

Chapter - 1

Introduction

1.1 Preamble

Exchange Rates plays a vital role in the economy. It is important to manage the risk of currency fluctuations in the global market. Exchange Rate is one of the important tools which affects the country's economic situation, financial stability, and social welfare. Exchange Rate variable is not a constant variable, it always fluctuates due to some economic, political and social factors, these fluctuations influence on macroeconomic indicators such as GDP, Inflation, Balance of payments, Interest rates etc. Macroeconomic indicators are unstable and volatile depending on the state of the economy. Macroeconomic aspects include the performance of the country, its behavior, and the decision taken related to the economy of the country. BRICS countries, namely Brazil, Russia, India, China, and South Africa, are playing an increasingly important role on the global stage amid a slow recovery of the world economy. Increased globalization has meant that BRICS has become an important source of global growth and political influence. Financial markets in the BRICS Countries have similarly expanded in a rapid manner. Brazil, Russia, India, China and South Africa (BRICS) are the leading budding economies and political powers at the regional and international level. The first specialist who has approached the influence of market size and power upon the country's trade was Adam Smith¹ (1776). In his study trade is characterized by high economic growth, economic potential, and demographic development and is increasingly becoming significant sources of power in the global world order. Clyde Prestowitz⁴ (2008) observed in his study that in globalization era almost three million people from emerging countries such as China, India, Russia, and Brazil have managed to integrate into the global market. BRICS is a unique informal alliance whose agenda stands nascent and flexible. BRICS economies have grown at a rapid pace and are becoming increasingly more integrated with the most advanced economies in terms of trade and investment. BRICS (Brazil, Russia, India, China, and South Africa) are suggested to represent the four continents of the World, which are of economic significance, in the process of globalization. BRICS economies differ greatly in terms of their growth prospects. BRICS countries characterized by a cyclical component of strong domestic demand growth. Generally, economic growth of an economy can be measured through several components, namely, changes in labor and capital inputs, and total factor productivity. According to Lin

Yueqin¹² (2009), the rise of the great powers is due to the boom of the emerging countries that seek to catch-up the advanced countries.

1.2 Exchange Rates

Exchange Rates distinguishes the health of a country's economy otherwise called as forex rate, the Foreign Exchange Rates is the value of one nation's currency in relation to another nation's currency. Foreign Exchange Rates are one of the most important determinants of a country which plays a fundamental role in trade, investment, and financial transactions. In 1945 the Bretton Woods monetary system, where the US dollar was pegged to gold, was introduced with the primary purpose of enhancing trade and economic growth through Exchange Rates stabilization. Early 1970's increased volatility of Exchange Rates triggered a lively debate on the channels through which such increased variability could affect the real economy (World Trade Report²⁰, 2013).

According to the Bretton Woods agreement (February 1973), the world's currencies have "floated" with respect to the US dollar. Thus, the Foreign Exchange Rates regime changed from a 'fixed Exchange Rates' to a 'flexible' or 'floating Exchange Rates'. Exchange Rates are determined by supply and demand called 'clean float' or where governments through central banks intervene (buy and sell currencies) in the markets, called 'dirty float'. Jamaica approved the new Exchange Rates system in January 1976 and came into force from April 1, 1978.

Macroeconomic Indicators such as interest rate, inflation rate, the balance of payments and tax rate etc., influence the Exchange Rates randomly. These macroeconomic Indicators are unstable and volatile depending on the state of the economy prevailing in their countries. It is used to forecast the country's Exchange Rates. A country offering higher interest rates is more appealing to investors than a country offering relatively lower rates.

Exchange Rates fluctuation or stability is the major concern which determines the quantum and direction of foreign trade and commerce. International trade and investment decisions become more difficult due to volatile Exchange Rates because volatility increases Exchange Rates risk. Exchange Rates fluctuation is defined as the risk associated with unpredicted movements in Exchange Rates. Shifting from state protected economic

structure to a market-oriented economy and implementation of the more flexible Exchange Rates regime have caused volatilities in Exchange Rates. Determining the factors behind the real Exchange Rates movements deepens our insights for better understanding the dynamics of Exchange Rates. A possible reduction in the Exchange Rates would affect the rate of return of investment.

1.3 BRICS

BRICS is an acronym for an association of five major emerging national economies: Brazil, Russia, India, China, and South Africa. It was originally called as BRIC South Africa was not included till 2010. In the past decade, the emerging economies had a much faster growth rate compared to the developed economies, which led to a significant increase of their share in world GDP in international trade, in total foreign direct investment, and international financial markets. The economic crises have led to relevant changes in global economic governance. Truman¹⁸ (2006) in his study stated similar features and the important role played by BRIC Countries (Brazil, Russia, India, and China)

- They are developing countries with relevant global economic performance with high potential
- They are the countries with the systematic importance of the world economy both regionally and globally
- They are able to exert influence on the governance of the global economy.

BRICS countries have focused on their growing economic strength and development to create an agency to be the rival for World Bank. Yardley²¹ (2008) stated that the member countries have been signed several trade arrangements for extensive use of local currencies in their commercial exchange. The main purpose was to reduce transaction costs. Paula¹⁶ (2007) states that during the transition period to the liberal economy, there was an effect of institutional changes and market-friendly policies such as privatization, trade liberalization, stimulus to more flexible Exchange Rates, foreign direct investment, social security reforms, and price stabilization.

1.4 Objectives of BRICS

1. To promote a legitimate international system, including advocating reform of the UN Security Council.
2. To act as a bridge between developed and developing countries.

3. To play an increasingly important role in assisting the developing countries in gaining an advantage in trade and climate change negotiations, as well as on issues related to the export of manufacturing products.
4. To establish the BRICS Business Council, consisting of 25 prominent entrepreneurs from the five countries and representing many industries and economic sectors.
5. To construct an information-sharing and exchange platform that expands beyond economic cooperation to involve educational, cultural, and environmental engagement.
6. To reciprocate the interest in challenging the current governance of Western financial institutions like the International Monetary Fund and the World Bank for which they have announced the establishment of the bank.
7. To advocate and protect the interests of middle powers on a global forum.

1.5 BRICS Exchange Rates and US Dollars

The present study focuses on BRICS Exchange Rates vis-a-vis US dollars. The following table shows the aggregate value of BRICS currencies against US dollars during the study period of fifteen years (i.e) from 1st January 2002 to 31st December 2017.

Table 1.1
BRICS currencies Vs US dollars

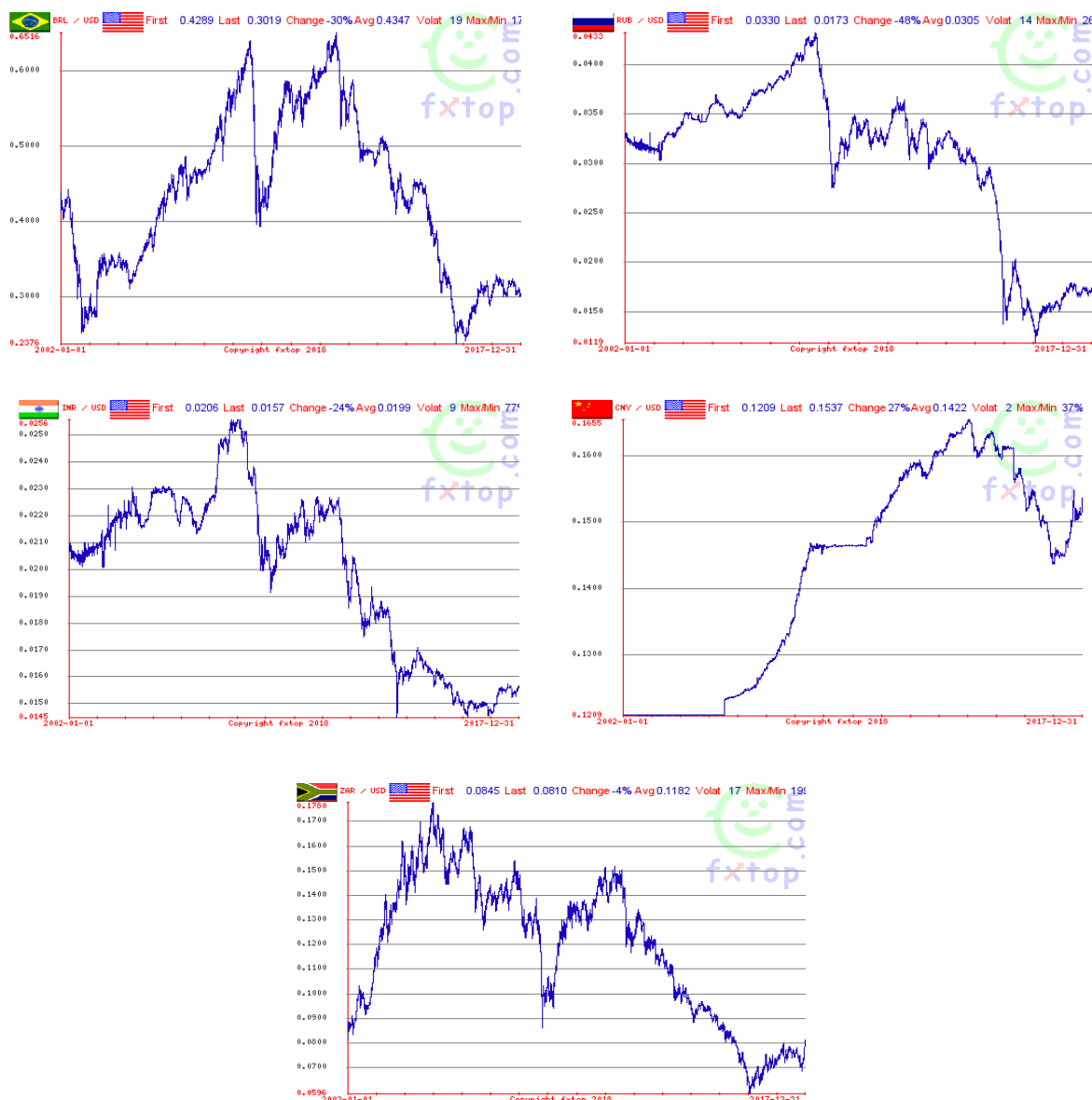
Brazil		Russia		India		China		South Africa	
BRL	USD	RUB	USD	INR	USD	CNY	USD	ZAR	USD
1	0.26	1	0.01	1	0.01	1	0.15	1	0.07

1.6 Macroeconomics- An overview

Macroeconomics is related to the broad economy at the regional or national level and affects a large population. Macroeconomics is concerned with the economy, whereas Microeconomics is concerned with the study of individual agents, such as consumers and businesses. rather than a few select individuals. Macroeconomic Indicators such as Prices, Production, and Labour, Effective Exchange rate based on SDR and CPI, Balance of payments, Gross Domestic Product, Government Finance, Interest Rates, International Liquidity, and Foreign trade are the key indicators of economic performance that are closely monitored by governments, businesses, and consumers.

Graph 1.1
Exchange Rates of BRICS Countries

The following graph depicts the volatility of BRICS Exchange Rates during the study period (15 years)



1.7 Prices, Production, and Labour

Karl Marx states that Prices of production is a concept of political economy, defined as cost-price plus average profit. A production price can be thought of as a type of supply price for products. A firm needs economic resources or factors of production to produce a good or service. The production of a good or a service used by a firm are generally referred to as inputs, What a firm produces is called output. Labor means any valuable service

rendered by a human agent in the production of wealth, other than accumulating and providing capital or assuming the risks of business undertakings. Labour includes the services of manual laborers, and also covers other kinds of services.

1.8 Effective Exchange rate based on SDR and CPI

Effective exchange rates can be termed as the exchange rates of home currency against a basket of other currencies. Exchange Rates are the indicators of international competitiveness. The value of SDR (Special Drawing Right) is not directly determined by supply and demand in the market it is set by the International Monetary Fund on the basis of market exchange rates. CPI (Consumer Price Index) is otherwise called cost of living index. Inflation is measured using CPI. Hence, it is a comprehensive measure used for the estimation of price changes in a basket of goods and services of consumption expenditure in an economy.

1.9 Balance of payments

The Balance of payments (BOP) reflects all payments and obligations to foreigners vs. all payments and obligations received from foreigners. It's a record of all financial flows of a country. It is composed of three subaccounts: the current account, the capital account, and the financial account. The current account is composed of merchandise trade, services, income receipts etc. The capital account includes transfers of financial assets such as tax payments and transfers of titles to assets. The financial account records trade in stocks, bonds, commodities, and real estate. The fluctuations can indicate which sector of the economy is causing a discrepancy

1.10 Gross Domestic Product

GDP measures the monetary value of final goods and services. GDP is composed of goods and services produced for sale in the market and also includes some nonmarket production, such as defense or education services provided by the government. The depletion of the capital stock, called depreciation, is subtracted from GDP, the net domestic product is obtained.

GDP is not a measure of the standard of living of a country. The quality of life depends on the distribution of GDP among the residents of a country.

1.11 Government Finance

Government finance is the deliberate manipulation of revenues and expenditures of the government. The main objectives are high economic growth, price stability, a favorable balance of trade and payment, equitable distribution of income and wealth, proper allocation of resources, balanced and stable economic growth etc.

Government finance may be of two types, they are

1. Government revenues
2. Government expenditures

Government revenues include royalties, taxes, escheats, penalties, fines, cess etc. Government expenditure includes development expenditure, administrative expenditures, diplomatic expenditure, difference expenditure, payments of public debts and interest and miscellaneous expenditures.

1.12 Interest Rates

Basically, Interest is the cost of money. It is an incentive for the bank to lend you money and a premium for the risk they take in lending to you. Charging interest is one of the ways lenders make their profit. There are a couple of different types of interest rates. It includes

1. Fixed interest rates
2. Variable interest rates

The following table 1.2 depicts the difference between high-interest rates and low-interest rates

Table 1.2

High-interest rates vs Low-interest rates

High-interest rates	Low - interest rates
Dollar gets stronger	Dollar weakens
It lowers return for overseas investors	Exports are more affordable for overseas buyers
It encourages savings	It encourages spending
It has less disposable income	It has more disposable income
It increases loan payments	It decreases loan payments
More interest is earned on savings	Less interest is earned on savings

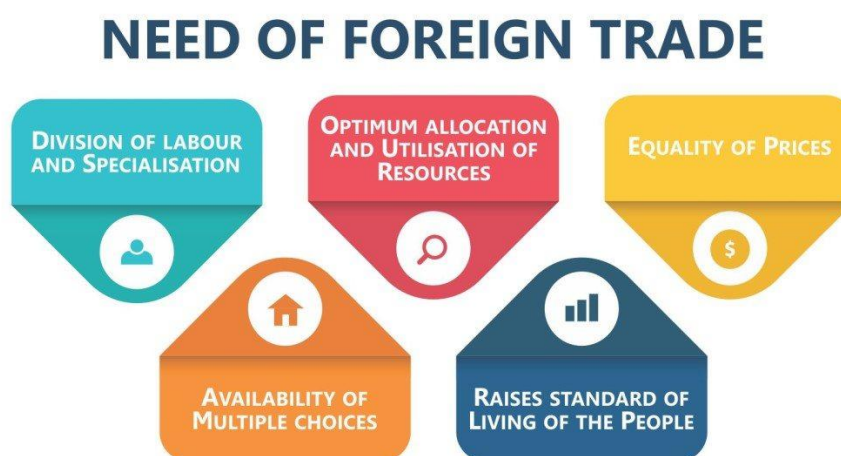
1.13 International Liquidity

International liquidity is defined as the aggregate stock of internally acceptable assets held by the central bank to settle a deficit in a country's balance of payments. International liquidity is a synonym for international reserves. Such reserves include a country's official gold stock holdings, its convertible foreign currencies, SDRs, and its net reserve position in the IMF. Heller and McKinnon¹⁰ state that international liquidity includes international borrowings, commercial credit operations, and the international financial structure in a country's reserves. The principal causes for the shortage of international liquidity are the following:

1. BOP Deficits
2. High Tariff Barriers
3. The attitude of Developed Countries
4. Unequal Distribution of International Reserves

1.14 Foreign trade

International trade promotes productive efficiency by encouraging a reallocation of resources. Resource availability and skills indicate the product range. Foreign trade is all about imports and exports. It indicates the trade between nations where products and services are traded to some other location outside a particular country's borders. The following picture portrays the need for a foreign trade.



Source: <https://imarticus.org/importance-indias-foreign-trade-policy/>

1.15 Importance of International Trade

The international trade accounts for a good part of a country's gross domestic product. Hence, trade is considered as the important source of revenue for a developing country. The following are its importance

1. To enhance domestic competitiveness
2. To take advantage of international trade technology
3. To expand the sales potential of the existing products
4. To maintain cost competitiveness in the domestic market
5. To enhance the potential for expansion of business
6. To gain a global market share
7. To reduce dependence on existing markets

1.16 Research Problem

An appreciation in the Exchange Rates currency makes respective country's currency stronger relative to other currencies. This enables domestic importers to buy foreign goods at relatively lower prices, resulting in greater demand for foreign produced goods. The low import price is passed to the domestic prices of goods and services. Such a decrease in price results in competition that could force other domestic producers to lower their prices. If this situation exists, inflation will be contained. In contrast, strong domestic currency relative to that of other trading partners means that foreigners have to pay more to purchase goods and services from the country experiencing currency appreciation. This means that export prices become expensive and exporters lose price competitiveness. Therefore foreign demand for locally produced goods declines.

The potential reasons for fluctuations in Exchange Rates have been highly debated theoretically and empirically in the literature. Sargent and Wallace¹⁷ (1981) and Cumby and Obstfeld¹⁵ (1982) support the existence of causality between Exchange Rates and macroeconomic indicators. Alternative models explaining the movements in the nominal Exchange Rates was examined by Dornbusch⁵ (1980) Sargent and Wallace¹⁷ (1981) and Branson² (1981). In the latter studies, some other factors which led to Exchange Rates fluctuations have been empirically examined. Determination of relationships plays a crucial role in the application. Frenkel⁷ (1979) argues that interest rate differentials among countries determine Exchange Rates.

A country's currency can also be weaker relative to that of other countries. Goods and services produced by a country experiencing a weaker currency make those products more competitive relative to that of other countries. Mishkin¹⁴ (2001) explains that this is mainly due to the pass-through of higher import prices to domestic goods leads to inflation. Hooper and Morton¹¹ (1980), Woo¹⁹ (1985), Campbell and Clarida³ (1987), Meese and Rogoff¹³ (1988) and Edison and Pauls⁶ (1991) do not imply any relationship between Exchange Rates and neither interest rates nor interest rate differentials. The theoretical relationship between Exchange Rates and Macroeconomic Indicators would also be examined in the short-run and long-run. On account of the above-mentioned research gap, the present study raises the following research question,

Hence the central question in this research is: “ *To what extent, do macroeconomic indicators affect the Exchange Rates of BRICS Countries* ”

The main research question will be answered by a comprehensive analysis, which will undergo breakdown into related hypotheses. These hypotheses are further elaborated in analysis. The estimated results clarifying the central research question are placed under closer scrutiny.

1.17 Objectives of the study

The overall purpose of the study is clearly and concisely defined under its objectives. The primary objective of this thesis investigates the inter-linkages, Causal and dynamic relationships between BRICS Exchange Rates and Macroeconomic indicators. The following objectives are framed based on the overall purpose of the study

- ❖ To identify the nature of select Macroeconomic indicators and Exchange Rates of BRICS countries
- ❖ To examine the relationship of select Macroeconomic indicators and Exchange Rates of BRICS countries
- ❖ To forecast the future movements of select Macroeconomic indicators and Exchange Rates of BRICS countries

1.18 Hypothesis of the study

Based on the above objectives, the following hypotheses were formulated for the study.

Main Hypotheses:

Hypothesis 1: Unit root exists (i.e. non-stationarity) for Exchange Rates.

Hypothesis 2: Unit root exists (i.e. non-stationarity) for select Macroeconomic indicators

Hypothesis 3: There is no long-run relationship for select Macroeconomic indicators and Exchange Rates.

Hypothesis 4: There is no causal relationship between select Macroeconomic indicators and Exchange Rates.

Hypothesis 5: There is no serial correlation between Macroeconomic Indicators and Exchange Rates

Hypothesis 6: There is no Heteroskedasticity between Macroeconomic Indicators and Exchange Rates.

Sub Hypotheses:

Hypothesis 2(a): Unit root exists (i.e. non-stationarity) for Prices, Production, and Labour for BRICS Countries.

Hypothesis 2(b): Unit root exists (i.e. nonstationarity) for Effective Exchange Rates based on SDR and CPI.

Hypothesis 2(c): Unit root exists (i.e. non-stationarity) for Balance of payments.

Hypothesis 2(d): Unit root exists (i.e. non-stationarity) for GDP.

Hypothesis 2(e): Unit root exists (i.e. non-stationarity) for Government Finance.

Hypothesis 2(f): Unit root exists (i.e. non-stationarity) for Interests Rates.

Hypothesis 2(g): Unit root exists (i.e. non-stationarity) for International Liquidity.

Hypothesis 2(h): Unit root exists (i.e. non-stationarity) for Foreign Trade.

Hypothesis 3(a): There is no long-run relationship between Prices, Production, and Labour and Exchange Rates

Hypothesis 3(b): There is no long-run relationship between Effective Exchange Rates as per SDR and CPI and Exchange Rates.

Hypothesis 3(c): There is no long-run relationship between the Balance of payments and Exchange Rates

Hypothesis 3(d): There is no long-run relationship between GDP and Exchange Rates

Hypothesis 3(e): There is no long-run relationship between Government Finance and Exchange Rates.

Hypothesis 3(f): There is no long-run relationship between Interest Rates and Exchange Rates

Hypothesis 3(g): There is no long-run equilibrium relationship between International Liquidity and Exchange Rates.

Hypothesis 3(h): There is no long-run relationship between Foreign Trade and Exchange Rates.

Hypothesis 4(a): There is no causal relationship between Prices, Production, and Labour between Exchange Rates.

Hypothesis 4(b): There is no causal relationship between Effective Exchange Rates based on SDR, US Dollar and CPI between Exchange Rates.

Hypothesis 4(c): There is no causal relationship between Balance of payments and Exchange Rates

Hypothesis 4(d): There is no causal relationship between GDP and Exchange Rates.

Hypothesis 4(e): There is no causal relationship between Government Finance and Exchange Rates.

Hypothesis 4(f): There is no causal relationship between Interest Rates and Exchange Rates

Hypothesis 4(g): There is no causal relationship between International liquidity and Exchange Rates.

Hypothesis 4(h): There is no causal relationship between Foreign Trade and Exchange Rates

1.19 Scope of the study

This research would facilitate to understand the causal and dynamic effects of BRICS Exchange Rates and Macroeconomic indicators. The main aim of the study is to investigate the relationships of BRICS Exchange Rates and Macroeconomic indicators. The research would also help in doing further studies in Capital markets. This research provides better insights into the modeling of Exchange Rates volatility, as the majority of empirical studies have been conducted for Exchange Rates volatility. In particular non-stationarity has become a large issue after 1970's when economists discovered the property of time series. Allowing non-stationary Indicators into regression models can lead to highly significant, spurious effects and result in wrongful inferences. Hall⁹ (1978) stated that while two series can appear to be non-stationary individually, they can prove to be stationary when combined through their cointegrated relationship. In contrast to most previous

academic work on this specific nexus takes the dynamics of cointegration into account through an exquisite model.

1.20 Limitations of the study

The study considers the following as its limitations.

- ❖ The data collected for the study was only from secondary sources.
- ❖ The data collected for the study period is for fifteen years (2002-2017) only.

1.21 Scheme of Chapterisation

The thesis has been organized into five chapters.

Chapter 1: Introduction

- The first chapter presents the introduction of the study along with the research problem, objectives, scope and limitations of the study. It also gives an outline of the various chapters proposed in the study.

Chapter 2: Review of Literature

- The previous research studies related to the topic of this study have been compiled and incorporated in the second chapter.

Chapter 3: Research Methodology

- The third chapter explains the general approach and methodology applied in the study. It describes in detail the research design used for the study, data sources, sample selection, methodology, and models used for analysis.

Chapter 4: Analysis and Interpretation

- The fourth chapter discusses the empirical research conducted with reference to the objectives of the study. The results obtained from the analysis of the data are provided in this chapter.

Chapter 5: Findings and Conclusions

- The final chapter presents the summary of the findings, conclusions, and recommendations of the study along with the implications for future research.