Investigating the Canonical Correlation of Global Capital, Index, Exchange Rate and Golden Price in Two Selected ASEAN Countries

Isfenti Sadalia and Maria Marbun
Department of Management
Universitas Sumatera Utara
Medan Baru, Medan, 20222 Sumatera Utara, Indonesia
isfenti@usu.ac.id , maria@usu.ac.id

Mangasi Sinurat
Sekolah Tinggi Ilmu Ekonomi Bina Karya Tebing Tinggi
Padang Hulu, Tebing Tinggi, 20631 Sumatera Utara, Indonesia
mangasisinurat621@gmail.com

Rico Nur Ilham
Faculty of Business and Economics
Universitas Malikussaleh
Blang Pulo, Muara Satu, Aceh Utara, 24355 Aceh, Indonesia
riconurilham@unimal.ac.id

Jumadil Saputra
Faculty of Business, Economics and Social Development
Universiti Malaysia Terengganu
21030 Kuala Nerus, Terengganu, Malaysia
jumadil.saputra@umt.edu.my

Elina Maisyarah
Badan Pusat Statistik Kota Tebing Tinggi
Tebing Tinggi Kota, Tebing Tinggi, 20998 Sumatra Utara, Indonesia
elina@bps.go.id

Abstract

The economic growth in developed countries, including Southeast Asia, has a significant effect on economic growth in every region. Of these, all of the countries are agreed to cooperate, for instance, ASEAN. The economic sector's cooperation is one type of ASEAN collaboration, such as the movement of capital. It is one of the pillars that has been the precursor of capital market integration in ASEAN countries. It is a financial instrument that trades securities. Thus, the present paper examines the canonical correlation of global capital index, exchange rates and gold price between Indonesia (IHSG) and Malaysia (KLCI), consisting of 260 samples. The data analyzed using canonical correlation technique. The analysis results found that the global index, exchange rates and commodity prices between Indonesia (IHSG) and Malaysia (KLCI) have significantly correlated. In conclusion, this study successfully proved that the economic growth of one country is associating with
others. This study confirmed that global index, exchange rate, and gold price have significantly correlated between Indonesia and Malaysia.

Keywords
Financial Instruments, global capital index, exchange rate, gold price, Indonesia and Malaysia

1. Introduction
The economic growth of developed countries is currently very influential on economic growth in every country, including countries in Southeast Asia (ASEAN). The beginning of the formation of ASEAN in 1967 through the Bangkok conference was agreed upon by the cooperation of 5 countries, namely Indonesia, Malaysia, Singapore, Thailand and the Philippines. One form of cooperation that ASEAN has carried out is cooperation in the economic sector. "Free movement of capital" is one of the pillars that has become the forerunner of the development of capital market integration in ASEAN. The capital market is an indicator of a country's economic progress, where the capital market can support its economy (Sutedi, 2009). The capital market is a financial instrument that trades securities. To attract buyers and sellers to participate, the capital market must be liquid and efficient. An efficient capital market defines a market in which securities' prices react quickly and thoroughly reflect the available information.

Sutedi (2009) states that ASEAN countries such as Indonesia and Malaysia have had considerable influence from the global financial crisis. The government took various policies to reduce the crisis's bad effects, ranging from raising interest rates, increasing fuel oil, and tightening foreign currency traffic. The index movement is strongly influenced by investors' expectations of the State and the global's fundamental condition. The existence of new information will affect investors' expectations, which will ultimately affect the JCI and the KLCI and impact the State of public behaviour in that country; in other words, the people's financial behaviour in that country is not dominant. Financial behaviour studies how humans behave in a financial determination, especially studying how psychology affects financial decisions, companies, and financial markets. The two concepts that are described clearly state that financial behaviour is an approach that explains how humans invest or relate to finance is influenced by psychological factors (Wicaksono and Divarda, 2015).

![Dow Jones Index](image)

Figure 1. Dow Jones Index
Figure 1, Figure 2, and Figure 3 show that the US Dow Jones Index's movement affects the movement of the Indonesia Composite Index and the Malaysian KLCI. It can be seen in the rising American Dow Jones Index's reaction to raise the JCI and KLCI in 2018 (http://id.investing.com/). However, Figure 3 displays the movement of the KLCI in 2019 did not follow the movement of the Dow Jones index because, in terms of the economic pace, the world economy was sluggish. By publication of the June 2019 edition of Global Economic Prospects which was released at the beginning of last month, the World Bank (World Bank) decided to cut its projections for global economic growth. The World Bank sees a significant global economic slowdown this year. Sluggish international trade flows caused the slowing pace of global economic growth. However, from an external perspective, the existing conditions are favourable for Asian stock markets, not from the rate of economic growth, but from the US stock market's performance, which is the mecca of the world stock market (https://www.cnbcindonesia.com/). The exchange rate fluctuations are from 2015 to 2019, as seen in Figure 4 and Figure 5.
Figure 4 and Figure 5, the Indonesian exchange rate movement, and the Malaysian exchange rate against the US Dollar both fluctuate. By Tandelilin (2001), one of the sources of investment risk is the exchange rate risk. A stable currency exchange rate will affect foreign investors entering a country. Currency exchange rates show how much domestic money is needed to buy one unit of foreign currency. The price of gold can affect economic activity in different ways, such as interest rates, exchange rates and the stock market. Besides, the price of gold is sensitive to supply and demand. Also, the price of gold is always associated with inflation. An increase in the gold price will cause investors to be more interested in investing in gold than stocks. This situation caused the JCI and KLCI to decline because investors would sell their shares and switch to gold. Concerning the fluctuation of the world gold price (GP) from 2016 to 2019, as seen in Figure 6.
Figure 6 shows that in the period 2015 to 2019, the world gold price fluctuated together. Figure 6 also shows that when the world gold price (GP) increased, from $60.17 in early May 2016 to $33.78, it dropped drastically in early February 2016. In August 2017 it decreased to $47.12 and jumped far up in June 2018, which is $74.33 (http://id.investing.com/).

2. Theory

2.1 Stock Return

One of the goals of investors investing is to get a return. Without the level of return that is enjoyed from an investment, of course, investors will not invest. So, all assets have the main objective of getting a return (Ang, 2010). According to (Jogiyanto, 2009), the return is the result obtained from the investment. According to (Samsul, 2006), the return is income expressed as a percentage of the initial investment capital. This investment income in shares is the profit obtained from buying and selling shares, where if the profit is called capital gain and if the loss is called a capital loss. Brigham and Houston (2011: 215), return or rate of return is the difference between the amount received and the amount invested, divided by the amount invested. From some of the definitions above, it can be concluded that stock return is the rate of return in the form of returns earned from selling and buying shares.

2.2 Capital market

The capital market is an institution that mobilizes public funds by providing a means or place to bring together sellers and buyers of long-term funds called securities (Halim, 2018). Meanwhile, according to (Widoatmodjo, 2012), the capital market’s definition is an abstract market, where long-term funds are traded, that is, and those tied to investments for more than one year. In Indonesia, the development of the capital market is progressing fantastically or dynamically. In essence, the capital market is a market that is not much different from the traditional market that we know so far, where there are traders, buyers, and also bargaining prices. The capital market can also be interpreted as a vehicle that brings together parties who need funds with those who provide funds following the rules set by institutions and professions related to securities.

2.3 Signalling Theory

Signalling theory or signal theory explains why companies have the incentive to provide financial statement information to external parties. Companies' encouragement to provide information is because there is information asymmetry between the company and outside parties. After all, the company knows more about its prospects than outsiders (investors, creditors). One way to reduce information asymmetry is to provide signals to outsiders, one of which is reliable financial information and will reduce uncertainty about future company prospects.

According to Brigham and Houston (2009), a signal or signal is an action taken by company management that provides investors instructions about how management views its prospects. Furthermore, companies with favourable prospects will avoid selling shares and seeking new capital in other ways, such as by using debt. Companies with unfavourable prospects will tend to sell their shares. Signal theory explains why an entity's manager has an incentive to voluntarily (voluntarily) report information to the capital market even though there are no mandatory provisions.
2.4 Composite Stock Price Index (IHSG)
The Stock Price Index is an essential part of the capital market and an indicator of various things to make macroeconomics, microeconomics, monetary, and other policies. The revival and economic growth of a country will affect the economic development of other countries. A stock price index is a number used to compare an event with other events. The index number or the so-called index is a number made so that it can be used to make comparisons between the same activities (production, exports, sales proceeds, money supply, etc.) at two different times (Situmorang, 2008).

2.5 Global Index
The relationship between the Indonesian capital market and the foreign capital market began after investors were allowed to control shares listed on the Jakarta Stock Exchange. Foreign portfolio investment plays a significant role in any capital market (Mobius, 1998). The introduction of foreign investors to the market, of course, catalyzes to encourage local investment. Foreign investment is influential in highlighting the companies that provide the most transparent financial information and best evaluations. The entry of foreign funds into new market markets has a clear and beneficial effect on market growth and structure. However, domestic investors' role is increasing. Domestic investors have a habit of following a strategy of trailing foreign investors or domestic investors using foreign investors' behaviour as a reference (Cahyono, 2000). Domestic investors will follow suit when foreign investors release their shares; thus, the index may fall even more sharply.

2.6 Commodity Prices
Gold is the most accepted valuable item globally after foreign currencies from the G-7 countries (the name for 7 countries with strong economies, namely America, Japan, Germany, England, Italy, Canada, and France). The price of gold will follow the increase in the value of the currencies of the G-7 countries. The higher the increase in the value of the foreign currency, the higher the price of gold. Also, the price of gold is usually proportional to inflation. The higher the inflation rate, usually, the higher the gold price increase. Often the increase in the price of gold exceeds the rise in inflation itself (Marsis, 2013). The classical economic view states that precious metals are safe havens. It means that buying precious metals is an investment with a low risk of failure and is believed not to have decreased purchasing power by inflation or exchange rate swings. According to the history of central banks' existence, storing gold (gold reserve) is used to pay debts, guarantee printed banknotes, and maintain the exchange rate of the currency.

3. Methodology
3.1 Population and Sample
This study uses data contained in the IDX Fact Book and bursamalaysia.com as the study population. This study is limited to 2015 to 2019, consisting of 52 (fifty-two) weeks. So that in 5 (five) years there are 260 weeks. So the population of this study amounted to 260 time-series data. While the sampling technique used in this study is the census method, a non-probability sampling technique determines the sampling by taking the entire population into the research sample. So this research sample was obtained from time-series data each month from 2015 to 2019, namely 260 samples.

3.2 Type of Data
This type of research data is secondary data: the publication of the Indonesia Stock Exchange and Malaysia Stock Exchange, reference books, journals, research results, and data on the internet related to research topics.

4. Results and Discussion
4.1 Descriptive Statistical Analysis
Descriptive statistical analysis is used to determine the description of a data seen based on the minimum, maximum, average and standard deviation values. Table 1 presents various descriptive measures based on the DJI, OP, GP, IHSG, KLCI, IDR and MYR variables.
Table 1. Descriptive analysis based on the DJI, GP, Variables IHSG and KLCI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DJI</td>
<td>5529.86</td>
<td>9409.02</td>
<td>7427.067</td>
<td>1095.82</td>
</tr>
<tr>
<td>GP</td>
<td>1096.5</td>
<td>1558.7</td>
<td>1313.363</td>
<td>94.3158</td>
</tr>
<tr>
<td>IHSG</td>
<td>4270.91</td>
<td>6693.47</td>
<td>5677.782</td>
<td>629.5678</td>
</tr>
<tr>
<td>KLCI</td>
<td>1565.16</td>
<td>1896.03</td>
<td>1723.014</td>
<td>76.9887</td>
</tr>
</tbody>
</table>

Table 1 shows that the minimum value of the DJI is 5529.86, while the maximum value of the DJI is 9409.02. The mean score of the DJI is 7427.067, while the standard deviation of the DJI is 1095.82. The minimum value of GP is 1096.5, while the maximum value of GP is 1558.7. The mean value of the GP was 1313.363, while the standard deviation of the GP was 94.3158. The minimum value of the IHSG is 4270.91, while the maximum value of the JCI is 6693.47. The average value of the JCI was 5677.782, while the standard deviation value of the JCI was 629.5678. The minimum value of the KLCI is 1565.16, while the maximum value of the KLCI is 1896.03. The mean value of the KLCI was 1723.0142, while the standard deviation value of the KLCI was 76.9887.

4.2 Correlation between variables
In this study, the data analysis method used is the Pearson correlation method. The Pearson correlation method is used to analyze the relationship between the DJI, GP, IHSG and KLCI variables. Table 2 presents the correlation value between variables.

Table 2. Pearson Correlation between Variables

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Pearson Correlation</th>
<th>Degree of Freedom (df)</th>
<th>Statistic of t</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DJI ↔ GP</td>
<td>0.648</td>
<td>258</td>
<td>13.661</td>
<td>0.000</td>
</tr>
<tr>
<td>DJI ↔ IHSG</td>
<td>0.913</td>
<td>258</td>
<td>35.898</td>
<td>0.000</td>
</tr>
<tr>
<td>DJI ↔ KLCI</td>
<td>-0.001</td>
<td>258</td>
<td>-0.012</td>
<td>0.991</td>
</tr>
<tr>
<td>GP ↔ IHSG</td>
<td>0.687</td>
<td>258</td>
<td>15.191</td>
<td>0.000</td>
</tr>
<tr>
<td>GP ↔ KLCI</td>
<td>-0.148</td>
<td>258</td>
<td>-2.41</td>
<td>0.017</td>
</tr>
<tr>
<td>IHSG ↔ KLCI</td>
<td>0.177</td>
<td>258</td>
<td>2.885</td>
<td>0.004</td>
</tr>
</tbody>
</table>

There is a very strong or strong positive correlation between the DJI and the JCI, with a Pearson correlation value of 0.91> 0.5. It is known that the P-Value is 0.000 <0.05, so the DJI and IHSG have a significant correlation. There is a very close or strong positive correlation between GP and JCI, with a Pearson correlation value of 0.69> 0.5. It is known that the P-Value is 0.000 <0.05, then the GP and IHSG have a significant correlation. There is a very close or strong positive correlation between GP and DJI, with a Pearson correlation value of 0.65> 0.5. It is known that the P-Value is 0.000 <0.05, so GP and DJI have a significant correlation.

5. Conclusion
Using the canonical correlation, we conclude that the global index, exchange rates and commodity prices between Indonesia (IHSG) and Malaysia (KLCI) have significantly correlated. In conclusion, this study successfully proved that the economic growth of one country is associating with others. This study confirmed that global index, exchange rate, and gold price have significantly correlated between Indonesia and Malaysia.

References
Anam, Sahrl dan Kamaroellah, Agoes. 2015. “Pengaruh Kuala Lumpur Composite Index (KLCI), Strait Times Index (STI), Philiphinnes Index (PSEi) Terhadap Indeks Harga Saham Gabungan (IHSG)”, Skripsi.


Buku Panduan Indeks Harga Saham Bursa Efek Indonesia, 2010


http://bursamakala.com/bm/maket/
https://www.cnbcindonesia.com/ekonomi
https://www.idx.co.id
https://id.investing.com/
http://www.neraca.co.id
http://www.thestar.com.my/

Acknowledgements
We would like to thank you for Universitas Sumatera Utara, which provides TALENTA funds in 2020. We would also like to express our appreciation to Universiti Malaysia Terengganu for this excellent collaboration works.

Biographies
Isfenti Sadalian is a professor at Faculty of Economics and Business, Universitas Sumatera Utara, Medan, Indonesia and Director of Master of Management in Faculty of Economic and Business. His Research Interests include financial management, investment management, Entrepreneurship SME, Islamic banking, and behavioural finance. Some of Strategic Position that Isfenti Sadalia took are Management Study Program TPSDP Coordinator, Members of USU's
Kokurikuler Development Unit (UBK), present Chair of Universitas Sumatera Utara Student Entrepreneurship Center (SEC) Unit and present Chairman of the Universitas Sumatera Utara Department of Management.

Maria Marbun is a magister student at Faculty of Economics and Business, Universitas Sumatera Utara, Medan, Indonesia. His research interests include Digital Marketing, Marketing Management, Entrepreneurships, Consumer Behaviour and Entrepreneurship small and medium enterprise.

Mangasi Sinurat is Chief of the College of Economics (STIE) Bina Karya Tebing Tinggi, Broker-Dealer Representatives in Indonesian Stock Exchange, Investors, and Traders the Indonesia Stock Exchange. He was graduated from Doctoral degree Of Accounting from Universitas Sumatera Utara. His research interests include Accounting Management and Financial sector, Stock Exchange, Small and medium enterprise and Artificial Intelligence platform. Some international course he follows are English For Accountancy in the Philippines, Textbook Making Training at Pontianak Polytechnic, Trend And Techniques in Teaching English at the Indonesian American Institute Course of Broker-Dealer Representatives on the Indonesian Stock Exchange.

Rico Nur Ilham is Expert Assistant Lecturer Department of Management Economics and Business Universitas Malikussaleh, work as Finance Manager of PT. Mekar Karya Agung, member of Young Lecturer of the College of Economics (STIE) Bina Karya Tebing Tinggi, Director of CV. Mangapul Sejati, Broker-Dealer Representatives in Indonesian Stock Exchange. He has some small business owner of The King Coffee Dolok Masihul, The King Coffee Tebing Tinggi, and Barona Unimal Lhokseumawe Canteen, Investors and Traders of the Indonesia Stock Exchange. Rico nur Ilham is Founder of CV. Express Consulting (Research Planer), Founder of goriset.id and Founder of Asetpedia.id (Financial Analytics and Forecasting Platform). He was graduated from Doctoral degree Of Finance Management from Universitas Sumatera Utara. His research interests include Financial sector, Stock Exchange, Small and medium enterprise and Artificial Intelligence platform.

Jumadil Saputra is a PhD holder and works as a senior lecturer in the Department of Economics, Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Malaysia. He has published 125 articles Scopus/WoS indexed. As a lecturer, he has invited as a speaker in numerous universities, the examiner (internal and external), the reviewer for article journal and proceeding, the conference committee, journal editorial board, and others. He is a professional member of the International Business Information Management Association (IBIMA), Ocean Expert: A Directory of Marine and Freshwater Professional, and Academy for Global Business Advancement (AGBA). His research areas are Quantitative Economics (Microeconomics, Macroeconomics, and Economic Development), Econometrics (Theory, Analysis, and Applied), Islamic Banking and Finance, Risk and Insurance, Takaful, i.e., financial economics (Islamic), mathematics and modelling of finance (Actuarial). His full profile can be accessed from https://jumadilsaputra.wordpress.com/home-2/.

Elina Maisyarah born in Asahan Sumatera Utara, 14 November 1984, earned an AMd degree at Andalas University Agricultural Polytechnic in 2006 and finished Bachelor of Economics at Bina Karya College of Economics in Tebing Tinggi City. In 2011 until now, I was active as a civil servant at the Central Bureau of Statistics (BPS) Tebing Tinggi City. I have published a national journal and national conference papers in Indonesia. My research interest includes the Financial sector and stock Exchange.