

CHAPTER 1

INTRODUCTION

1.1 Introduction

Gold is a valuable metal to the economy as it is said to be the main commodity to the country. According to M. Garside, (2023), China, Australia, Russia, and Canada are the world's largest gold producers as until 2022. It was one of early metals that worked and has been known since the beginning of recorded history, primarily because it was easy to find as small atoms in stream beds. Gold has been extensively applied in a variety of industries around the world, including gemstone production, finance and investment, healthcare and dentistry, electronics production, components used in aircraft and computers. Most often, gold is used to hedge against the macroeconomic events such as currency depreciation, inflation and deflation. The reason is gold preserves its purchasing power over long periods of time. Hence, when the stock price and other assets fluctuate dramatically, the price of gold might be in more stable state (Tim Maxwell, 2022). As a result, when purchasing power for goods and services falls, it can act as a hedge against inflation.

One of Malaysia's most significant businesses is mining, and gold is one of the main minerals extracted in Malaysia. The eastern states of Pahang, Kelantan, and Terengganu are home to most of this gold (Sheba Gumis, 2020). The modern gold dinar coin concept has some success in the national economy, and Malaysia is similar to other nations that hold gold as an investment, store of value, and currency hedge. Gift -giving of gold is common in Malaysia during weddings and festive seasons like Muslim festivals and the Chinese New Year. Physical bar gold is accessible in many Malaysian jewellery stores as well as through banks. According to Public Gold executive chairman Datuk Wira Louis Ng, the Malaysian gold market is anticipated to trade lower this year due to lingering concerns about a global recession and the Bank

Negara Malaysia's (BNM) planned increase of the OPR by four times in 2022 (Bernama, 2023).

Bildirici & Türkmen, 2015, stated that gold serves as a means of wealth storage in industrial commodities, which is crucial especially during times of political and economic disruption. This is related to the upward trend in gold prices and the volatility of fiat currency values. Many gold investors preserve their assets in the form of bullion coins or bars as a hedge against inflation and other economic downturns. As an outcome, gold price time series estimates have become essential tools for helping investors select the best time to carry out gold buying or selling activities. Aside from investors, gold can also protect our family's economy. It can compete with the rate of inflation while also protecting against currency depreciation. According to Habib Jewels Sdn Bhd senior general manager, Mohd Zaruddin Mahmud, due to consumers' increased awareness of the investment value of gold bars in the face of inflation risks, demand for gold bars has increased by at least 30% since last year (Asila Jalil, 2022).

Based on Gold Price Malaysia, the graph pattern shows the price of gold fluctuating due to the current economy. According to (Yun, 2020), due to the threat of Covid-19 which has affected the global economy, the gold price rose due to high demand carried on by increased global hesitation and historically low real interest rates. Investors choose gold as a safe asset because it is a physical commodity, and its value is unaffected by government interest rate decisions. After all, when scientists found a vaccine for Covid -19, the gold price declined sharply because it has provided relief to people that the global economy will recover.

There is a nearly common characteristic among gold, Islamic and conventional stock, and commodity markets, all of which have been commercialized as inflation hedges. (Ibrahim et al., 2018a) in their research about whether the price of gold follows or lag the Islamic stock market and other markets found that the price of gold fails to keep up with the Islamic stock market in Malaysia. They also found that the price of crude oil and crude palm oil affects the Islamic stock market and gold, marked as the one variable which moves independently contrary to other variables. Through an understanding of the relationship between these markets and commodities and

describing their changes over time can thus have significant implications for international investors, risk managers, and policymakers. This will motivate them to invest because they need to be well informed in order to plan their investment portfolio. Among the decisions that they must consider is determining the portion or weightage of assets that should be included in the investment portfolio.

Forecasting is a process for estimating future situations and making decisions. Gold price forecasting is useful for investors, analysts, and academics. The forecasting model used in our studies is time series, using Long Short-Term Memory (LSTM) method. Long Short-Term Memory (LSTM) is one kind of recurrent neural network (RNN) that works particularly well for time series forecasting is the long short-term memory (LSTM) network, while the other one is Vector Autoregression (VAR) method. Their ability to detect long-term relationships and interplay among several time series makes them perfect for predicting gold prices in conjunction with cointegration variables like crude oil prices, stock market indices, and other relevant economic indicators. The price of gold fluctuates a lot, responding to changes in the price of commodities around the world. Gold investors expect to pay a low price at the time of purchase and sell a high price at the time of sale (Heidi Airisha Abdul Rahman et al., 2022). By lowering uncertainty, the volatility of the gold price can be managed.

In the current study, we analyse the impact of oil price and stock market on gold price by examining their causation and cointegration using the Granger Causality test, Johansen Cointegration method and Autoregressive Distributed Lag (ARDL) model and forecast the gold price using Long Short-Term Memory (LSTM) and Vector Autoregression (VAR) methods. We use gold price as a dependent variable, while oil price and stock market as independent variables.

1.2 Problem Background

Given the interdependence of these financial variables, there has long been interest in the impact of oil prices and stock market performance on gold prices. One of the most important precious metals in the world economy is gold, which is

frequently used as a hedge against inflation and economic downturns. Research, politicians, and investors can all benefit from the interactions between the price of gold, crude oil, and stock market indices. In Malaysia, the economy is greatly influenced by the mining industry, especially by the extraction of gold. Pahang, Kelantan, and Terengganu in the east of the country are the primary gold-mining regions in Malaysia (Gumis, 2020). Besides that, the contemporary gold dinar coin in Malaysia emphasises the cultural and economic significance of gold by acting as a store of value and an investment. Similar to other countries, Malaysia's gold price is impacted by a number of macroeconomic variables, such as the price of crude oil and the state of the stock market (Bernama, 2023).

Numerous factors, including as market demand, economic policies, and geopolitical developments, can impact gold prices, which are recognised for their extreme volatility. As an illustration, during the COVID-19 epidemic, demand for gold grew as investors looked for a haven amid anxiety about the state of the world economy. As a result, gold prices rose. However, when optimism about an economic recovery increased, the discovery of a vaccine caused gold prices to drop precipitously (Yun, 2020). Additionally, gold price movements are also significantly influenced by the stock market. The influence of gold prices on Malaysia's conventional and Islamic stock markets has been examined. Unlike traditional stock markets, the Shariah-compliant Islamic stock market has demonstrated different dynamics with gold prices. Previous research has shown that there is a considerable cointegration between crude oil prices and the Islamic stock market, but there is not a strong long-term association between the Islamic stock market and gold (Ibrahim et al., 2018).

Accurate analysis and forecasting of gold prices require complex econometric models due to the intricacy of these linkages. The cointegration and causation links between these variables can be determined using techniques including the Autoregressive Distributed Lag (ARDL) model, Granger Causality test, and Johansen Cointegration test. These models aid in comprehending dynamic interactions and offer information to help policymakers and investors make wise decisions (Bildirici & Türkmen, 2015). Therefore, the purpose of the study is to examine the patterns and connections that exist between the indices of the Islamic stock market, conventional

stock market, gold prices, crude oil prices, and palm oil prices between 2013 and 2023. The research aims to provide significant insights for future forecasting and investing strategies in Malaysia's financial markets by comprehending these relationships.

1.3 Problem Statement

Bank Negara Malaysia, Governor Tan Sri Nor Shamsiah Mohd Yunus has warned that Malaysia will sail into a challenging economic climate in 2023 (Vasu, 2022). This is resulting from the worsening supply chain, geopolitical uncertainty and market volatility that plays a huge role in economic growth. Higher inflation on the domestic front would be a primary risk leading to eroding household spending power and reducing investment activity. This situation wreaks havoc on levels of society, especially to the public where people are looking for alternative ways to survive this critical situation. With the rising and fears looming recession, investing in gold as such for a haven for their money in uncertain times may be a benefit (Tim Maxwell, 2022). However, investing in gold is not the only alternative way preferred by people. Apart from that gold prices are affected by many external economic factors such as oil and stock market prices. Thus, avoiding these factors would underestimate future trends on gold prices. This study is then to analyze the trend of gold, oil, and stock prices from 2013 to 2023.

Based on past studies, it has been justified that there is a cointegration relationship between the gold, oil, and stock market prices. It is however, the findings are not consistent and yet they varied depending on the data and method used in determining the cointegration. Thus, this study is to investigate the cointegration relationship between gold, crude oil, palm oil, Islamic and conventional stock market prices in Malaysia and hence supporting past-related research on general.

Compared to past research, several models have been applied such as Generalized Autoregressive Conditional Heteroscedastic model, Exponential Smoothing Autoregressive Integrated Moving Average (ARIMA), Long Short-Term Memory (LSTM), Vector Autoregression (VAR) and so on. Among these models, the

most widely used and popular model is ARIMA since it provides instantaneous and short-term forecasting. However, ARIMA model presented poorer forecast than LSTM and VAR for highly correlated variable and yet most of the forecasted result is not applicable for future use due to different method used and the data sources from. Ergo, the forecasting gold price process in this study is carried out on Malaysia sourced data using LSTM and VAR model.

Even though research and study on gold has been decades and centuries year done. There are relatively few amounts of study focusing specifically on the impact of oil and stock market prices on the gold price. Most of the study that has been done is emphasizing on other economic factors such as inflation rate, gross domestic profit (GDP) and others. Hence, this study is to figure out how far oil and stock market price could affect the gold price.

1.4 Research Questions

The proposed project aims to achieve the following objectives:

- I. How do the trends in the prices of gold, crude oil, palm oil, and the conventional stock market and Islamic stock market indexes look?
- II. Which variables have the causation and cointegration to the price of gold when using the Malaysia data?
- III. How to forecast the price of gold by considering significant variables that affect the gold price?

1.4.1 Research Objectives

The objectives of the research are:

- (a) To analyse the trend of gold price, crude oil price, palm oil price, Islamic and conventional stock market Index during year 2013 to 2023.
- (b) To validate the causation and cointegration relationship between gold price, crude oil price, palm oil price, Islamic and conventional stock marker Index using Granger Causality test, Johansen Cointegration method and Autoregressive Distributed Lag (ARDL) model.
- (c) To forecast gold price for future years with integration of significant variables using the Long Short-Term Memory (LSTM) and Vector Autoregression (VAR) model.

1.5 Significance of Study

This research is made with the aim of providing crucial information and knowledge regarding the chosen topic from the recent studies and related sites needed for the expected importance to the individual specifically for government, industry, public and future researchers.

The government will take advantage of this study by supervising economic inflation, restoring, and overcoming the black economy. As a necessary consequence, the government should keep an eye on the gold price mechanism. By doing that, the government can help to reduce the risks associated with oil price volatility and stock market price, which has an impact on global economies.

Our research will benefit investors and investment portfolio managers by assisting them in choosing the most appropriate investment strategy for their needs. This is also to ensure that if they want to invest in Kijang Gold, they will need to include conventional stock market as well as commodities such as crude oil price in their investment portfolio. Besides, it also important for policymakers because they provide shareholders with a clear and comprehensive picture of their investments in Islamic or conventional markets. Furthermore, it will create new opportunities for portfolio managers and speculators in both the Islamic and traditional stock markets.

The public can get benefits such as subsidies from our study if the government and industry take actions due to the changes of economic in our country. Furthermore, the study is vital for policymakers because it will help them understand how crucially important the stock market is to any contemporary economy since it gives people access to their money and makes it available for usage by businesses. The future researchers might enhance further analysis and implications of the study by using different analyses of data, the longer sample periods and become acquainted with other macroeconomic variables that may potentially affect gold price.

1.6 Scope and Limitation

This research covers the relationship of gold price, crude oil price, palm oil price, Islamic and conventional stock market Index in Malaysia. One of data that will be used in the study is daily of gold price per 1 troy ounce (1 Troy Ounce = 31.1034768 grams), obtained from Malaysia Informative Bullion rate official website (<https://www.indexmundi.com>). The daily price of palm oil per ton, which can be found on Trading Economics' official website at <https://tradingeconomics.com/commodity/palm-oil>, is another piece of information that will be included in the study. Additionally, information on the monthly price of crude oil per barrel was gathered from the official index Mundi website (<https://www.indexmundi.com>). Furthermore, conventional stock market data, particularly for the FTSE Bursa Malaysia KLCI, was obtained from the finance.yahoo.com website (KLSE). The most recent data of Islamic stock market is from the website Investing.com; specifically, it refers to the FTSE Bursa Malaysia EMAS Shariah (FTFBMS).

This study only covers the countries in Malaysia; thus, the results cannot represent other countries because they have different economic situation and different data. Next, this research only focuses on the gold price, as the indicator to know the effect on other commodities which are oil price and stock market. Whilst oil price is an important factor on gold price, other factors such as exchange rate, interest rate, inflation and rate of currency exchange will not be discussed further, even if these

factors have major effect on gold price. Besides that, there may be some unpredictably occurring events that will interfere with the research analysis results, this study is unable to cover all research pertaining to changes in government policy. War is also excluded as an unpredictable event.

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