms is better than sales performance of smaller firms. This study about effect of size of firm on performance shows that, relatively, smaller firms are efficiently performing than the larger firms and the larger firms have weaker cost management than the smaller firms.

This finding supported different studies that evidenced importance of company's size arguments, that the average cost of operating a small business is higher than the average cost of operating large enterprises (Agiomirgianakis et al., 2013). Large enterprises have higher levels of profitability when compared to small ones, primarily due to economy of scale. On the other hand, small enterprises are often new players on the market, so they take over market shares and profits of large companies (Papadogonas, 2007). Hence, this study supported (Papadogonas, 2007). According to RBV theory, a larger company's ability to access capital and its aptitude for utilizing the principles of the economies of scale, which eventually result in better profitability, are the causes of the positive connection between size and profitability. Other research, such as those by Gschwandtner (2005), Nunes et al. (2009), Fukao (2006), Asimakopoulos et al. (2009),

and Stierwald (2010), support the idea of a positive association. The total assets, total revenue, total profit, total expense, and market value each serve as indicators of the company's size and success. Numerous studies show that a company's revenue is positively correlated with its size (Alarussi et al. 2018; Khan et al. 2018; Isik et al. 2017; Ghasemi and Razak, 2017; Azdanfar, 2013).

4.4.3 Effect of Leverage of a Firm on its Performance

Coefficients of leverage are negative and statistically significant ($p = 0.000$) at 1% significance level in both profitability and sales models. This suggests that firms with higher debt ratio have lower performance of earning profit and increasing sales. The coefficients of leverage have values of $\beta = -0.097$ and $\beta = -0.566$, respectively, in profitability and sales growth. These coefficients implied that, on average, firms with 1% higher leverage ratio have 0.1% lower ROA, while other factors are similar. On the other hand, firms with 1% higher leverage ratio have 0.57% lower sales growth from year to year. This indicates high leverage of the firms caused low profitability and sales growth in the industry.

The Pecking-order theory, which asserts a considerably negative interaction between debt financing and profitability, has been substantiated by this study (Hamid, Abdullah, & Kamaruzzaman, 2015). Any profitable business that choose to use debt as part of its capital structure must abide by the terms and conditions of the lenders. This raises the possibility of an antagonistic interaction between profitability and leverage (Nadaraja et al., 2011). The empirical research Toy, et al. (2014), Rajan and Zingales (2015), and Silva and Rêgo (2019) have all been supported by this study. The results of this study, however, run counter to the trade-off hypothesis, which asserts that increased profitability enhances debt usage and that tax breaks on interest payments show an inverse relationship between profitability and leverage. The likelihood of a company failing increases with increasing operating leverage, and the risk of bankruptcy weighs more heavily on financing decisions. The capital structure is also impacted by fixed production expenses, which over time can exacerbate the volatility of future earnings.

4.4.4 Effect of Liquidity on Performance

It is computed that coefficient of LQ in both profitability and sales growth models are positive and significant at 1% significance level. This indicated that positively and significantly affects profitability and sales growth of a firm. In particular, this study has estimated that in profitability model, coefficient of LQ is 0.03 which is interpreted as firms with 1% higher liquidity ratio earn 0.03% higher net profit. Moreover, coefficient of liquidity in sales model is 0.22 and this indicates as liquidity rise by 1%, sales grow by 0.22%. These findings indicates that ability of the firms to pay short-term liabilities helped to increase return from the business and it improved sales performance.

This conclusion has been validated by numerous empirical studies. Deloof (2003) found that by lowering accounts receivable and inventory, a business can achieve higher levels of profitability. As a result, a company becomes more liquid and profitable by turning over its goods more quickly and getting paid more quickly. Gill, Biger, and Mathur (2010) investigated the relationship between current ratio and profitability and discovered a favorable relationship. Companies can more specifically affect their profit rate by managing cash conversion and account receivables effectively. In accordance with the findings of this study, Nazir & Afza (2009) proposed that business managers can increase value or profitability by using prudent and effective working capital management techniques. A company will experience higher levels of profit if it has a higher current ratio because there will be less risk associated with excess and perishable inventory, higher levels of liquidity in case of an economic downturn, and quicker cash conversion cycles reduce the risk of customer non-payment or bad debt (Nazir & Afza, 2009).

4.4.5 Effect of Market Power on Performance

In addition to the firm specific factors, this study has examined effect of industry factors on performance of the firms. The industry effect is proxied by market power and it is measured by proportion of market share of a firm. Based on the empirical estimation, this study has computed that coefficient of market power is positive and statistically significant at 5% significance level in both profitability and sales growth models with values of 0.03 and 0.35, respectively. This

indicates that firms with 1% higher market share have higher profitability by 0.03% and higher sales growth by 0.35% while other factors are constant.

This finding supports theory SCP Hypothesis that revealed not all market participants in the concentrated market can benefit and earn higher profits, but only firms with large market shares and well-differentiated products are able to exercise market power and make supernormal profits (Shepherd, 1982). In addition, this study supports Efficient Structure Hypothesis (ESH) that states increased efficiency allowed the firms to consolidate, and the ensuing lesser competition led to increased profit (Lloyd-Williams et al., 1994). The firms with higher efficiency have more ability to raise their market shares and company sizes. The efficiency of the company is what propels the process of attaining a sizable market share, and therefore increasing concentration. The most effective businesses will also increase their market share and generate financial gains.

4.4.6 Effect of Economic Growth on Performance of Firm

Finally, this study has examined effect of economic growth on performance of the firms. This study has identified that economic growth has significant effect on profitability and sales growth of the firms. In profitability models, effect of economic growth is positive and significant for exchange rate model. However, its effect is negative and insignificant in exchange rate volatility model. This indicates economic growth significantly and positively affects profitability of the firms when exchange rate is constant. However, its effect is negative but significant when there is similar exchange rate volatility. In contrast, economic growth has positive and significant effect on sales growth of the firms, while volatility of exchange rate held constant. Nevertheless, economic growth has negative and insignificant effect on ROA when exchange rate is constant. This indicates automotive importing firms in Ethiopia are benefited from economic growth if the exchange rate is constantly growing; otherwise, the economic growth has no importance for profitability of the firms. This study has identified that 1% rise of economic growth, increases sales of the firms by 2.99% when exchange rate volatility is constant. As a result, this study revealed that low level of economic growth of the country resulted on low profitability and sales growth of the firms.

This finding is similar to different previous studies that suggested an improvement in economic conditions is more likely to affect the aggregated demand and supply and thus profitability of the

firm (Lee, 2009; Pattitoni et al., 2014; Voulgaris & Lemonakis, 2014). When firms turn to the impact of economic growth (GDP), the profitability is positively and statistically influenced by economic growth, suggesting that an improvement in economic condition enhances firm profits.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study was conducted to examine determinants of financial performance of automotive importing firms in Ethiopia. Based on this purpose, the study has estimated monthly exchange rate volatility in Ethiopia period from July, 2013 to June, 2022. Further, the study has identified the effect of exchange rate volatility on profitability and sales growth of the firms. Moreover, the study has analyzed effect of size, leverage, liquidity, and market power of a firm and economic growth on the performance of the firms. In previous chapter, the study has presented result of data analysis and discussions based on the results. This chapter presents summary of major findings, conclusions based on the findings and recommendations based on the conclusions drawn.

5.2 Summary of Major Findings

This study has included 120 months to assess trend of exchange rate and estimate its volatility. During the study period, two important phases of the exchange rate variation were observed. The first phase includes 63 months and an average exchange rate during this period was 20.37 Birr and it was growing with only 0.09 Birr per month. The second phase includes 57 months and an average monthly exchange rate was 35.43 Birr and it was increasing by 0.5 Birrper month. On overall, the monthly average exchange rate was 27.52 and it was rising by 0.29 Birr (0.9%) per month.

In addition to estimating exchange rate volatility, this study has examined effects of the exchange rate volatility on performance of automotive importing firms. The exchange rate volatility is represented by using two variables; average monthly exchange rate and estimated volatility based on monthly exchange rate. The performance of firms includes financial performances; such as, profitability and sales growth. It is estimated that exchange rate volatility has positive and significant effect ($p = 0.000$) on profitability of the firms for both exchange rate ($\beta = 0.057$) and exchange rate volatility ($\beta = 1.68$).However, effect of both exchange rate and its

volatility is not significant on sales growth. In contrast to effect on the profitability, although it not statistically significant, it is negative.

The firm specific factors have significant effects on performance of the firms. This study has included four factors to control effect of exchange rate volatility on performance of the firms. These factors include size, leverage, liquidity, and market power of the firms. The size of a firm has significant but varying effect on profitability and sales growth that its effect is negative (β = -0.46) on profitability but positive (β = 6.33) on sales performance. The effect of leverage is negative and significant (p = 0.000) on both profitability (β = -0.1) and sales growth (β = -0.57). In contrast to leverage, liquidity has positive and significant effect on profitability (β = 0.03) and sales performance (β = 0.22). Moreover, effect of market power is positive and significant on performance of the firms.

Finally, this study has found out that economic growth has positive and significant effect on performance of the firms. It was identified that for 1% increase of GDP, profitability and sales of the firms was increasing by 0.62% and 2.99% annually, respectively.

5.3 Conclusions

This study has drawn following conclusions based on its major findings.

- The exchange rate volatility in Ethiopia is not consistent and not predictable based on its previous periods. Instead, the government is setting irrespective to exchange rate in previous periods and it set for future outcomes. As government of the country follows fixed exchange rate, exchange rate volatility in Ethiopia is not predicted in conditional variance in previous periods.

- Exchange rate rise and its volatility has favorable role for profitability of automotive importing firms in Addis Ababa during business calendar from 2013 to 2022. Hence, the rising exchange rate and highly volatile exchange rate in Ethiopia has enabled to increase profitability of automotive importing companies in Addis Ababa. The possible reason is that the firms were setting additional price above cost of exchange rate rise.

- The exchange rate volatility has negative but weak effect on sales performance of the firms. The sale of the firms is not affected by the exchange rate rise except small decrease of sales of the firms. Hence, this study revealed that demand for automotive products is inelastic for price rise following the exchange rate rise in the country.

- The earning rate of the firms decreased as they get larger. On the other hand, larger firms earn lower profit from additional investment than the smaller firms. While exchange rate was rising in the country, smaller firms were more efficiently managing their asset than the larger firms. The exchange rate volatility is more favorable for smaller firms than the larger firms to increase profitability although the sales growth of the larger firms significantly larger than the smaller firms.

- Finance management has important role for performance of the firms. In this regard, low leverage of the firms caused high profitability and sales growth of the firms. During the rising exchange rate, firms with higher debt has lower return and smaller sales growth than the firms with lower debt. This study revealed that the firms are obliged to pay their liabilities despite rising exchange rate.

- Liquidity improved profitability and sales of automotive importing firms where more liquid firm have better performance than less liquid firms. To sustain positive role of exchange rate volatility for profitability, increasing liquidity enabled to increase return and sales.

- Market power has favorable role to increase profitability and sales growth. During the rising exchange rate, the market power of the firms was increasing and caused the return and sales growth to increase. As this study has included large firms that were established before 10 years, smaller firms left the market due to shortage of foreign exchange and market power of the existing firms got larger and their profitability and sales growth was raising.

- Finally, this study has observed that profitability and sales growth rate higher when the economic growth is larger. Therefore, exchange rate growth helped automotive importing

firms to increase their profitability and sales growth by increasing aggregate demand for their products.

5.4 Recommendations

Based on the conclusions drawn, this study provides following recommendations to management of automotive importing firms in Ethiopia, in general, and firms in Addis Ababa, in particular.

- The firms are suggested not to predict future exchange rate based on current exchange rate for their business decision as exchange rate volatility in Ethiopia is not predicted based on previous variance. Instead, they are suggested to decide based on current exchange rate.

- At the time exchange rate volatility is higher than its previous period, the firms are suggested to rise price of their products with justification that the exchange rate similarly rise in future. On the other hand, when the exchange rate volatility is lower, the firms are suggested to reduce the price rise rate accordingly because the buyers expect that the exchange rate volatility decrease in future and postpone their current purchase decision. Hence, price for the products must be decided based on current exchange rate. The objective of profitability has to mainly focus on managing cost associated with the exchange rate rise.

- In addition, any sales growth decision has not to consider the exchange rate volatility in the country. Specifically, firms with an objective of improving sales from previous period are not suggested to consider the exchange rate volatility; instead, they have to focus on other factors such as asset, leverage, liquidity, and demand management.

- Comparatively, larger firms earn lower profit than the smaller firms from their investment. Hence, larger firms are suggested to improve their asset management practice. They are suggested to reduce their costs associated with additional investment and convert the asset to revenue. Further, firms with higher leverage ratio are suggested to reduce their debt ratio through internal financing. Furthermore, this study suggests firms with low level of liquidity to revise receivables and increase conversion rate to

finance their short-term liabilities. Moreover, this study suggested firm with smaller market share to increase their market share through effective marketing by conducting market analysis based on previous purchases.

REFERENCES

Abdul, A., & Isiaka, T. (2015). Relationship between cost management and profitability: A study of selected manufacturing firms. International Journal of Management Sciences.

Adjei, E. (2019). Exchange rate volatility and economic growth in Ghana. International Journal of Business and Social Science, 10(4), 1-14.

Agubata, S., & Odubuasi, A. (2018). Effect of exchange rate fluctuation on the financial performance of manufacturing companies in Nigeria. International Journal of Commerce and Management, 4(4), 56-61.

Allayanis, A., Ihuing, I., & Weston, C. (2016). Foreign currency derivative and firm value. Journal of Finance, 2(2), 56-75.

Amar, D. (2017). Impact of dividend on share pricing in commercial banks of Nepal. Banking Journal, 3(2), 21-55.

Ayinde, T. O. (2014). The impact of exchange rate volatility on manufacturing performance: New Evidence from Nigeria. Fountain Journal of Management and Social Sciences, 3(2), 83-92.

Ayobami, O. T. (2019). Exchange rate volatility and the performance of manufacturing sector in Nigeria (1981–2016). African Journal of Economic Review, 7(2), 27–40.

Babalola, A. (2014). Monetary policy and financial performance of manufacturing companies. Journal of Finance and Accounting, 2(3), 87-98.

Bajo-Rubio, O., Berke, B. & McMillan, D. (2020).Exchange rate volatility in the Eurozone. The Open-Access, Open-Assessment E-Journal, 14 (5), 1–23.

Bidde, G., Hilary, G., & Verdi, R. (2009). How financial reporting quality does relate to Investment Efficiency? Journal of Accounting and Economics, 4(8), 112-131.

Casu, B., Girardone, C., & Molyneux, P. (2006). Introduction to Banking. England: Prentice Hall Press.

Cerra, V., & Saxena, S. (2010).Contagion and domestic turmoil in Indonesia's currency crisis. Review of International Economics, 2(2), 87-98.

Darell, A., & West, C. (2018).Philosophy of money and finance. Journal of Finance, 1(2), 76-96.

Ebiringa O. T., & Anyaogu, C. C. (2014).Analysis of the effect of external reserves management on macroeconomic stability of Nigeria. International Journal of Business Management and Economic Research, 3(6), 646-654.

Ezenwa, C., Ogbebor, I., &, Alalade, A. (2021). Effect of Exchange Rate Volatility on Return on Assets of Consumer Goods Manufacturing Companies Listed in Nigeria. International Journal of Research and Innovation in Social Science (IJRISS), 5(7), 462-470

Hailey, A., Getacher, T. & Tesfay, H. (2014). Financial performance analysis of commercial banks in Ethiopia. Journal of Business and Economics, 7(2), 67-89.

Harley, T. W. (2018). An empirical investigation of the impact of exchange rate fluctuation on the performance of selected listed firms in Nigeria. Journal of Business Management and Economic Research, 2(3), 1-10.

Ishimwen, A., & Ngalawa, H. (2015). Exchange rate volatility and manufacturing exports in South Africa. Banks and Bank Systems, 10(3), 29-38.

Kelilume, I. (2016). Exchange rate volatility and firm performance in Nigeria: A dynamic panel regression approach. Proceedings of the Australia-Middle East Conference on Business and Social Sciences, 8(1), 663-665.

Kumar, K. B., Rajan, R. G., & Zingales, L. (1999). What determines firm size? : National bureau of economic research.

Lagat, C., & Nyandema, D. (2016). The influence of foreign exchange rate fluctuations on the financial performance of commercial banks listed at the Nairobi Securities Exchange. British Journal of Marketing Studies, 4(3), 1-11.

Mahat, R. F., Dahir, A. M., Sahabuddin, M., & Mahi, A. S. M. (2017). Exchange rate volatility and financial performance of Agriculture firms in Malaysia: An empirical analysis using GARCH, Wavelet and system GMM. Business and Economic Horizons Journal, 13(3), 409-427.

Majok, E. (2015) Effects of exchange rate fluctuations on the financial performance of Commercial Banks in Kenya. MSc. Thesis.

Moffett, M. H., Stonehill, A. I., & Eiteman, D. K. (2017). Fundamentals of multinational finance (5th ed.). Chicago, Addison-Wesley, Pearson (The Pearson Series in Finance).

Muchiri, M. (2019). Effect of inflation and interest rates on foreign exchange rates in Kenya. The unpublished project, MBA, Thesis.

Musa, F. M. (2016). The effect of foreign exchange rate volatility on the financial performance of Oil marketing companies in Kenya. MSc. Thesis.

Nwaobia, A. N., Kwarabai, J. D., & Ogundajo, G. O. (2016). Tax planning and firm value: Empirical evidence from Nigerian consumer goods industrial sector. Research Journal of Finance and Accounting, 7(12), 1-13.

Obisesan, O. G., Ogunsanwo, O. F., & Akosile, M. O. (2019). Effect of foreign exchange management on economic growth in Nigeria (1987-2017). African Journal of Economic and Sustainable Development, 2(1), 51-65.

Okolo, C. V., Ugwuanyi, O. S., & Okpala, K. A. (2016). Exchange rate volatility, its determinants, and effects on the manufacturing sector in Nigeria. International Scholarly and Scientific Research & Innovation, 10(12), 3940-3948.

Orji, A., Ogbuabor, J. E., Okeke, C., & Anthony-Orji, O. I. (2018). Another side of the Coin: exchange rate movements and the manufacturing sector in Nigeria. Journal of Infrastructure Development, 10(2), 63–79.

Osano, S. A. (2016). Exchange rate volatility and financial performance of listed commercial banks in Kenya. Unpublished MBA project. The University of Nairobi.

Osho, A. E., & Efuntade, A. O. (2019). Effect of exchange rate fluctuation on the financial performance evaluation of multinational companies in Nigeria. Research Journal of Finance and Accounting, 10(16), 2222-2847.

Osundina, C. K., Osundina J. A., Jayeoba O. O., & Olayinka I. M. (2016). Exchange rate volatility and banks performance: Evidence from Nigeria. International Journal of Economics and Business Management, 2(4), 1-11.

Osundina, C. K., Osundina J. A., Jayeoba O. O., & Olayinka I. M. (2016). Exchange rate volatility and banks performance: Evidence from Nigeria. International Journal of Economics and Business Management, 2(4), 1-11.

Oyedokun, T., & Owolabi, S. (2019). Cost control and profitability of selected manufacturing firms in Nigeria. Journal of Accounting and Strategic Finance, 2(1), 14-33.

Richards, N. D., Simpson, J., & Evans, J. (2009). International Journal of Economics and Finance, 1(1), 2-22.

Robinson, A., & Warburton, C. (2005). Empirical evidence of international fisher effect in Bangladesh, India, and China. Journal of Finance, 3(1), 67-74.

Sangosanya, A. O. (2011). Firm growth dynamics in Nigeria's manufacturing industry: A Panel Analysis. Journal of Applied Econometric Review, 1(1), 1-18.

Umeron, A., & Udo, E. (2015). Working capital management and the performance of selected deposit money banks in Nigeria. British Journal of Advanced Economics, Management, and Trade. 7(1): 23-31.

Zadeh, F. O., & Eskandari, A. (2012). Firm size as company's characteristic and level of risk disclosure: review on theories and works of literature. International Journal of Business and Social Science, 3(17), 1-16.

APPENDICES

Appendix A: Volatility Estimation

Source	SS	df	MS	Number of obs	=	119
				F(0, 118)	=	0.00
Model	0	0	.	Prob > F	=	.
Residual	25.1122008	118	.212815261	R-squared	=	0.0000
				Adj R-squared	=	0.0000
Total	25.1122008	118	.212815261	Root MSE	=	.46132

exrr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
_cons	.2869966	.042289	6.79	0.000	.2032528	.3707405

Appendix B: Estimations

ROA_EXR_RE

R-sq:
     within = 0.7673
     between = 0.8058
     overall = 0.7511

corr(u_i, X)   = 0 (assumed)

Obs per group:
                  min =   10
                  avg =   10.0
                  max =   10

Wald chi2(13)   =   561.22
Prob > chi2   =   0.0000

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EXR	.0569986	.009757	5.84	0.000	.0378752	.0761219
FS	-.4626881	.0983196	-4.71	0.000	-.6553909	-.2699853
mp	.0315329	.0154509	2.04	0.041	.0012496	.0618162
LV	-.0972618	.0060268	-16.14	0.000	-.1090741	-.0854495
LQD	.0268164	.00788	3.40	0.001	.0113719	.0422609
EG	.6176194	.1202572	5.14	0.000	.3819197	.8533191
Year						
2014	-1.226463	.48601	-2.52	0.012	-2.179025	-.2739008
2015	-.3966525	.3569016	-1.11	0.266	-1.096167	.3028617
2016	.9360288	.2246728	4.17	0.000	.4956783	1.376379
2017	-.0663467	.2726988	-0.24	0.808	-.6008265	.468133
2018	.1953022	.2427166	0.80	0.421	-.2804135	.6710179
2019	-.0139319	.2329542	-0.06	0.952	-.4705137	.4426499
2020	1.562083	.2781493	5.62	0.000	1.01692	2.107246
2021	0	(omitted)				
2022	0	(omitted)				
_cons	.1828471	1.196863	0.15	0.879	-2.162961	2.528656

sigma_u	0	
sigma_e	.61754669	
rho	0	(fraction of variance due to u_i)

ROA_EXR_FE

R-sq:				Obs per group:	
within	= 0.7858			min =	10
between	= 0.6107			avg =	10.0
overall	= 0.6936			max =	10
				F(13,167) =	47.12
corr(u_i, Xb)	= -0.4887			Prob > F =	0.0000

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
EXR	.0241387	.0172973	1.40	0.165	-.0100108	.0582882
FS	-.1207977	.2143507	-0.56	0.574	-.543984	.3023887
mp	.0037307	.0198643	0.19	0.851	-.0354868	.0429482
LV	-.1122734	.0078685	-14.27	0.000	-.127808	-.0967387
LQD	.0397392	.008722	4.56	0.000	.0225196	.0569589
EG	.5282918	.1265091	4.18	0.000	.2785285	.7780551
Year						
2014	-1.140408	.5004055	-2.28	0.024	-2.128344	-.1524716
2015	-.4977915	.3485248	-1.43	0.155	-1.185874	.1902909
2016	.4824538	.2249508	2.14	0.033	.0383401	.9265676
2017	-.3248146	.253436	-1.28	0.202	-.8251659	.1755367
2018	-.038054	.2258396	-0.17	0.866	-.4839227	.4078146
2019	-.2569525	.2186402	-1.18	0.242	-.6886075	.1747024
2020	1.19818	.3332895	3.60	0.000	.5401758	1.856184
2021	0	(omitted)				
2022	0	(omitted)				
_cons	-.074847	1.182035	-0.06	0.950	-2.408503	2.258809
sigma_u	.52715258					
sigma_e	.61754669					
rho	.42152182	(fraction of variance due to u_i)				

ROA_EXV_RE

R-sq:
within = 0.7673
between = 0.8058
overall = 0.7511

corr(u_i, X) = 0 (assumed)

Obs per group:
min = 10
avg = 10.0
max = 10

Wald chi2(13) = 561.22
Prob > chi2 = 0.0000

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EXV	1.679908	.2875662	5.84	0.000	1.116289	2.243528
FS	-.4626881	.0983196	-4.71	0.000	-.6553909	-.2699853
mp	.0315329	.0154509	2.04	0.041	.0012496	.0618162
LV	-.0972618	.0060268	-16.14	0.000	-.1090741	-.0854495
LQD	.0268164	.00788	3.40	0.001	.0113719	.0422609
EG	-.2324531	.173806	-1.34	0.181	-.5731066	.1082005
Year						
2014	2.026491	.7404612	2.74	0.006	.5752133	3.477768
2015	1.728392	.5323477	3.25	0.001	.6850098	2.771774
2016	1.029124	.2309006	4.46	0.000	.5765673	1.481681
2017	1.807718	.4633547	3.90	0.000	.8995595	2.715877
2018	-24.18066	4.140399	-5.84	0.000	-32.2957	-16.06563
2019	1.996823	.4524808	4.41	0.000	1.109977	2.883669
2020	-1.892703	.5679635	-3.33	0.001	-3.005891	-.7795151
2021	0	(omitted)				
2022	0	(omitted)				
_cons	8.28674	1.883291	4.40	0.000	4.595559	11.97792
sigma_u	0					
sigma_e	.61754669					
rho	0	(fraction of variance due to u_i)				

ROA_EXV_FE

R-sq:				Obs per group:	
within	= 0.7858			min =	10
between	= 0.6107			avg =	10.0
overall	= 0.6936			max =	10
				F(13,167) =	47.12
corr(u_i, Xb)	= -0.4887			Prob > F =	0.0000

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
EXV	.7114357	.5097999	1.40	0.165	-.2950474	1.717919
FS	-.1207977	.2143507	-0.56	0.574	-.543984	.3023887
mp	.0037307	.0198643	0.19	0.851	-.0354868	.0429482
LV	-.1122734	.0078685	-14.27	0.000	-.127808	-.0967387
LQD	.0397392	.008722	4.56	0.000	.0225196	.0569589
EG	.1682889	.2254224	0.75	0.456	-.2767561	.6133339
Year						
2014	.2372077	.9264198	0.26	0.798	-1.591796	2.066211
2015	.4021579	.6651498	0.60	0.546	-.911028	1.715344
2016	.5218794	.2394426	2.18	0.031	.0491548	.994604
2017	.4688457	.6494668	0.72	0.471	-.8133777	1.751069
2018	-10.3612	7.38174	-1.40	0.162	-24.93475	4.212359
2019	.5945957	.6978456	0.85	0.395	-.7831406	1.972332
2020	-.264911	.859434	-0.31	0.758	-1.961667	1.431845
2021	0	(omitted)				
2022	0	(omitted)				
_cons	3.357125	3.054862	1.10	0.273	-2.673999	9.38825
sigma_u	.52715258					
sigma_e	.61754669					
rho	.42152182	(fraction of variance due to u_i)				

Sales Growth

SG_EXR_RE

Random-effects GLS regression — Number of obs = 180
Group variable: FIRM — Number of groups = 20

R-sq:
within = 0.5823
between = 0.4956
overall = 0.5328

Obs per group:
min = 9
avg = 9.0
max = 9

Wald chi2(12) = 209.45
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

SG	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EXR	-.0055011	.4810124	-0.01	0.991	-.9482681	.9372658
FS	2.099526	.9781811	2.15	0.032	.1823263	4.016726
mp	.6579967	.142215	4.63	0.000	.3792606	.9367329
LV	-.44728	.062117	-7.20	0.000	-.5690271	-.3255329
LDR	.1282237	.0618137	2.07	0.038	.0070711	.2493763
GDP	1.301699	3.325114	0.39	0.695	-5.215406	7.818803
Year						
2015	2.387677	4.509367	0.53	0.596	-6.45052	11.22587
2016	3.497507	12.40368	0.28	0.778	-20.81326	27.80827
2017	-.4778197	5.649667	-0.08	0.933	-11.55096	10.59532
2018	.5526545	4.983509	0.11	0.912	-9.214844	10.32015
2019	-2.185166	4.016966	-0.54	0.586	-10.05828	5.687943
2020	.1624704	11.77502	0.01	0.989	-22.91615	23.24109
2021	0	(omitted)				
2022	0	(omitted)				
_cons	-1.459021	47.76601	-0.03	0.976	-95.07869	92.16064
sigma_u	1.8641671					
sigma_e	4.1976126					
rho	.16473607	(fraction of variance due to u_i)				

SG_EXR_FE

R-sq:
within = 0.6214
between = 0.2475
overall = 0.3842

corr(u_i, Xb) = -0.6317

Obs per group:
min = 9
avg = 9.0
max = 9

F(12,148) = 20.24
Prob > F = 0.0000

SG	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
EXR	-.606596	.5334927	-1.14	0.257	-1.660843	.4476508
FS	6.327465	1.714089	3.69	0.000	2.940215	9.714714
mp	.3512007	.1592936	2.20	0.029	.036417	.6659844
LV	-.5659774	.0693376	-8.16	0.000	-.7029969	-.4289579
LDR	.2205018	.0619305	3.56	0.000	.0981196	.342884
GDP	-.999233	3.400783	-0.29	0.769	-7.719596	5.72113
Year						
2015	-1.430632	4.64519	-0.31	0.759	-10.6101	7.748833
2016	-7.070461	12.79842	-0.55	0.581	-32.3617	18.22077
2017	-6.324549	5.985726	-1.06	0.292	-18.15308	5.503979
2018	-4.626565	5.259099	-0.88	0.380	-15.01919	5.766059
2019	-6.920677	4.346254	-1.59	0.113	-15.50941	1.668053
2020	-9.152397	12.29361	-0.74	0.458	-33.44607	15.14127
2021	0	(omitted)				
2022	0	(omitted)				
_cons	16.16906	46.87088	0.34	0.731	-76.45354	108.7916
sigma_u	5.5173677					
sigma_e	4.1976126					
rho	.63338586	(fraction of variance due to u_i)				

F test that all u_i=0: F(19, 148) = 4.78 Prob > F = 0.0000

SG_EXV_RE

R-sq:				Obs per group:	
within	= 0.5823			min =	9
between	= 0.4956			avg =	9.0
overall	= 0.5328			max =	9
				Wald chi2(12) =	209.45
corr(u_i, X)	= 0 (assumed)			Prob > chi2 =	0.0000

SG	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
EXV	-.0189198	1.654327	-0.01	0.991	-3.261341	3.223502
FS	2.099526	.9781811	2.15	0.032	.1823263	4.016726
mp	.6579967	.142215	4.63	0.000	.3792606	.9367329
LV	-.44728	.062117	-7.20	0.000	-.5690271	-.3255329
LQD	.1282237	.0618137	2.07	0.038	.0070711	.2493763
EG	1.3379	.5825701	2.30	0.022	.1960839	2.479717
Year						
2015	2.431968	1.490117	1.63	0.103	-.4886072	5.352544
2016	3.627121	2.294803	1.58	0.114	-.8706088	8.124852
2017	-.4261808	1.605439	-0.27	0.791	-3.572784	2.720422
2018	.8903217	24.74254	0.04	0.971	-47.60417	49.38481
2019	-2.157413	1.844877	-1.17	0.242	-5.773306	1.458481
2020	.3100902	2.284671	0.14	0.892	-4.167783	4.787963
2021	0	(omitted)				
2022	0	(omitted)				
_cons	-2.014003	12.71837	-0.16	0.874	-26.94156	22.91355
sigma_u	1.8641671					
sigma_e	4.1976126					
rho	.16473607	(fraction of variance due to u_i)				

SG_EXV_FE

R-sq:
     within = 0.6214
     between = 0.2475
     overall = 0.3842

corr(u_i, Xb) = -0.6317

Obs per group:
                  min =   9
                  avg =   9.0
                  max =   9

F(12,148)   =   20.24
Prob > F   =   0.0000

SG	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
EXV	-2.086242	1.834821	-1.14	0.257	-5.712072	1.539588
FS	6.327465	1.714089	3.69	0.000	2.940215	9.714714
mp	.3512007	.1592936	2.20	0.029	.036417	.6659844
LV	-.5659774	.0693376	-8.16	0.000	-.7029969	-.4289579
LQD	.2205018	.0619305	3.56	0.000	.0981196	.342884
EG	2.992631	.7482164	4.00	0.000	1.514063	4.471198
Year						
2015	3.453332	1.4172	2.44	0.016	.65277	6.253894
2016	7.221877	2.491101	2.90	0.004	2.299157	12.1446
2017	-.6304425	1.492928	-0.42	0.673	-3.580651	2.319766
2018	32.60724	27.66184	1.18	0.240	-22.05593	87.27042
2019	-3.860346	1.872437	-2.06	0.041	-7.560511	-.1601819
2020	7.125303	3.11321	2.29	0.024	.9732192	13.27739
2021	0	(omitted)				
2022	0	(omitted)				
_cons	-45.0276	18.89226	-2.38	0.018	-82.36102	-7.694177

sigma_u	5.5173677
sigma_e	4.1976126
rho	.63338586 (fraction of variance due to u_i)

F test that all u_i=0: F(19, 148) = 4.78 Prob > F = 0.0000

Appendix C: Hausman Tests

ROA

	Coefficients			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EXR	.0241387	.0569986	-.0328599	.0142828
FS	-.1207977	-.4626881	.3418904	.1904718
mp	.0037307	.0315329	-.0278022	.0124843
LV	-.1122734	-.0972618	-.0150116	.0050588
LDR	.0397392	.0268164	.0129228	.0037389
GDP	.5282918	.6176194	-.0893276	.0392782
Year				
2014	-1.140408	-1.226463	.0860554	.1191632
2015	-.4977915	-.3966525	-.101139	.
2016	.4824538	.9360288	-.453575	.0111799
2017	-.3248146	-.0663467	-.2584678	.
2018	-.038054	.1953022	-.2333562	.
2019	-.2569525	-.0139319	-.2430207	.
2020	1.19818	1.562083	-.3639033	.1836161

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 8.67
Prob>chi2 = 0.7973
(V_b-V_B is not positive definite)

	Coefficients			
	(b) feroaev	(B) reroaev	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EXV	.7114357	1.679908	-.9684727	.4209533
FS	-.1207977	-.4626881	.3418904	.1904718
mp	.0037307	.0315329	-.0278022	.0124843
LV	-.1122734	-.0972618	-.0150116	.0050588
LQD	.0397392	.0268164	.0129228	.0037389
EG	.1682889	-.2324531	.4007419	.1435505
Year				
2014	.2372077	2.026491	-1.789283	.5567502
2015	.4021579	1.728392	-1.326234	.3987859
2016	.5218794	1.029124	-.5072448	.0633851
2017	.4688457	1.807718	-1.338872	.4550929
2018	-10.3612	-24.18066	13.81947	6.111234
2019	.5945957	1.996823	-1.402228	.5312717
2020	-.264911	-1.892703	1.627792	.6450149

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 8.67
Prob>chi2 = 0.7973
(V_b-V_B is not positive definite)

Sales Growth

	Coefficients (b) fesg	(B) resg	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EXR	-.606596	-.0055011	-.6010949	.2307412
FS	6.327465	2.099526	4.227939	1.407573
mp	.3512007	.6579967	-.306796	.071759
LV	-.5659774	-.44728	-.1186974	.0308087
LDR	.2205018	.1282237	.0922781	.0038015
GDP	-.999233	1.301699	-2.300932	.7133992
Year				
2015	-1.430632	2.387677	-3.818309	1.11508
2016	-7.070461	3.497507	-10.56797	3.154075
2017	-6.324549	-.4778197	-5.84673	1.977417
2018	-4.626565	.5526545	-5.17922	1.680108
2019	-6.920677	-2.185166	-4.735511	1.65949
2020	-9.152397	.1624704	-9.314868	3.532925

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 39.35
Prob>chi2 = 0.0001
(V_b-V_B is not positive definite)

	Coefficients			
	(b) fesgev	(B) resgev	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EXV	-2.086242	-.0189198	-2.067322	.7935794
FS	6.327465	2.099526	4.227939	1.407573
mp	.3512007	.6579967	-.306796	.071759
LV	-.5659774	-.44728	-.1186974	.0308087
LQD	.2205018	.1282237	.0922781	.0038015
EG	2.992631	1.3379	1.65473	.4695102
Year				
2015	3.453332	2.431968	1.021363	.
2016	7.221877	3.627121	3.594756	.9692596
2017	-.6304425	-.4261808	-.2042616	.
2018	32.60724	.8903217	31.71692	12.36866
2019	-3.860346	-2.157413	-1.702933	.3200727
2020	7.125303	.3100902	6.815213	2.114794

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 39.35
Prob>chi2 = 0.0001
(V_b-V_B is not positive definite)