
**Faculty of Economics and Business**

# The Effects of Macroeconomic Fundamentals on the Stock Prices Movement in Selected Countries

**Sia Peck Ching**

**Master of Science**
**2023**

# The Effects of Macroeconomic Fundamentals on the Stock Prices Movement in Selected Countries

Sia Peck Ching

A thesis submitted

In fulfillment of the requirements for the degree of Master of Science

(Economics)

Faculty of Economics and Business
UNIVERSITI MALAYSIA SARAWAK
2023

## DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

……

Signature

Name: Sia Peck Ching

Matric No.: 20020338

Faculty of Economics and Business

Universiti Malaysia Sarawak

Date: 26th October 2023

## ACKNOWLEDGEMENT

Accomplishing a thesis demands a significant amount of effort and time to complete. A lot of people have contributed to and assisted along the way in the completion of this meaningful thesis for my Master of Degree. I would like to convey my deepest thanks and appreciation.

First and foremost, I would like to thank my supervisory committees, Professor Dr. Puah Chin Hong and Assistant Professor Dr. Leong Choi Meng, for their time and guidance. Their valuable feedback and insights had greatly improved the framework for my master thesis where thank you alone is never enough.

Next in the line, I would like to express my gratefulness to family members, friends, and seniors for their continuous supports since the beginning of my life till now. It is surely the most significant support for me to completing my master thesis in the timeframe given.

Finally, I would like to express my sincere gratitude to the Centre for Graduate Studies, for the advice and support given during my period of study in Universiti Malaysia Sarawak and the management of the Universiti Malaysia Sarawak for making it possible for me to complete my study here in Sarawak. Thank you all.

## ABSTRACT

For centuries, the stock market has been the backbone of the economy serving as a crucial platform for buying and selling securities. This study contributes to investigate the symmetric and asymmetric effects of macroeconomic fundamentals on stock prices of the selected countries: Indonesia, Malaysia, and Singapore. Generally, these three countries have different stages of development where Indonesia and Malaysia are both emerging countries while Singapore is a developed country. These three ASEAN countries have various monetary policies in addition to their disparate economic condition. Previous research has thoroughly investigated the relationship between stock prices and macroeconomic issues, but it was believed that the relationship is symmetrical. There is a scarcity of empirical information on the asymmetric effect of macroeconomic fundamentals on stock prices. This study using two different approaches: autoregressive distributed lag (ARDL) approach and nonlinear autoregressive distributed lag (NARDL) to overcome the limitation of previous studies. The study used time series data based on quarterly observations from 1999 to 2021. Given the results, inflation, interest rate, and exchange rate show nonlinear effect on stock prices in Indonesia. In Malaysia, the results show nonlinear effect of interest rate and exchange rate on stock prices. However, most of the models are insignificant for Singapore. Therefore, policymakers should optimize the asymmetric effect of inflation, interest rate, and exchange rate according to the nature of each country.



**Keywords:** Stock market, macroeconomic fundamentals, ARDL approach, NARDL approach

***Kesan Makroekonomi Terhadap Pergerakan Harga Saham di Negara Terpilih***

## *ABSTRAK*

*Pasaran saham telah menjadi tulang belakang ekonomi yang berfungsi sebagai platform penting untuk membeli dan menjual sekuriti. Kajian ini menyumbang untuk penyiasaant kesan simetri dan asimetri asas makroekonomi ke atas harga saham negara terpilih: Indonesia, Malaysia dan Singapura. Secara umumnya, ketiga-tiga negara ini mempunyai tahap pembangunan yang berbeza di mana Indonesia dan Malaysia merupakan negara sedang pesat membangun manakala Singapura adalah negara maju. Ketiga-tiga negara ASEAN ini mempunyai pelbagai dasar monetari di samping keadaan ekonomi mereka yang berbeza. Penyelidikan sebelum ini telah menyiasat secara menyeluruh hubungan antara harga saham dan isu makroekonomi, tetapi dipercayai bahawa hubungan itu adalah simetri maka terdapat kekurangan maklumat empirikal mengenai kesan asimetri asas makroekonomi ke atas harga saham. Kajian ini menggunakan dua pendekatan berbeza: pendekatan autoregressive distributed lag (ARDL) dan nonlinear autoregressive distributed lag (NARDL) berdasarkan pemerhatian suku tahunan dari tahun 1999 hingga 2021. Penemuan ini, inflasi, kadar faedah, dan kadar pertukaran menunjukkan kesan tidak linear ke atas harga saham di Indonesia. Di Malaysia, keputusan menunjukkan kesan bukan linear kadar faedah dan kadar pertukaran ke atas harga saham. Di sebaliknya, kebanyakan model adalah tidak penting untuk Singapura. Oleh itu, penggubal dasar harus mengoptimumkan kesan asimetri inflasi, kadar faedah, dan kadar pertukaran mengikut sifat setiap negara.*

***Kata kunci:*** *Harga Saham, makroekonomi, pendekatan ARDL, pendekatan NARDL*

# TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## LIST OF ABBREVIATIONS

| | |
|---|---|
| ADF | Augmented Dickey-Fuller |
| APT | Arbitrage Pricing Theory |
| ARCH | Autoregressive Conditional Heteroskedasticity |
| ARDL | Autoregressive Distributed Lags |
| ASEAN | Association of Southeast Asian Nations |
| CAPM | Capital Asset Pricing Model |
| CGS | Centre for Graduate Studies |
| CUSUM | Cumulative Sum of the Recursive Residuals |
| CUSUMSQ | Cumulative Sum of the Square Residuals |
| ED | Economic Development / Income Level |
| EMH | Efficient-Market Hypothesis |
| EXC | Exchange Rate |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| IPI | Industrial Production Index |
| INF | Inflation Rate |
| INT | Interest Rate |
| ITF | Inflation Targeting Framework |
| JB | Jarque-Bera |
| LM | Lagrange Multiplier |
| KOSPI | Korea Composite Stock Price Index |
| NARDL | Non-linear Autoregressive Distributed Lag |
| OLS | Ordinary Least Square |

| | |
|---|---|
| OPR | Overnight Policy Rate |
| PP | Phillips-Perron |
| RESET | Ramsey Regression Specification Error Test |
| SBC | Schwartz Bayesian Criterion |
| SP | Stock Price |
| UECM | Unrestricted Error Correction Model |
| UNIMAS | Universiti Malaysia Sarawak |
| VAR | Vector Autoregressive |

# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

The stock market is the main financial venue where investing happens. The stock market is the platform where individuals and institutions can buy and sell ownership stocks in publicly traded companies. With each fluctuation, especially during the 20th century, the resultant instability can make or break the financial market. This has long been the driver behind every economist, investor, and policymaker's pursuit for the best way to predict the market trend. Albeit its growing complexity and connection with many micro- and macroeconomics factors at the national and international level, the pursuit has never ended. Macroeconomic fundamentals, often known as economic indicators or economic variables, are important economic data that provide light on the state and functioning of an economy as a whole. These fundamentals aid in the assessment of the present status of the economy, the formulation of wise decisions, and the forecasting of future economic trends by policymakers, investors, companies, and economists.

A financial market is a platform where fund transfers from savers to investors occur. As an important component of the financial market, the stock market plays a crucial role in the growth and development of an economy. Stock markets exist with the purpose of issuing, buying, and selling over-the-counter equities. The stock market serves as a leading economic indicator and provides valuable insights into a country's or nation's economic performance. Changes in stock prices and market indices can provide signals about the overall health and direction of the economy. Stocks or equities, represent fractional ownership in a business.

The stock market facilitates the buying and selling of stocks, enabling investors to trade ownership of these investible assets because they can generate returns for investors.

The most recent global financial crisis, often referred to as the subprime mortgage crisis, originated in the United States in 2008. The root cause was the over-issuance of low-quality housing loans and over-speculation of housing prices that subsequently led to the collapse of the housing market bubble and financial institutions. As house prices fell, many borrowers defaulted on their mortgages, triggering a wave of foreclosures. This led to the collapse or near-collapse of several major banks and investment firms. A financial crisis leading to a recession like this is not new. Most often than not, the obvious warning sign is a steep drop in stock prices over a short period of time and ongoing price fluctuations in the capital market. The impact of a financial crisis is influenced by the connectivity of the affected market and economy. Through various channels such as trade, investment and financial linkages, a financial crisis in one country or market can quickly spread to other countries. The degree of interconnectedness is a key determinant of the extent to which a crisis can have spillover effects. Since the modern global economy is well-connected and intertwined, it is not surprisingly that the 2008 global financial crisis has spread well across the United States borders to other countries, including the ASEAN region.

According to Hoque and Yakob (2017), authorities are concerned about stock market performance since its impact directly affects the development of the economy. The stock market's performance can be one of the significant indicators for showing economic performance signals (Ho & Iyke, 2017). According to Demir (2019), the countries' economic administrators and policymakers closely monitor the growth of stock markets in order to take preparations in the event of unanticipated instabilities. In a nutshell, the stock market is an

indispensable component of any economy because it aids in the redistribution of financial resources among various economic entities.

For companies, stock trading allows businesses to raise funds to pay off debt and continue their expansion plans. Investors can profit from stock markets by benefiting from the rise in stock values and receiving dividend payments from companies. Stock prices have a significant impact on the confidence of consumers and businesses, which in turn has an impact on the economy as a whole. It is also crucial to note that stock markets and economic performance have a bidirectional relationship.

The Indonesian, Malaysian and Singaporean stock markets typically reflect the stage of development of the economy in terms of market capitalizations. Indonesia and Malaysia are both emerging countries while Singapore is a developed country. The Growth Triangle (IMS-GT) is a collaborative concept aimed at fostering economic development and cooperation between Indonesia, Malaysia, and Singapore. The concept was initially proposed in December 1989 with the goal of enhancing regional economic ties and leveraging the synergies between the three geographically adjacent areas. The cooperation encompasses various sectors such as trade, investment, tourism, infrastructure development, and human capital. However, question remains on whether the cooperation is indeed a triangle of growth or a triangle of inequality. Thus, this research concentrated on the effects of macroeconomic fundamentals on the stock price movement in the selected countries - Indonesia, Malaysia, and Singapore.

## 1.2 Stock Market and Macroeconomic Fundamentals

Stock market and macroeconomic fundamentals are intertwined, and movements in these elements can have a big influence on the stock market's performance. Macroeconomic

fundamentals are useful in describing the behaviour of stock prices. According to Ho and Iyke (2017), there are two categories into which influencing the determinants of stock market: institutional and macroeconomic variables that contribute to the stock market development. However, the relationship between macroeconomic variables and the stock market may not always be linear. During periods of extremely high or low GDP growth, the impact of on stock could be nonlinear. Moreover, the relationship between inflation and stocks can be nonlinear due to market expectations and central bank policies. In addition, the relationship between interest rates and stocks can be nonlinear due to market expectations and the speed at which interest rates change. Not to forget that nonlinear relationships with exchange rates may arise during financial crises or extreme currency fluctuations.

For corporations, pension plans, and individual investors, prolonged lower stock prices during a bear market signifies lower confidence in the business as well as less reserve for operations and growth opportunities. The impact worsens when the stock market crashes during a financial crisis. A classic example is the Black Monday or Wall Street crash that occurred 1987. The shock was preceded by a bearish week that caused a pile up of sell orders queuing up in the trading system, waiting to be executed on that very Monday. It took the stock market almost 20 months to recover. In the mid of 1996, just before the Asian financial crisis in 1997, Thailand's economy began to exhibit a downward spiral of exports, market growth rate, stock prices and etc. after massive currency devaluation and capital outflow due to the unpegging of Thai baht from the US dollar. The adverse effect then propagated to the rest of Southeast Asia and East Asia, triggered a continent-wide financial meltdown that fortunately recovered within two years. However, the global financial market was not spared from the 2008 Subprime Mortgage Crisis that first became apparent due to the fall of Lehman

Brothers Holding Inc. and stock market (Filardo, et al., 2010). This crisis also highlighted how a wavering property market could ultimately translate into financial instability.

The Covid-19 pandemic has caused a profound repercussion on global financial market, leading to another unprecedented turmoil and uncertainty. The onset of the pandemic resulted in heightened market volatility across classes. Stock markets fell by dropped 20 percent to 30 percent in the early stages of the pandemic because of investors' reaction to the ambiguity surrounding the economic effects of lockdown measures, interrupted supply chains, and decreased consumer spending. Due to lockdowns, several nations experienced an abnormally high and quick rise in unemployment during the ensuing crisis. By which, all the effect is still felt until this very day.

The second turmoil came with the 2020 Russia-Saudi Arabia oil price war which happened in March 2020 due to a disagreement between Russia and Saudi Arabia over oil production levels. This resulted to a sudden surge in excess global oil supply, exacerbating concerns of oversupply in an already weakened demand environment on the grounds that hurt by the Covid-19 pandemic. The sharp drop in oil prices had repercussions on stock markets and global financial market. The pandemic resulted in a clear decline in consumer activities in comparison to the past ten years with the collapse of the tourism, hospitality, and energy industries. When worldwide economies emerged from the early slump by Covid-19, a worldwide increase in demand, particularly in Asia, resulted in the global energy crisis of 2021–2022. This was later made worse by the global response to the Russo-Ukrainian War’s intensification, which culminated in the Russian invasion of Ukraine in 2022. For these reasons, a better grasp of the behaviour of stock market is essential for authorities to take preventive measures before the impact of stock price movements leads to further

deterioration in the economy. Unexpected economic shocks, such as financial crises or natural disaster can abrupt and nonlinear movements in stock prices.

Central banks have traditionally used monetary policy to accomplish their economic goals of price stability or economic growth. In the mid-1970s, most developed and developing countries used monetary targeting as a tool to control inflation. However, by the mid-1980s, when most countries began to liberalize their financial systems, deregulation in the banking system had blurred the correlation between money supply and other macroeconomic variables. Different country uses different monetary policy that suits the nature of a country. In this study, the different macroeconomic fundamentals of Malaysia, Indonesia and Singapore were considered in understand the country's monetary policy strategy. Commodity prices are primarily stabilised by monetary policy, but stock market volatility is stabilised by other variables having a self-reinforcing calming impact (Pearce & Roley, 1985; Uwubanmwen & Eghosa, 2015).

Many macroeconomic factors and processes, according to Shin et al. (2014), have long been recognized as nonlinear. However, previous studies developed by Dickey and Fuller (1979), Engle and Granger (1987), Johansen (1988), Phillips and Hansen (1990), and Kwiatkowski et al. (1992) focused on the analyses as a symmetric linear combination of non-stationary variables. The research by Shin et al. (2014) developed a nonlinear autoregressive distributed lag (NARDL) model as a versatile framework for analysing dynamic relationships and symmetries in economic variables simultaneously and comprehensibly. The method enabling researchers to examine how these macroeconomic variables respond differently to positive and negative changes.

### 1.2.1 Indonesia Background

The Republic of Indonesia was previously referred to as the Dutch East Indies (or Netherlands East Indies). As the world's biggest archipelago and the 14th-largest country by land area, Indonesia is home to the world's 4th largest population (273 million people) after China, India and the United States of America in 2020 (Worldometer, 2023). In Indonesia, better living conditions, better health care, and a developing economy are the fundamentals for population growth. As the largest economy in Southeast Asia, this nation is one of the world's developing market economies with a mix of private and public businesses.

The Indonesia Stock Exchange (IDX) is authorized for all securities transactions in Indonesia with the primary purpose of establishing the infrastructure necessary for orderly, fair, and efficient trading (Murphy, 2021). The Surabaya Stock Exchange and Jakarta Stock Exchange (JSX) merged on 30 November 2007 to establish IDX. In Indonesia, the first stock exchange in Indonesia, "Vereeniging voor den Effectenhandel in Nederlandsch-Indië" (Association for Securities Trading in the Dutch East Indies) was established in 1912, before Indonesia's independence for the benefit of the Dutch East Indies (VOC) during the Dutch colonial period. Due to numerous factors such as World War I and II, the change of power from the Dutch government to the Indonesian government, and others, the capital market grew gradually and then went temporarily dormant during that period.

On 17 August 1950, Indonesia claimed its independence from Dutch. Indonesia with its abundant natural resources and a huge population has the potential to grow. However, the development expenditures were simple unaffordable. In order to finance development plans, the government had to rely on public funds and government savings. Due to extremely low economic growth and ineffective policies, Indonesia's inflation rate reached 635 percent in