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Stock Prices in Industrialized and Emerging Countries during Covid-19 Pandemic

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ABSTRACT

This study aims to examine the daily stock prices of banking businesses in industrialized and emerging countries. The event study approach is used to analyze the daily stock prices of banking businesses listed on the NYSE, SSE, SGX, and IDX between December 1, 2020, and February 28, 2021. The Kruskal Wallis test is used to determine the discrepancies between four countries' daily stock values. The findings result indicate that industrialized and emerging countries have different stock market valuations. The practical implication of this research is to offer investors a view of the global capital markets to assist them in making investment decisions. Theoretically, this research implication is that the data corroborate established theory.

Keywords: *stock price, industrialized countries, emerging countries.*

1. INTRODUCTION

Until now the covid-19 pandemic is still ongoing. The word bank said that in 2021 the global economy is expected to grow 5.6%. United States growth is projected to reach 6.8% this year, reflecting large-scale fiscal support and easing of pandemic restrictions. Growth in other industrialized countries has also strengthened, but to a lesser extent. Among emerging countries and emerging economies, China is expected to recover to 8.5% this year, reflecting the release of pent-up demand. Recovery among emerging countries and emerging economies is expected to moderate to 4.7% in 2022. However, gains in this group of economies are not sufficient to offset losses experienced during the 2020 recession, and output in 2022 is forecast to be 4.1% below pre-pandemic projections.

As an economic instrument, the capital market cannot be separated from various environmental influences, both economic and non-economic. Foreign portfolio investment plays a very important role in any capital market. The introduction of foreign investors into the market certainly serves as a catalyst that encourages local investment. Foreign investment is influential in highlighting companies that provide the most transparent financial information and the best valuations, the entry of foreign funds into new markets has a clear and beneficial effect on market growth and structure. The need for an investor to choose an investment in a stock, requires historical data on the movement of the stock on the stock exchange. Transactions on the exchange occur at any time so that price movements occur at any time. Of the thousands of historical events and facts that occurred in the stock exchange, it must be presented with a certain system to produce simple information. With simple information, investors can interpret this information so that they can make investment decisions on stocks.

The form of information that is considered very appropriate to describe the movement of stock prices in the past is a stock price index that provides a description of stock prices at a certain time or within a certain period. The factors that influence the movement of the stock price index are domestic factors, foreign factors, capital inflows, and non-economic factors. Domestic factors that can affect the stock index are in the form of a country's fundamental factors such as inflation, national income, the amount of money in circulation, interest rates, and currency exchange rates. These various fundamental factors are considered to have an effect on investors' expectations which ultimately affect the movement of the index. Foreign factors are one of the implications of the form of globalization and the increasingly integrated capital markets around the world. This condition allows the emergence of the influence of the industrialized exchanges on the emerging market. Non-economic factors such as political events can be the main factors triggering stock price fluctuations on stock exchanges

around the world. Political events, such as the presidential election, can affect prices and trading volume on the stock exchange because these political events are closely related to the stability of the country's economy. In addition, political events also cause a negative level of trust from investors, so that any political event that threatens the stability of the country tends to get a negative response from market participants.

Many events can affect stock prices in the market once they occur. These events have different characteristics. Corporate action events, such as splits, rights issues, warrants, have an effect on stock prices but are slow. Identifiable events that do not recur every year but can occur at any time, such as covid-19, bomb explosions, mass riots during the change of president, economic embargoes, have an immediate and drastic impact on stock prices. This is in line with [1] who studied the effect of public information reported by Dow Jones and concluded that a direct relationship does exist between news articles released and stock market activities.

Information is important for investors and business people because from an information investors and business people will get an overview of the market conditions both in the past and in the future. The completeness, accuracy and timeliness of information can help investors and business people in making investment decisions. In essence, information can provide both positive and negative signals, this can be known by the market reaction to the information. According to [2] the signal is an action taken by the company's management that provides instructions for investors about how management views the company's prospects. If the information gives a positive signal to the market, the market reaction will be indicated by a change in stock prices where the stock price is increasing. Conversely, if the information gives a negative signal to the market, the market reaction will be indicated by the absence of changes in stock prices where the stock price remains or worse decreases. The faster information is reflected in stock prices, the more efficient the capital market is. Stock prices will quickly adjust when new information emerges and is absorbed by investors. Research findings [3] show that in some cases, investors tend to buy after positive news which generates buying pressure and pushes prices higher; and sell after negative news that results in a price drop. So study [3] shows that both company-specific and general economic news influence trading behavior. However, using news-induced investor expectations alone as a trading strategy is not sufficient, as concluded by [4].

The phenomenon of the COVID-19 pandemic is being felt in all countries in the world. This is an event that is possible to affect capital market activities, because the information contained in these events can provide a signal for investors in making investment decisions. The information contained in these events can be assessed as a positive signal in the form of good news or a negative signal in the form of bad news. This is in line with [5], indicating that the market is fairly quickly starting to respond to concerns about the possible economic consequences of the new coronavirus.

Research related to market reactions to the occurrence of COVID-19 has been carried out several times, but the results of these studies show that they are still varied. Research [6], revealed that there is a significant positive relationship between confirmed cases of Covid-19 and all Financial markets (Shanghai Stock Exchange and New York Dow Jones) from March 1, 2020 to March 25, 2020 in China and the US. That means Covid-19 had a significant impact on financial markets from March 1, 2020 to March 25, 2020 in China and the US. Similarly, [7] proves that the model predicts that stock prices fall by 50% during the epidemic, but recover quickly afterward because the epidemic is a short-lived labor supply shock. Under the optimal policy, the stock price exhibits a W-shaped pattern and remains approximately 10% undervalued than the steady-state level for half the year.

Likewise with research results from [8], the results show that having one more global death from COVID-19 results in approximately 0.02% cumulative reduction in the S&P 500 Index after one day, approximately 0.06% cumulative reduction after one week, and about 0.08% reduction after one week. month. This is in line with [9] showing that stock returns respond to unpredictable daily changes in COVID-19 cases predicted based on standard infectious disease models. Their results imply a decrease in stock market volatility as the trajectory of the pandemic becomes less certain. In a cross-country setting. [10] found that the stock market reacted more quickly and strongly in countries suffering from the 2003 SARS disease, while [11] showed that stock price reactions were stronger in countries with higher debt-to-GDP ratios. [5] points out that overall, the findings suggest that, from the perspective of stock market participants, the COVID-19 health crisis is turning into a broader economic and financial crisis. We empirically examine the impact of social distancing policies on economic activity and stock market indexes. The findings reveal that the increasing number of days of lockdown, monetary policy decisions and restrictions on international travel greatly affect the level of economic activity and the closing, opening, lowest and highest stock prices of the major stock market indexes. In contrast, the internal movement restrictions imposed and higher fiscal policy spending had a positive impact on the level of

economic activity, although the increase in the number of confirmed cases of the corona virus did not significantly affect the level of economic activity [12]. In contrast to [13] which proves that there is a difference in the daily closing price of shares and the volume of stock trading before and after the emergence of covid-19.

Nevertheless research from [14] explains that contrary to other different world financial markets, literature reveals that China's financial markets remain strong and stable despite the current Covid-19 pandemic, reporting these different and significant opinions on world financial markets, insisting that, China's financial markets have generally remained stable compared to overseas markets despite the spread of the novel coronavirus (COVID-19). This is in line with [15] explaining that movements in financial market indices, especially the stock market, have shown investors' awareness of industry-specific impacts (not systematic). Different research findings mean that there is no consistency of research findings, so this is interesting to review. The research question that arises is whether there are differences in the daily stock prices of banking companies in industrialized and emerging countries during the COVID-19 pandemic?

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Signal theory is rooted in pragmatic accounting theory which focuses on the influence of information on changes in the behavior of users of information. If the announcement of the information as good news for investors, then there is a change in the stock price, the stock price should increase. And vice versa if the announcement of the information as bad news for investors, then there is a change in the stock price, the stock price should remain and may even decline. One of the information that can be used as a signal is non-economic information, such as covid-19, bomb explosions, mass riots during the change of president, economic embargoes, and so on.

Industrialized countries are different from emerging countries. Industrialized countries are countries that have high technology and the economic level is evenly distributed. Meanwhile, emerging countries are countries where the welfare level of the population is still in the middle level. Likewise, capital market conditions in industrialized and emerging countries will also be different. This difference will also have an impact on stock price reactions in these countries. So that the hypothesis proposed in the Kruskal Wallis test is:

H_1 : average share price in four different countries (sig 0.05)

3. RESEARCH METHOD

Event study is the method used in this research. Event study is a study that studies the market reaction to an event whose information is published as an announcement. [16] presents three main forms of market efficiency, namely weak, semi-strong and strong forms of market. This research is a quantitative research with a comparative research type, using the daily closing stock prices of banking companies for three months, starting from 1 December 2020 to 28 February 2021 from four countries, namely the United States, China, Singapore and Indonesia. Kruskal Wallis test was used as an analytical tool in this study. Banking companies were chosen to be the research sample because banking companies are one of the companies most affected by the COVID-19 pandemic.

4. RESULTS AND DISCUSSION

Kruskal Wallis test is used to see the difference in independent samples of more than two categories that do not meet the assumption of data normality. Before doing the Kruskal Wallis test, first see if all groups have the same variability of the dependent variable. If the data distribution is the same, the Kruskal Wallis test can be used to determine whether there is a difference between the median and the mean. However, if you have different data distributions, it can only be used to find out the difference in the mean.

Fig. 1. Research result

The output results above show that the shape and distribution of the data from the four groups of countries are different, so the analysis carried out only aims to determine the difference in the mean.

Ranks

	Country	N	Mean Rank
Stock Price	USA	5040	4111.13
	CHN	1475	1718.69
	SIG	354	1837.12
	INA	2493	7991.45
	Total	9362	

The output ranks above show the difference in average stock prices in each country. To see the statistical difference can be seen in the following output:

Test Statistics[a,b]

	Stock Price
Kruskal-Wallis H	6128.155
df	3
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Country

The statistical output table shows the value of sig < 0.05 so that Ha is accepted and it is concluded that the average stock prices for the four countries are different.

Based on the table below, it can be seen that if stock prices are tested between countries, both industrialized countries (USA) and industrialized countries (SIG), industrialized countries (USA/SIG) and emerging countries (CHN/INA), and emerging countries (CHN) and emerging countries (INA) shows that there is indeed a difference in the average share price of banking companies in industrialized countries and emerging countries. This is because capital markets in industrialized countries such as the United States and Singapore have a strong influence on capital markets in other countries, the contagion effect causes capital market relationships or interactions to form a capital market integration. Meanwhile, capital markets in emerging countries such as China and Indonesia, based on market capitalization and liquidity levels are still relatively small compared to capital markets in industrialized countries, however, capital markets in emerging countries react very quickly in line with the integration of world financial markets. A fully integrated capital market, meaning that there are no barriers to owning securities in any capital market, and also no barriers to capital inflow/outflow which will create a lower cost of capital than a non-integrated capital market. This is because investors can verify their investments more broadly (between countries). Because the relevant risk for investors is only the risk that cannot be eliminated by diversification, the more attractive international diversification is for investors [17]. In accordance with the verified principle, it is not recommended that every investor invest in only one or two types of instruments. The recovery of the world economy still depends on the economies of emerging countries, especially in Asia. [18] stated that the more integrated world capital markets were indicated by the higher correlation between stock returns between stock exchanges.

Mann Withney Test

	Asymp. Sig	Description
USA - CHN	0.000	different
USA - SIG	0.000	different
USA - INA	0.000	different
CHN - SIG	0.014	different
CHN - INA	0.000	different
SIG - INA	0.000	different

5. CONCLUSION AND RECOMMENDATION

This study proves that there is a difference in stock prices between industrialized and emerging countries during the decade of the COVID-19 pandemic. The practical implication of this research is to provide an overview to investors in making investment decisions. The theoretical implication of this research is that the findings of this study support the existing theory. The limitation of this study is that the data from this study are not normally distributed so that the researcher uses the Kruskal Wallis test, besides that the distribution of the data is different, so it can only be used to determine the difference in the mean. Suggestions for further research is to use more data in order to find better results.

REFERENCES

1. Mitchell, M. L. and Mulherin, J. H. The impact of industry shocks on takeover and restructuring activity. Journal of financial economics, 41, 193-229. (1996).
2. Brigham and P. R. Daves. Intermediate Financial Management, 13th edition. Mason, OH: Cengage Learning. (2019).
3. Nofsinger, J. R. Social mood and financial economics. Journal of behavioral finance, 6(3), 144-160. (2005).
4. Brown, S. J. and Warner, J. B. Using daily stock returns: the case of event studies. Journal of Financial Economics, 14(1), 3-31. (1985).
5. Ramelli, S., & Wagner, A. F. Feverish stock price reactions to covid-19. Available at SSRN 3550274. http://dx.doi.org/10.2139/ssrn.3550274. (2020).
6. Sansa, N. A. The impact of the COVID-19 on the financial markets: evidence from China and USA. Electronic Research Journal of Social Sciences and Humanities, 2.Available at SSRN3562530. http://dx.doi.org/10.2139/ssrn.3562530. (2020).
7. Toda, A. A. Susceptible-infected-recovered (sir) dynamics of covid-19 and economic impact. arXiv preprint arXiv:2003.11221. (2020).
8. Yilmazkuday, H. Covid-19 effects on the s&p 500 index. Available at SSRN 3555433.http://dx.doi.org/10.2139/ssrn.3555433. (2020).
9. Alfaro, L., Chari, A., Greenland, A. N., & Schott, P. K. Aggregate and firm-level stock returns during pandemics, in real time. NBER Working Paper No. 26950. Issued in April 2020, Revised in May 2020. https://doi.org/10.3386/w26950. (2020).
10. Ru, H., Yang, E., & Zou, K. What do we learn from SARS-CoV-1 to SARS-CoV-2: evidence from global stock markets. Available at SSRN 3569330. http://dx.doi.org/10.2139/ssrn.3569330. (2020).
11. Gerding, F., Martin, T., & Nagler, F. The value of fiscal capacity in the face of a rare disaster. Available at SSRN 3572839. http://dx.doi.org/10.2139/ssrn.3572839. (2020).
12. Ozili, P. K., & Arun, T. Spillover of COVID-19: Impact on the Global Economy. Available at SSRN 3562570. http://dx.doi.org/10.2139/ssrn.3562570. (2020).
13. Machmuddah, Z., Utomo, S. D., Suhartono, E., Ali, S., Ghulam, W. A. Stock market reaction to Covid-19: evidence in customer goods sector with the implication for open innovation. Journal of open innovation: technology, market and complexity, 6(99), 1-13. (2020).
14. Xin Hua. China financial market remains stable amid covid-19 impact. China daily-Hong kong. (2020).
15. McKibbin, W. J., & Fernando, R. The global macroeconomic impacts of COVID-19: seven scenarios. https://www.brookings.edu/wp-content/uploads/2020/03/20200302_COVID19.pdf. (2020).
16. Fama, E. F., Efficient capital markets: a review of theory and empirical work. Journal of Finance, 25(2), 383-417.DOI: 10.2307/2325486. (1970).
17. Obstfeld, M. Risk-taking, global diversification, and growth. American Economic Review, American Economic Association, 84(5), 1310-1329, (1994).
18. Brooks, R. and M. D. Negro. The rise in comovement across national stock market: market integration or IT bubble?. Federal Roserve Bank of Atlanta Working Paper, 2002-17a, (September 2002).