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***Correspondence:**
swarmilah@mercubuana.ac.id

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DYNAMICS OF ASEAN, US, AND CHINA CAPITAL MARKET RELATIONS: BEFORE, DURING AND POST COVID-19

Swarmilah Hariani[*1], Abdul Halim[2], Hendryadi[3], Roy Budiharjo[4], Hafiz Abdul Samee Malik[5]

Affiliation:
[1] Fakultas Ekonomi dan Bisnis, Universitas Mercu Buana, Jakarta, Indonesia
[2] Fakultas Ekonomika dan Bisnis Universitas Gadjah Mada, Yogjakarta, Indonesia
[3] Sekolah Tinggi Ilmu Ekonomi Indonesia Jakarta, Jakarta, Indonesia
[4]Fakultas Ekonomi dan Bisnis, Universitas Telkom, Jawa Barat, Indonesia
[5] School of International Studies (SoIS), Universiti Utara Malaysia, Malaysia

ABSTRACT

Purpose: The study aims to uncover the dynamics of the relationship between ASEAN countries (Malaysia, Singapore, Thailand, and the Philippines), the US, and China to the Indonesian capital market.

Methodology/approach: This study uses weekly composite stock price index data for two observation periods: January 2016 to December 2019 (pre-COVID-19) and January 2020 to December 2023 (during and post-COVID-19). The econometric model is analyzed separately for (i) Indonesia and other ASEAN markets, and (ii) Indonesia, the US, and China.

Findings: The ARDL cointegration analysis reveals that before COVID-19, the Indonesian stock market was influenced by Malaysia, the Philippines, and Thailand within the ASEAN data group, while only China had a long-term impact within the Indonesia-US-China data group. In the short term, there was a stronger link between the Indonesian capital market and Malaysia compared to Singapore, the Philippines, and Thailand. After the pandemic, there was a significant increase in the relationship between China's capital market and Indonesia, while the impact of the U.S. stock exchange on Indonesia was considered insignificant in the short term.

Practical implications: This study can help investors and policymakers make informed decisions regarding portfolio diversification and risk management. More importantly, the long-term impact of China on the Indonesian stock market; so investors in Indonesia need to monitor and assess developments in the Chinese market for potential long-term implications.

Originality/value: This study offers new insights into the dynamics of the relationship between the Indonesian capital market and ASEAN, the US, and China; a topic that has been relatively under-researched in the context before and after the COVID-19 pandemic.

Keywords: ASEAN Economic Community; ASEAN's economic integration; Autoregressive Distributed Lag; Regional Capital Market Integration

ABSTRAK

Tujuan penelitian: *Penelitian ini bertujuan untuk mengungkap dinamika hubungan negara-negara ASEAN (Malaysia, Singapura, Thailand, dan Filipina), Amerika Serikat, dan Tiongkok terhadap pasar modal Indonesia.*

Metode/pendekatan: *Penelitian ini menggunakan data indeks harga saham gabungan mingguan selama dua periode pengamatan: Januari 2016 hingga Desember 2019 (pra-COVID-19) dan Januari 2020 hingga Desember 2023 (selama dan pasca-COVID-19). Model ekonometrik dianalisis secara terpisah untuk (i) Indonesia dan pasar ASEAN lainnya, dan (ii) Indonesia, Amerika Serikat, dan Tiongkok.*

Hasil: *Analisis kointegrasi ARDL mengungkapkan bahwa sebelum COVID-19, pasar saham Indonesia dipengaruhi oleh Malaysia, Filipina, dan Thailand dalam kelompok data ASEAN, sementara hanya Tiongkok yang memiliki dampak jangka panjang dalam kelompok data Indonesia-AS-Tiongkok. Selanjutnya, dalam jangka pendek, terdapat hubungan yang lebih kuat antara pasar modal Indonesia dan Malaysia dibandingkan dengan Singapura, Filipina, dan Thailand. Pasca pandemi, terjadi peningkatan signifikan dalam hubungan antara pasar modal Tiongkok dan Indonesia, sementara dampak bursa saham AS terhadap Indonesia tidak signifikan dalam jangka pendek.*

Implikasi praktik: *Studi ini dapat membantu investor dan pembuat kebijakan membuat keputusan mengenai diversifikasi portofolio dan manajemen risiko. Yang lebih penting lagi adalah dampak jangka panjang Tiongkok terhadap pasar saham Indonesia; sehingga investor di*

Indonesia perlu memantau dan menilai perkembangan pasar Tiongkok untuk mengetahui potensi implikasi jangka panjangnya.

Orisinalitas/kebaharuan: *Studi ini menawarkan wawasan baru mengenai dinamika hubungan pasar modal Indonesia dengan ASEAN, Amerika Serikat, dan Tiongkok; sebuah topik yang relatif kurang diteliti dalam konteks sebelum dan sesudah pandemi COVID-19.*

Kata kunci: ASEAN Economic Community; ASEAN's economic integration; Autoregressive Distributed Lag; Regional Capital Market Integration.

INTRODUCTION

Economic integration is pivotal in enhancing a region's competitiveness and fostering interconnected economic progress in the current globalized landscape. Recognizing this importance, members of the Association of Southeast Asian Nations (ASEAN) have embarked on collaborative efforts to bolster their positions amidst global competition. The journey towards a more robust regional economy commenced with establishing the ASEAN Free Trade Area (AFTA) agreement in 1993. AFTA aimed to expand market access for trade in goods and services by reducing tariffs by 0-5%, eliminating 98.6% of tariffs by 2021 (Ishikawa, 2021). In addition to AFTA, ASEAN nations are dedicated to forming the ASEAN Economic Community (AEC-2025) to forge a unified economic region among member states. Launched in Malaysia in 2015, the AEC seeks to create a single market and integrated production base, address economic development disparities, and facilitate the free movement of goods, services, investments, and labor across member nations (Chia & Plummer, 2015; Gugler & Vanoli, 2017; Ishikawa, 2021). Moreover, ASEAN's strategic objective includes achieving capital market integration by 2030 (Wolff, 2022) as the subsequent phase toward realizing the AEC's overarching vision.

The integration of regional economics and capital markets has become a key focal point for finance professionals and scholars in the last two decades (Apollo. & Zulkifli., 2019; Robiyanto et al., 2021). The integration of capital markets within a region can lead to various benefits, including increased liquidity, improved risk-sharing opportunities, enhanced market efficiency, and greater access to diverse investment options for investors, including ASEAN market (Do et al., 2016). While previous research has confirmed the existence of capital market integration among ASEAN member nations, the integration remains limited and is constrained to a certain extent. Studies have indicated that external shocks, such as the monetary crisis in 1997 (Click & Plummer, 2005) and the global financial crisis in 2008 (Boubakri & Guillaumin, 2015; Le et al., 2022; Lee & Takagi, 2015; Robiyanto, 2018; Robiyanto et al., 2021; Yu et al., 2010), have had a notable impact on the level of integration. In essence, while there has been gradual advancement in ASEAN capital market integration facilitated by the AEC agreement, further strides are necessary to achieve a higher level of integration to optimize international portfolio diversification opportunities across ASEAN countries.

The economic integration in a region can be understood by examining Bella Balassa's theory, established in 1962. Balassa's framework categorizes economic integration into five distinct

stages, each representing a deeper level of integration among member countries. Each stage builds upon the previous one, highlighting the progressive nature of integration and the importance of aligning policies and regulations among member states (Balassa, 1962). From an investment perspective, the International Capital Asset Pricing Model (ICAPM) and the Efficient Market Hypothesis (EMH) are relevant models for cross-border investment decisions. For example, when applying CAPM to an international context, investors must consider domestic and international risks when pricing assets. This assumption highlights how capital markets are interconnected through the global risk-return trade-off (Sharpe, 1964). Similarly, EMH posits that asset prices in capital markets reflect all available information. In an interconnected market, information flows rapidly across borders, leading to similar asset pricing and reduced arbitrage opportunities, which fosters integration (Malkiel, 1989) .

The present study aims to investigate the integration of capital markets in ASEAN countries, the US and China, with a specific emphasis on the Indonesian stock market. The study places Indonesia's capital market at the forefront for several reasons. As a member of the G20 and the largest economy in Southeast Asia, Indonesia holds a prominent position on the global stage. Indonesia falls behind other G20 members like India, China, South Korea, and Australia in terms of stock exchange market capitalization. The capital markets of these countries are among the top five in the Asia Pacific region, showcasing their larger market capitalization and significance in the global financial landscape compared to Indonesia. Despite this relative position in the market capitalization rankings, Indonesia is recognized for its substantial growth potential. From 2008 to 2017, Indonesia experienced an annual average market growth of 7.9%, outperforming major emerging markets like India, China, Russia, Brazil, and South Africa and exceeding the growth rates of Singapore and Malaysia. The market's upward trend is also reflected in turnover volume. Indonesia ranks above Brazil and South Africa and significantly outperforms other regional markets, with only Thailand and China having higher turnover volumes (Sharma et al., 2019). The country's vast economic opportunities, coupled with its sizable population, indicate a promising trajectory of progress and development. This suggests that Indonesia's economy has the capacity for significant expansion and advancement in the future (Sharma et al., 2019). Moreover, before the COVID-19 pandemic, Indonesia achieved an average market growth rate of 7.9%, which was higher than that of all emerging markets outside the region (such as China, India, and Russia) and within the ASEAN region, including Singapore and Malaysia (Sharma et al., 2019). Even amidst the challenges brought about by the COVID-19 pandemic, the Indonesian capital market managed to maintain its growth trajectory, surpassing the performance of other ASEAN countries, as illustrated in Table 1. These indicators highlight Indonesia's promising growth trajectory within the financial system, making it an intriguing area for further research.

The research offers current empirical findings on how the Indonesian capital market reacts to fluctuations in key international capital markets, particularly those of the US and China. This focus is due to the substantial economic ties between Indonesia and these countries concerning investments and trade. The performance of Indonesia's capital market, as illustrated in Table 1, has shown remarkable growth similar to that of China and the US. Indonesia's index growth has been lower than that of the US but higher than that of China, prompting an investigation into the relationship between these three factors. The study also aims to offer insights into how the two largest capital markets in the world influence ASEAN, particularly Indonesia, based on recent research (Anhar et al., 2024; Apollo. & Zulkifli., 2019; Caporale et al., 2021; Chen & Wang, 2021; Chien et al., 2015; Glick & Hutchison, 2013; Kang

et al., 2019; Shu et al., 2018; Yousaf et al., 2023). Although previous research has indicated a notable strengthening of the influence of the Chinese stock market on ASEAN in general during the financial crises of 1997 and 2008, specific studies on the Indonesian capital market are still limited. Hence, there needs to be more literature regarding a comparative analysis of the effects of the US and China on Indonesian capital markets across two distinct observation periods: before and during the COVID-19 pandemic. Therefore, the current study aims to investigate the dependency of the Indonesian capital market on the US and Chinese capital markets, particularly during crisis periods, to provide insights that differ from previous studies.

In the empirical finance literature, significant research has been dedicated to studying the integration of stock markets among ASEAN countries and their relationships with other regions, including the EU, the US, and other Asian countries like China, Japan, and South Korea. Researchers have explored various periods of change, such as market convergence, structural breaks, or relationship shifts resulting from the liberalization of equity markets or financial crises, such as those in 1998 and 2008. For example, Click and Plummer (2005) conducted a study on the interconnectedness of five stock markets in the original ASEAN-5 countries and found that while these stock markets were cointegrated, there were opportunities and benefits in further efforts to integrate these markets at the policy level. Phylaktis and Ravazzolo (2005) identified strong connections between the stock markets of ASEAN countries and other nations during the 1990s. They observed that the markets of Thailand and the Philippines were closely linked to the US and Japan, the Singaporean stock market was connected to the US market, and the Malaysian and Indonesian stock markets were aligned with the Japanese market while being separated from the US market.

Table 1. The comparative of the national index stock market between the US, China, and Asian Countries

No	The National Index Capital Market	2010	2020	2022	Before Covid-19	After Covid-19
1	China	2,863.3	3,270.2	3,217.4	0.14	0.02
2	Indonesia	2,840.9	5,818.2	7,136.4	1.05	0.23
3	Malaysia	1,539.8	1,609.2	1,503.2	0.05	0.07
4	Philippine	4,121.2	7,111.1	6,787.9	0.73	0.05
5	Singapore	3,106.1	3,075.8	3,257.8	0.01	0.06
6	Thailand	717.7	908.6	1,018.2	0.27	0.12
7	United States	1,258.0	3,242.4	4,231.8	1.58	0.31
8	Vietnam	472.9	1,047.3	1,042.9	1.21	0.00

Source: compiled by author (2024)

In the context of the ASEAN region, Robiyanto (2018) observed decreased integration levels in certain ASEAN capital markets after the 2008 global financial crisis. However, Boubakri and Guillaumin (2015) and Wu (2020) reported contrasting findings, presenting empirical evidence suggesting otherwise. More recently, Nguyen et al. (2022) identified evidence supporting co-integration relationships among Cambodia, Indonesia, the Philippines, Thailand, and Vietnam stock market indexes from 2009 to 2022.

Studies examining the integration of ASEAN capital markets with countries outside the region have yielded mixed results. For instance, Nguyen and Elisabeta (2016) reported moderate integration between China and the ASEAN equity markets before and after a recent crisis, with higher integration observed during the crisis period. In contrast, Chien et al. (2015) found different results, indicating only one cointegration vector among a group of four ASEAN countries with China. Recent research by Ishikawa (2021) and Shimizu (2021) has shed light on the progress of ASEAN economic integration from a policy perspective. Shimizu (2021) underscored the pivotal role of ASEAN in economic integration, particularly amidst significant structural shifts in the global economy.

METHODS

Data Determination Procedure

The study investigates the interconnectedness of the capital markets of various ASEAN countries (Singapore, Malaysia, Philippines, Thailand, and Vietnam), the US, and China with the Indonesian capital market. The research utilizes weekly composite stock price index data from 2016 to 2023 across these seven countries. The data is segmented into two periods: pre-COVID-19 (January 2016 – December 2019) and during/post-COVID-19 (January 2020 – December 2023) to analyze the dynamics of capital market movements. A total of 192 weeks of data were examined for the pre-COVID-19 period, while 186 observations were studied for the during/post-COVID-19 period. The difference in the number of data points is due to the unavailability of weekly data in several countries; only 186 observations are available. Data was sourced from investing.com, Yahoo Finance, and the official stock exchange websites of each respective country.

Econometric Data Analysis Procedures

The study utilizes the Autoregressive Distributed Lag (ARDL) approach to examine the integration of stock markets among Indonesia and other ASEAN countries, as well as the US and China. The ARDL methodology offers several advantages, as highlighted in the literature. Firstly, the ARDL approach can be applied regardless of whether the underlying regressors are purely or mutually cointegrated, making it a versatile tool for analyzing relationships in the data (Pesaran et al., 2001; Pesaran & Shin, 1996). This characteristic is particularly useful when studying integrated financial markets. Secondly, the ARDL model is suitable for handling nonstationary and mixed-order variables, distinguishing it from other time-series methods like Vector Autoregression (VAR) that require all variables to have the same order of integration. Moreover, despite potential endogeneity in the variables and dealing with small sample sizes, the ARDL approach is known to provide unbiased results for long-term models (Appiah, 2018; Shrestha & Bhatta, 2018). This robustness in estimating long-term relationships is crucial for understanding the dynamics of stock market integration among the selected ASEAN countries, the US, and China.

The Autoregressive Distributed Lag (ARDL) approach is commonly used in econometrics to analyze the long-run and short-run relationships between variables. The process involves two main steps: The first step involves determining the optimal lag length by estimating various regressions with different lag structures for the dependent and independent variables. This helps identify the appropriate number of lags that capture the dynamics of the variables in the model. The second step is estimating the ARDL model to analyze long-run and short-run causality between the variables. This estimation helps in understanding how the variables interact over time and whether there exists a stable long-term relationship (cointegration) among variables (Banerjee et al., 1998; Kremers et al., 1992; Pesaran et al., 2001).

RESULTS AND DISCUSSION

Descriptive statistics

The descriptive statistics are shown in Table 2, which combines the data for the entire observation period. The mean values indicate the average weekly stock market index for each country. Specifically, Indonesia has a mean index value of 8.531, Malaysia 7.390, Singapore 8.036, Philippines 8.751, Thailand 7.243, USA 8.644, and China 7.964. The maximum values denote the highest weekly stock market index recorded during the period. For example, the highest index values were 8.888 for Indonesia, 7.543 for Malaysia, 8.182 for Singapore, 9.110 for the Philippines, 7.511 for Thailand, 9.684 for the USA, and 8.550 for China.

Table 1. Descriptive Statistics

	Indonesia	Malaysia	Singapore	Philippines	Thailand	USA	China
Mean	8.531	7.390	8.036	8.751	7.243	8.644	7.964
Median	8.554	7.394	8.056	8.832	7.320	8.564	8.002
Maximum	8.888	7.543	8.182	9.110	7.511	9.684	8.550
Minimum	7.832	7.129	7.779	7.957	6.539	7.646	7.590
Std. Dev.	0.235	0.090	0.078	0.248	0.206	0.569	0.180

Source: data analysis using EVIEWS ver. 12

The standard deviation measures the dispersion of data points around the mean score. A higher standard deviation indicates greater variability in the data. In this case, the standard deviation values illustrate the degree of fluctuation in the weekly stock market indices for each country. For example, the USA has the highest standard deviation of 0.569, indicating more variability than other countries.

Unit root test

Before performing the ARDL analysis, the stationary properties of the variables were assessed through the Augmented Dickey-Fuller (ADF) test. This evaluation sought to determine whether the variables displayed characteristics of being either I(0) or I(1) and to identify the existence of a unit root in all model variables at a particular time point (t).

$$\{\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{j=1}^{k} dj\, \Delta Y_{t-j} + \varepsilon_t\},$$

The variable ɛt represents the white noise error term or residual. Additionally, Δ it denotes the first difference operator, β1 represents a time series, β0 signifies a constant, and k represents the optimal number of lags for the dependent variable. A variable is considered stationary if the coefficient Δ is less than the critical value of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) root tests.

	ADF statistics		PP statistics	
	Level	1st Difference	*Level*	1st Difference
Before COVID-19				

Indonesia	-2.345		-26.581	***	-2.366		-26.511	***
Malaysia	-2.783	*	-23.055	***	-2.777	*	-23.057	***
Singapore	-2.905	**	-21.047	***	-2.821	*	-21.169	***
Philipines	-2.548		-23.932	***	-2.564		-23.906	***
Thailand	-2.720	*	-23.067	***	-2.720	*	-23.068	***
US	-0.359		-24.590	***	-0.144		-25.278	***
China	-1.824		-20.736	***	-2.041		-20.736	***
During and after COVID-19								
Indonesia	-1.473		-12.011	***	-1.547		-12.008	***
Malaysia	-2.300		-12.247	***	-2.450		-12.247	***
Singapore	-1.938		-10.771	***	-2.230		-10.693	***
Philipines	-3.275	**	-12.548	***	-3.519	***	-12.548	***
Thailand	-1.772		-11.441	***	-2.230		-10.693	***
US	-1.963		-12.121	***	-2.013		-12.126	***
China	-2.162		-12.746	***	-2.162		-12.750	***

Table 2. ADF and PP root test

Note: ***, **, * indicate significance at 1%, 5% and 10% confidence levels, respectively

The results presented in Table 3 indicate that Singapore exhibited an integrated order of zero I(0) during the pre-COVID-19 period, while the Philippines showed confirmed stationarity at level I(0) during and after the COVID-19 period. On the other hand, the remaining countries were stationary in the first difference, I(1). Hence, the results indicate that none of the series exhibit integration of order 2 (I(2)) or higher, confirming the suitability of employing the ARDL approach for data used in this research.

ARDL Bound test

The ARDL bound testing is a method used to determine the presence of cointegration among variables in a model. In this case, the study conducted ARDL bound testing for two models: one for the period before COVID-19 and another for the period during and after COVID-19. The F-statistics obtained from the ARDL bound testing were compared with critical values derived from Pesaran et al. (2001) to assess cointegration. In Table 4, which presents the results for model 1 (pre-COVID-19) with Indonesia as the dependent variable, the study found that all F-statistics for the relationships between Indonesia and the ASEAN group, as well as between Indonesia and the US and China, were 29,133 and 44,286, respectively. Importantly, all these F-statistics exceeded the upper bound value at the 1% significance level, indicating strong evidence of cointegration among the variables in the models, suggesting a long-term relationship among the capital markets of Indonesia, the ASEAN countries, the US, and China during both the pre-COVID-19 and during/post-COVID-19 periods.

Regressors	*Coefficient*	*SE*	*Prob.*	*F-Bounds Test*		
				F-statistic	*k*	Decision
Model 1A	ARDL(2, 0, 2, 1, 2)					
lnMAL	0.272	0.087	0.002	29.113	4	Cointegration
lnSING	-0.039	0.089	0.659			
lnPHI	0.153	0.065	0.020			

Table 3. ARDL bound testing and long-run coefficients before COVID-19 (Indonesia as dependent)

lnTHA	0.251	0.110	0.024			
Constant	0.001	0.001	0.076			
Model 1B	ARDL(2, 0, 0)					
lnUS	0.040	0.046	0.383	44.286	2	Cointegration
lnCHN	0.175	0.044	0.000			
Constant	0.002	0.001	0.095			
Critical values Pesaran et al. (2001)						
	k=4		k=2			
Signif.	I(0)	I(1)	I(0)	I(1)		
10%	2.200	3.090	2.630	3.350		
5%	2.560	3.490	3.100	3.870		
1%	3.290	4.370	4.130	5.000		

Source: data analysis using EVIEWS ver. 12

Table 4 displays the estimated coefficients of the long-run model for the pre-COVID-19 period. The results reveal that Malaysia, the Philippines, and Thailand influenced the Indonesian stock market within the ASEAN data group (model 1A). Specifically, the findings suggest that a 1% increase in the Malaysian stock market corresponded to a 0.272% increase in the Indonesian composite stock price index. Subsequently, Thailand and the Philippines had coefficients of 0.251 and 0.153, respectively, indicating their respective impacts on the Indonesian stock exchange. Meanwhile, in the Indonesia-US-China data group (model 1B), it is clear that only China has a long-term impact on the Indonesian stock market. The positive coefficient of 0.175 indicates that a 1% increase in the Chinese stock market results in a 0.175% rise in the composite stock price index on the Indonesian Stock Exchange.

The results from Table 5 of the study indicate that Malaysia, Singapore, the Philippines, the U.S., and China have significant and positive impacts on Indonesia's capital market during and after the COVID-19 pandemic. Specifically, the ARDL long-run equilibrium results show that Malaysia and Singapore have a notable influence on Indonesia's stock market, with a 1% increase in their stock exchanges leading to a rise of 0.598% and 0.256%, respectively, in the Indonesian stock exchanges. Similarly, the U.S. and China also play a significant role in impacting Indonesia's stock market, with a 1% increase in the Chinese and U.S. stock exchanges resulting in an increase of 0.308% and 0.287%, respectively, in the Indonesian stock market.

Regressors				*F-Bounds Test*		
	Coefficient	*SE*	*Prob.*	*F-statistic*	*k*	Decision
Model 2A	ARDL(2, 1, 1, 0, 0)					
lnMAL	0.598	0.127	0.000	32.498	4	Cointegration
lnSING	0.256	0.101	0.012			
lnPHI	0.086	0.046	0.066			
lnTHA	0.065	0.075	0.384			
Constant	0.001	0.001	0.429			
Model 2B	ARDL(1, 0, 0)					
lnUS	0.287	0.089	0.000	71.977	2	Cointegration
lnCHN	0.308	0.050	0.000			

Table 4.
ARDL bound testing and long-run coefficients during and after COVID-19 (Indonesia as dependent)

Constant	0.000	0.000	0.003	
Critical values Pesaran et al. (2001)				
	k=4		k=2	
Signif.	I(0)	I(1)	I(0)	I(1)
10%	2.200	3.090	2.630	3.350
5%	2.560	3.490	3.100	3.870
1%	3.290	4.370	4.130	5.000

Source: data analysis using EVIEWS ver. 12

Moreover, the analysis highlights that China has a more dominant impact on stock movements in Indonesia compared to the U.S. during and after the COVID-19 pandemic. The findings indicate that it is important to monitor key economies such as Malaysia, Singapore, the U.S., and China to understand and predict stock market movements in Indonesia. Recognizing the significant influence of China on Indonesia's stock market can help investors and policymakers better anticipate and respond to changes in the global economic landscape. These results emphasize the importance of considering not only domestic factors but also external economic conditions and trends in key trading partners when making informed decisions in the Indonesian stock market.

Short-run estimation under error correction

After confirming the presence of cointegration among the variables, the analysis progresses to the next stage where lagged levels of the variables are included in the model. The equation is then estimated using the ARDL model chosen based on the Akaike Information Criterion (AIC). Following this estimation, a causality test is conducted by utilizing the lagged error correction term (ECT) and assessing the significance of the independent variables. In this context, ECT signifies the speed at which the variables adjust towards their long-term equilibrium following any shocks in the previous period. The ECT captures the short-term dynamics of the system, indicating how quickly the variables return to their equilibrium relationship after experiencing short-term deviations. By examining the significance of the independent variables about the lagged ECT, the causality test helps determine the direction and strength of the causal relationships among the variables in the model. For short-term assessment, the ECT must display a negative sign and be statistically significant, as highlighted in studies by Kalai and Zghidi (2019) and Qamruzzaman et al. (2021).

In Model 1, before the COVID-19 outbreak, the results indicate that different factors in Malaysia caused Indonesia. Lagged differenced Singapore and lagged differenced the Philippines also caused Indonesia. Additionally, differenced and lagged differenced Thailand caused Indonesia. In Model 2, during and post-COVID-19 period, the evidence shows that the difference and lagged difference between Malaysia, Singapore, and Thailand caused Indonesia. However, differences and lagged differences between Thailand's capital market and Indonesia during and post-COVID-19 periods were found to be insignificant. The results shows that the Indonesian capital market is more closely linked to Malaysia in the short term than Singapore, the Philippines, and Thailand. This result may be due to the increasingly close economic and trade ties between the two countries. Malaysia has been the primary trading partner for Indonesia over the last three years, compared to other ASEAN countries.

The ECT coefficient values of -0.973 (pre-COVID-19) and -0.961 (during and post-COVID-19) suggest a swift adjustment toward the long-term equilibrium between the ASEAN stock

market and the Indonesian capital market for both periods. These negative coefficients indicate a rapid convergence of the stock markets towards their long-run relationship, reflecting the adjustment process following any short-term shocks or deviations from equilibrium. Additionally, the results in Table 6 indicate that before COVID-19, a 1% increase in the Malaysia stock index one week earlier resulted in a 0.374% increase in the Indonesia stock index. Similarly, a 1% increase in the Singapore, Thailand, and Philippines stock indexes two weeks earlier led to a 0.158%, 0.292%, and 0.110% increase in the Indonesian index, respectively. These results suggest the short-term impact of stock index movements in these countries on the Indonesian stock market.

	Indonesia and ASEAN	Indonesia, U.S, and China	
Variables	ARDL(2, 0, 2, 1, 2)	ARDL(2, 0, 0)	
Short-run coefficients (before COVID-19)			
lnINA(-1)	-.235***	lnINA(-1)	-.129*
lnINA(-2)	-.138*	lnINA(-2)	-.114*
ln(MAL)	.374***	lnUSA	.050
lnSING	.034	lnCHN	.217***
lnSINGG(-1)	.070		
ln(SING(-2)	-.158**		
lnPHI	.100		
lnPHI(-1)	.110*		
ln(THA)	.292***		
lnTHA(-1)	.203**		
lnTHA(-2)	-.151*		
ECT(−1)	-.973		-.842
Residual diagnostic			
R-squared	.690		.603
Adjusted R-squared	.681		.602
F statistics	8.073		7.007
Durbin-Watson statistics	2.012		1.941
Serial Correlation LM Test	.961		.522
Heteroskedasticity	16.493(.124)		7.656(.105)
Stability test	Figure 1		Figure 3
	ARDL(2, 1, 1, 0, 0)	ARDL(1, 0, 0)	
Short-run coefficients *(during and after COVID-19)*			
lnINA(-1)	-.134*	lnINA(-1)	.045
lnINA(-2)	-.127**	lnUSA	.274***
ln(MAL)	.572***	lnCHN	.294***
lnMAL(-1)	.182*		
lnSING)	-.088		
lnSING(-1)	.410***		
lnPHI	.108*		
lnTHA	.082		

ECT(−1)	-.961	-.955
Residual diagnostic		
R-squared	.753	.657
Adjusted R-squared	.748	.657
Durbin-Watson stat	1.961	1.947
Serial Correlation LM Test	.865	.197
Heteroskedasticity BG Test	.307	.042
Stability test	Figure 2	Figure 4

Table 5. Short-run estimation under error correction

Note: ***, **, * indicate significance at 1%, 5% and 10% confidence levels, respectively

The value of the Durbin-Watson statistics is 2.012 (before COVID-19) and 1.961, indicating no autocorrelation between the variables for both data groups—the value of adj. R2 is .681 and .748 for pre-COVID-19 and post-COVID-19 data, respectively, which reflects that the independent variables explain 68 and 75 percent variations in the dependent variable, respectively. Overall, both models of relations between Indonesia and ASEAN in the two observation periods indicate that the model fits well.

Granger Causality Tests

We conducted a study comparing short-run and long-run results of the ARDL approach in the Indonesian and ASEAN capital markets, Indonesia, the U.S., and China. Our analysis covered two observation periods - before COVID-19 and during/after COVID-19. We re-estimated a VECM, a constrained vector autoregression model used for cointegrated non-stationary series, to do this. Our study revealed interesting findings from the analyzed data. We found bidirectional causality between Indonesia-Malaysia, Indonesia-Singapore, and Indonesia-Philippines, as shown in Table 8. Moreover, we also found unidirectional causality between Indonesia-Thailand and Indonesia-China in the period before COVID-19. For data during and after COVID-19, we revealed bidirectional causality between Indonesia-Philippines and Indonesia-China. Meanwhile, Indonesia-Singapore, Indonesia-China, and Indonesia-Malaysia showed confirmed unidirectional causality.

The current study indicates that there are bidirectional causality relationships between Indonesia-Malaysia, Indonesia-Singapore, and Indonesia-Philippines during both observation periods; this indicated that changes in one market affect the other and vice versa. The study has also found unidirectional causality between Indonesia-Thailand and Indonesia-China before COVID-19, suggesting a one-way influence between these markets. In the data context during and after COVID-19, bidirectional causality has persisted between Indonesia-Philippines and Indonesia-China, indicating mutual influences. However, Indonesia-Singapore, Indonesia-China, and Indonesia-Malaysia exhibited confirmed unidirectional causality, implying a more dominant influence from one market to another.

Before COVID-19	Chi-sq		Chi-sq	Causality decision
lnMAL -> LnINA	2.94*	lnINA-> lnMAL	3.982*	Bidirectional
lnSING-> lnINA	42.464***	lnINA -> lnSING	8.304***	Bidirectional
lnPHI -> lnINA	21.719***	lnINA -> lnPHI	17.251***	Bidirectional
lnTHA -> lnINA	14.198***	lnINA -> lnTHA	0.672	Unidirectional
lnUS -> lnINA	1.496	lnINA -> lnUS	0.813	-
lnCHN -> lnINA	7.767***	lnINA -> lnCHN	1.481	Unidirectional
After COVID-19	Chi-sq			

Table 6. Summary of VEC Granger-causality test

lnMAL -> LnINA	0.589	lnINA-> lnMAL	7.191*	Unidirectional
lnSING-> lnINA	10.163***	lnINA -> lnSING	1.284	Unidirectional
lnPHI -> lnINA	24.588***	lnINA -> lnPHI	34.002***	Bidirectional
lnTHA -> lnINA	0.324	lnINA -> lnTHA	0.999	-
lnUS -> lnINA	1.951	lnINA -> lnUS	3.676	-
lnCHN -> lnINA	7.411***	lnINA -> lnCHN	6.794***	Bidirectional

Note: results based on the chi-squared statistic

Discussion

The study evaluated the interconnectedness between the Indonesian stock market and the stock markets of specific ASEAN countries (such as Malaysia, Singapore, Thailand, and the Philippines) and major global economies (the US and China). It analyzed two crucial periods: before the COVID-19 pandemic and during the post-COVID-19 recovery phase. The results showed that the Indonesian stock market remained connected to the selected ASEAN countries, as well as the US and China, during both time frames. This connectivity indicates that there are established relationships and mutual dependencies between the Indonesian stock market and the stock markets of these countries.

Interconnected Indonesia and the ASEAN country's capital market

Although previous studies generally support the integration of the ASEAN capital market (Boubakri & Guillaumin, 2015; Click & Plummer, 2005; Le et al., 2022; Muharam et al., 2020; Puspitasari et al. (2018); Robiyanto, 2018; Robiyanto et al., 2021; Zuan et al., 2023), the present study revealed some differences in certain aspects. For example, this study's findings are similar to Click and Plummer (2005), suggesting that economic integration among ASEAN-5 stock markets needs completion despite their partial separation. This study's results align with Robiyanto's (2018) discovery that the Indonesian capital market was impacted by contagion from Malaysia's and Singapore's capital markets during the post-Asia financial crisis of 1997. The results of this study also support some of the conclusions reached by Puspitasari et al. (2018) regarding Malaysia's dominance for Indonesian capital market. Recent studies by Robiyanto et al. (2021) and Muharam et al. (2020) also indicate that the integration of the ASEAN capital market peaked during the 2008 global financial crisis compared to before and after the crisis.

The study shows that ASEAN countries had different reactions during different periods. Malaysia had a significant short-term impact on Indonesia during and after the COVID-19 pandemic. This made the Malaysian capital market a key influencer of changes in the Indonesian capital market. This close relationship is due to the shared primary commodities between the two countries, such as palm oil, rubber, and coconut oil.

Table 7. Indonesia's trade trends with the US and China (billions of US$)

Year	US		China	
	Export	Import	Export	Import
2018	18.44	10.18	27.13	45.54
2019	28.94	9.26	27.96	44.93
2020	18.62	8.58	31.78	39.63
2021	25.77	11.25	53.78	56.63
2022	28.18	11.61	65.84	67.72

Source: Ministry of Trade of the Republic of Indonesia (2023)

The Singapore Stock Exchange is closely linked to the Indonesian Stock Exchange, with high coefficients showing that Singapore has a dominant position in the region because of its more advanced capital market than other ASEAN countries. On the other hand, the Philippines and Thailand had contrasting outcomes. While the effects in these two countries were statistically significant, they were relatively small and inelastic. The Philippines influenced the Indonesian capital market by 0.110% before COVID-19, and by 0.108% during and after COVID-19, indicating a relatively stable relationship.

Interconnected Indonesia and the US and China's capital market

Table 7 shows that the economic relations between China and the US have led to changes in Indonesia's economy before and after COVID-19. The results indicate that China's capital market relationship with Indonesia has significantly increased during and after the pandemic compared to the previous period. Before COVID-19, the U.S. stock exchange had an insignificant effect on Indonesia in the short term. However, during and after the pandemic, the effect was significant. When comparing the two observation periods, the Chinese stock market appears more dominant, with a coefficient of .217 (before the pandemic) and .294 (during and after the pandemic). The EC coefficients are -.842 (before the pandemic) and -.955 (during and after the pandemic). They are significant at the 1% level, indicating convergence towards equilibrium. Its magnitude suggests that 84% and 95% of adjustments are completed in the first period.

The Durbin-Watson statistics values of 1.941 before COVID-19 and 1.947 after COVID-19 suggest no autocorrelation between the variables in both datasets. Moreover, the adjusted R-squared values of 0.602 and 0.657 for the pre-COVID-19 and post-COVID-19 data, respectively, indicate that the independent variables explain 60% and 66% of the variations in the dependent variable. These results show that the models regarding the capital markets of Indonesia, the U.S., and China during the two observation periods are well-fitted, as they account for a significant portion of the variability in the dependent variable.

The present study found that China had dramatically stronger engagement in the second period, namely during and post-COVID-19, compared to the previous period. Meanwhile, the US short-run coefficient is only significant during and after the pandemic. These results illustrate how China is increasingly showing its role as one of the capital markets influencing ASEAN (Bhowmik et al., 2021; Bi, 2021; Caporale et al., 2021; Wu, 2020; Zuan et al., 2023). The results align with the fact that the US and China are Indonesia's largest trading partners; this regional manufacturing company has made foreign direct investment an acceptable solution in anticipating the imposed import duty tax from the US Government. Consequently, this trade war has become an opportunity for these regional companies to create economic and market-added value. The US and China markets have had a constructive impact on this regional economic growth, particularly in the Indonesian market. However, specifically for Indonesia and China, there has been a significant increase in economic relations, as shown by an increase in exports and imports in the last five years (see Table 7).

Practical Implications

The study holds important policy implications. First, regionally, the cointegration of the ASEAN market could hinder regional investors from attaining abnormal profits via portfolio diversification in the long term, as abnormal profits become equalized. Nevertheless, in the short term, regional investors can still capitalize on arbitrage profits by diversifying their portfolios across the ASEAN stock markets.

Secondly, ASEAN needs to strengthen its commitment to the sustainability of AEC 2025 to foster greater integration, cohesion, competitiveness, innovation, and dynamism while improving connectivity and sectoral cooperation. These findings will help create a more robust, inclusive, and people-centered community integrated into the global economy. The regulator must have the same vision and commitment to fostering this practical cointegration guideline to minimize regulatory discrepancies. Hence, there is still much that needs to be accomplished by its members to realize the potential benefits of such a community fully. Further research is necessary to identify policies and reforms conducive to AEC's successful formation. Our study is a step in the right direction towards achieving this goal.

Finally, this study concludes that the integration between some ASEAN capital markets is closely related to the global situation. Although the integration seemed to be improving in the early period, it gradually declined due to the COVID-19 crisis, followed by the international political situation of the America-China trade war and the Ukraine-Russia War. This declining level of integration may allow investors to create a better-diversified portfolio by selecting stocks across the ASEAN capital markets. As a result, some countries have implemented protectionist policies such as capital restrictions, foreign exchange controls, and other measures to inhibit cross-border capital flows. These public policies have been implemented to maintain the stability of their national economies in the post-pandemic era; there is a low corporate tax for ASEAN countries, principally no double tax and a similar perception of ownership for land resources has been negotiated for a win-win solution, this is aimed to pave out the investor in expanding the business activity and shortening the preparation period. In the gist, the national bank could do the intermediating process in financing these regional manufacturing companies, where controlling inflation and unemployment has been done dynamically and simultaneously as a " good signal."

CONCLUSION

The primary objective of this study is to investigate the level of integration between the Indonesian stock market and specific ASEAN countries, as well as the US and China, across two distinct time frames—pre-COVID-19 and during-post-COVID-19. The findings of the study indicate that both before and during-post-COVID-19, the Indonesian stock market exhibited connectivity with the selected ASEAN nations (Malaysia, Singapore, Thailand, and the Philippines), in addition to the US and China. This suggests a network of relationships and mutual dependencies between the Indonesian stock market and the stock markets of these countries throughout the specified periods.

Seconds before the pandemic, there was a clear co-movement among the capital markets of Indonesia, Malaysia, the Philippines, Thailand, and Singapore. Other ASEAN markets influenced the Indonesian market due to the manufacturing industry's reliance on Indonesia's natural energy resources. However, during the post-COVID-19 period, the contagion effect observed in Thailand's and the Philippines' capital markets decreased. Low customer preference and industry-standard platforms hindered market penetration into other countries.

Third, the study suggests that the severe impact of COVID-19 on capital markets and the competition to attract external regional investments led to a reduction in integration during the post-COVID-19 period, indicating a shift in market dynamics and interdependencies following the pandemic. Fourth, China's capital market relationship with Indonesia significantly strengthened during and after the pandemic compared to pre-COVID-19. China is increasingly emerging as a significant influencer of ASEAN markets, particularly Indonesia.

Meanwhile, the US stock exchange, which had an insignificant effect on Indonesia before COVID-19, significantly impacted during and after the pandemic. Overall, these results highlight the evolving role of the US market in influencing Indonesian market dynamics. These findings underscore the evolving nature of market integration, the impact of external factors such as COVID-19, and the changing relationships between Indonesia and key trading partners like China and the US in capital market dynamics.

The recent study has pointed out some limitations that could shape future research efforts. First, the study focused only on the Indonesian capital market, neglecting other ASEAN member states, which limits the analysis to a one-way relationship. Future research could benefit from including data on exports and imports among ASEAN countries to explore multi-directional relationships and interdependencies within the region. Second, to enhance the depth of analysis, future studies could expand the scope to include all ASEAN member states as dependent variables in cointegration analysis. Additionally, incorporating a descriptive examination of the manufacturing industry performance linked to broader economic macro indicators could provide a more comprehensive understanding of the economic landscape. Third, while the ARDL methodology is valuable for assessing short-term relationships, future studies could explore alternative techniques like VECM to address long-term equilibrium relationships among variables. VECM analysis can offer insights into equilibrium shifts and data trends, contributing to a more holistic understanding of the dynamics under investigation.

REFERENCES

Anhar, M., Maronrong, R., Burda, A., & Ode Sumail, L. (2024). Dynamics of Indonesian stock market interconnection: Insights from selected ASEAN countries and global players during and after the COVID-19 pandemic. *Investment Management and Financial Innovations*, *21*(2), 180–190. https://doi.org/10.21511/imfi.21(2).2024.14

Apollo., & Zulkifli. (2019). Comparative Analysis of Market Returns among Countries in Southeast Asia. *EPRA International Journal of Multidisciplinary Research*, *5*(7), 162–167.

Appiah, M. O. (2018). Investigating the multivariate Granger causality between energy consumption, economic growth and CO 2 emissions in Ghana. *Energy Policy*, *112*, 198–208. https://doi.org/10.1016/j.enpol.2017.10.017

Balassa, B. (1962). *The Theory of Economic Integration*. George and Unwin, (Routledge Revivals),.

Banerjee, A., Dolado, J., & Mestre, R. (1998). Error-correction Mechanism Tests for Cointegration in a Single-equation Framework. *Journal of Time Series Analysis*, *19*(3), 267–283. https://doi.org/10.1111/1467-9892.00091

Bhowmik, R., Zhu, Y., & Gao, K. (2021). An analysis of trade cooperation: Central region in China and ASEAN. *PLOS ONE*, *16*(12), e0261270. https://doi.org/10.1371/journal.pone.0261270

Bi, S. (2021). Cooperation between China and ASEAN under the building of ASEAN Economic Community. *Journal of Contemporary East Asia Studies*, *10*(1), 83–107. https://doi.org/10.1080/24761028.2021.1888410

Boubakri, S., & Guillaumin, C. (2015). Regional integration of the East Asian stock markets: An empirical assessment. *Journal of International Money and Finance*, *57*, 136–160. https://doi.org/10.1016/j.jimonfin.2015.07.011

Caporale, G. M., Gil-Alana, L. A., & You, K. (2021). Stock Market Linkages between the Asean Countries, China and the US: A Fractional Integration/cointegration Approach. *Emerging Markets Finance and Trade*, *58*(5), 502–1514.

https://doi.org/10.1080/1540496X.2021.1898366

Chen, J., & Wang, X. (2021). Asymmetric Risk Spillovers Between China and ASEAN Stock Markets. *IEEE Access*, *9*, 141479–141503. https://doi.org/10.1109/ACCESS.2021.3119932

Chia, S. Y., & Plummer, M. G. (2015). *ASEAN Economic Cooperation and Integration : Progress, Challenges and Future Directions*. Cambridge University Press.

Chien, M.-S., Lee, C.-C., Hu, T.-C., & Hu, H.-T. (2015). Dynamic Asian stock market convergence: Evidence from dynamic cointegration analysis among China and ASEAN-5. *Economic Modelling*, *51*, 84–98. https://doi.org/10.1016/j.econmod.2015.06.024

Click, R. W., & Plummer, M. G. (2005). Stock market integration in ASEAN after the Asian financial crisis. *Journal of Asian Economics*, *16*(1), 5–28. https://doi.org/10.1016/j.asieco.2004.11.018

Do, H. Q., Ishaq Bhatti, M., & Kónya, L. (2016). On asean capital market and industry integration: A review. *Corporate Ownership and Control*, *13*(2), 8–22. https://doi.org/10.22495/cocv13i2p1

Glick, R., & Hutchison, M. (2013). China's financial linkages with Asia and the global financial crisis. *Journal of International Money and Finance*, *39*, 186–206. https://doi.org/10.1016/j.jimonfin.2013.06.025

Gugler, P., & Vanoli, L. (2017). Convergence or divergence of prosperity within the ASEAN community? A crucial issue for the success of the ASEAN economic community (AEC) process. *International Journal of Emerging Markets*, *12*(3), 610–624. https://doi.org/10.1108/IJoEM-09-2016-0231

Ishikawa, K. (2021). The ASEAN Economic Community and ASEAN economic integration. *Journal of Contemporary East Asia Studies*, *10*(1), 24–41. https://doi.org/10.1080/24761028.2021.1891702

Kalai, M., & Zghidi, N. (2019). Foreign Direct Investment, Trade, and Economic Growth in MENA Countries: Empirical Analysis Using ARDL Bounds Testing Approach. *Journal of the Knowledge Economy*, *10*(1), 397–421. https://doi.org/10.1007/s13132-017-0460-6

Kang, S. H., Uddin, G. S., Troster, V., & Yoon, S.-M. (2019). Directional spillover effects between ASEAN and world stock markets. *Journal of Multinational Financial Management*, *52–53*, 100592. https://doi.org/10.1016/j.mulfin.2019.100592

Kremers, J. J. M., Ericsson, N. R., & Dolado, J. J. (1992). The Power Of Cointegration Tests. *Oxford Bulletin of Economics and Statistics*, *54*(3), 325–348. https://doi.org/10.1111/j.1468-0084.1992.tb00005.x

Le, T.-H., Vo, L. H., & Taghizadeh-Hesary, F. (2022). A study on the nonlinear dynamics of ASEAN financial integration. *Journal of Asian Business and Economic Studies*. https://doi.org/10.1108/JABES-03-2022-0040

Lee, C. L., & Takagi, S. (2015). Assessing the Financial Landscape for the Association of Southeast Asian Nations Economic Community, 2015. *Asia & the Pacific Policy Studies*, *2*(1), 116–129. https://doi.org/10.1002/app5.61

Malkiel, B. G. (1989). Efficient Market Hypothesis. In *Finance* (pp. 127–134). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-20213-3_13

Muharam, H., Robiyanto, R., Pangestuti, I., & Mawardi, W. (2020). Measuring Asian Stock Market Integration by Using Orthogonal Generalized Autoregressive Conditional Heteroscedasticity. *Montenegrin Journal of Economics*, *16*(1), 121–137. https://doi.org/10.14254/1800-5845/2020.16-1.8

Nguyen, T. D., & Elisabeta, P. (2016). Financial integration and diversification benefits: China and ASEAN4 countries. *Managerial Finance*, *42*(5), 496–514.

https://doi.org/10.1108/MF-12-2014-0300

Nguyen, T. T. H., Phan, G. Q., Wong, W. K., & Moslehpour, M. (2022). The influence of market power on liquidity creation of commercial banks in Vietnam. *Journal of Asian Business and Economic Studies*. https://doi.org/10.1108/JABES-06-2021-0076

Pesaran, M. H., & Shin, Y. (1996). Cointegration and speed of convergence to equilibrium. *Journal of Econometrics*, *71*(1–2), 117–143. https://doi.org/10.1016/0304-4076(94)01697-6

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326. https://doi.org/10.1002/jae.616

Phylaktis, K., & Ravazzolo, F. (2005). Stock prices and exchange rate dynamics. *Journal of International Money and Finance*, *24*(7), 1031–1053. https://doi.org/10.1016/j.jimonfin.2005.08.001

Puspitasari, A., Siregar, H., & Andati, T. (2018). Analisis Integrasi Bursa Saham Asean 5. *Jurnal Ekonomi Dan Kebijakan Pembangunan*, *4*(2), 187–206. https://doi.org/10.29244/jekp.4.2.2015.187-206

Qamruzzaman, M., Jianguo, W., Jahan, S., & Yingjun, Z. (2021). Financial innovation, human capital development, and economic growth of selected South Asian countries: An application of ARDLapproach. *International Journal of Finance & Economics*, *26*(3), 4032–4053. https://doi.org/10.1002/ijfe.2003

Robiyanto, R. (2018). Capital Market Integration In Some Asean Countries Revisited. *Jurnal Manajemen*, *22*(2), 205. https://doi.org/10.24912/jm.v22i2.359

Robiyanto, R., Frensidy, B., Setyawan, I. R., & Huruta, A. D. (2021). A Different View on ASEAN Capital Market Integration. *Economies*, *9*(4), 141. https://doi.org/10.3390/economies9040141

Robiyanto, R., Nugroho, B. A., Handriani, E., & Frensidy, B. (2023). Measuring the effectiveness of ASEAN-5 initiatives from emerging market portfolio's perspective. *Cogent Business & Management*, *10*(1). https://doi.org/10.1080/23311975.2023.2167292

Sharma, S. S., Narayan, P. K., Thuraisamy, K., & Laila, N. (2019). Is Indonesia's stock market different when it comes to predictability? *Emerging Markets Review*, *40*, 100623. https://doi.org/10.1016/j.ememar.2019.100623

Sharpe, W. F. (1964). Capital Asset Prices: A Theory Of Market Equilibrium Under Conditions Of Risk. *The Journal of Finance*, *19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Shrestha, M. B., & Bhatta, G. R. (2018). Selecting appropriate methodological framework for time series data analysis. *The Journal of Finance and Data Science*, *4*(2), 71–89. https://doi.org/10.1016/j.jfds.2017.11.001

Shu, C., He, D., Dong, J., & Wang, H. (2018). Regional pull vs global push factors: China and US influence on Asian financial markets. *Journal of International Money and Finance*, *87*, 112–132. https://doi.org/10.1016/j.jimonfin.2018.04.004

Wolff, P. (2022). The 2030 Agenda and Capital Market Integration in ASEAN. In *Sustainable Development Goals and Pandemic Planning* (pp. 543–565). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-6734-3_13

Wu, F. (2020). Stock market integration in East and Southeast Asia: The role of global factors. *International Review of Financial Analysis*, *67*, 101416. https://doi.org/10.1016/j.irfa.2019.101416

Yousaf, I., Mensi, W., Vo, X. V., & Kang, S. (2023). Spillovers and connectedness between Chinese and ASEAN stock markets during bearish and bullish market statuses. *International Journal of Emerging Markets*. https://doi.org/10.1108/IJOEM-07-2022-1194

Yu, I.-W., Fung, K.-P., & Tam, C.-S. (2010). Assessing financial market integration in Asia – Equity markets. *Journal of Banking & Finance*, *34*(12), 2874–2885. https://doi.org/10.1016/j.jbankfin.2010.02.010

Zuan, H., Ellis, D., & Pagliari, R. (2023). Expert insights into the impact of aeropolitics on regional air market integration in ASEAN. *Transportation Research Procedia*, *75*, 240–249. https://doi.org/10.1016/j.trpro.2023.12.027