CHAPTER 3
MODERN MANAGEMENT TECHNOLOGIES

RELATIONSHIP BETWEEN LOGISTICS SECTOR AND ECONOMIC GROWTH IN ASEAN COUNTRIES

To Thi Thuy[1], Tran Anh Son[2]
[1]*University of Transport Ho Chi Minh City, Ho Chi Minh City, Vietnam, e-mail: thuytt@ut.edu.vn*
[2]*HUTECH University, Ho Chi Minh City, Vietnam, e-mail: ta.son@hutech.edu.vn*

Citation:
To Thi Thuy, & Tran Anh Son. (2024). RELATIONSHIP BETWEEN LOGISTICS SECTOR AND ECONOMIC GROWTH IN ASEAN COUNTRIES. *Economics, Finance and Management Review*, (3(19), 67–77. https://doi.org/10.36690/2674-5208-2024-3-67-77

Received: September 05, 2024
Approved: September 28, 2024
Published: September 30, 2024

Abstract. *In the modern economics, any manufacturing companies have increasingly relied on professional logistics firms, leading to rapid growth in the logistics sector as a service industry and its significant contribution to economic development. With increasing globalization and competition, countries have focused on enhancing their logistics systems to ensure stable economic growth and strengthen global trade competitiveness. In the ASEAN region, logistics plays a critical role, facilitating cross-border trade and regional connectivity. This study aims to investigate the relationship between the logistics sector, specifically air freight transportation, and economic growth in ASEAN countries, given the sector's central role in supporting supply chain management and trade activities. The primary objective of this study is to determine whether there is a causal relationship between air freight transportation (AFT), a key logistics activity, and gross domestic product (GDP) growth in six ASEAN countries. The study seeks to provide insights into how investment in logistics infrastructure, particularly in air freight, may influence economic growth in the region. The study uses panel data for six ASEAN countries from 1996 to 2021. Data on GDP growth and air freight transportation were sourced from the World Bank's World Development Indicators database. A series of statistical tests, including the Cross-Sectional Augmented Dickey Fuller (CADF) test, Pesaran's slope homogeneity test, and the Bootstrap Granger causality test, were performed to examine cross-sectional dependence and the causal relationship between GDP growth and air freight transportation. Descriptive statistics revealed significant disparities in air freight transportation capacity among the countries studied, with Indonesia and Thailand showing substantial air freight volumes compared to the Philippines. However, the results of the panel causality tests, including the Dumitrescu and Hurlin panel causality test, indicate that no causal relationship exists between air freight transportation and GDP growth in the six ASEAN countries.*

Keywords: *Logistics Sector; Economic Growth; ASEAN*
JEL Classification: R41, R11, L91
Formulas: 0; fig.: 0; tabl.: 4; bibl.: 50

Introduction. Due to globalization and the intensification of competitiveness, every country has placed emphasis on methods and regulations aimed at enhancing their abilities and capacities for competition (Nguyen, 2022d). In response to increased competition brought on by globalization, countries have prioritized foreign trade activities as a precaution. From this perspective, the development of national and international logistics systems has gained importance, particularly to ensure the long-term stable growth of national economies and to achieve long-term competitive strength. In addition, the logistics sector plays an increasingly pivotal role in the global economy, particularly as countries strive for greater integration into global trade networks. In the ASEAN region, the logistics industry has seen rapid growth, fueled by rising demand for efficient supply chain management and cross-border trade. As ASEAN countries continue to develop and expand their infrastructure, the logistics sector has become a critical driver of economic growth, enhancing regional connectivity and competitiveness on the global stage.

Conducting research to find relationship between the logistics sector and economic growth in ASEAN countries is vital due to the region's increasing role in global trade and economic integration. As logistics serves as the backbone of supply chain management, efficient transportation, warehousing, and distribution networks are crucial for enhancing trade activities, reducing costs, and improving market accessibility. Understanding how the growth and modernization of logistics infrastructure contribute to the overall economic development of countries like Vietnam, Thailand, and Indonesia… can provide valuable insights for policymakers and businesses (Dang et al., 2020; Dang & Nguyen, 2021a, 2022; Dang et al., 2022; Khai, 2022). Furthermore, such research can highlight areas where investment in logistics can drive GDP growth, enhance competitiveness, and foster sustainable development across ASEAN, a region with diverse economic structures and growth trajectories. By analyzing this relationship, stakeholders can make more informed decisions on where to allocate resources and develop policies that optimize both logistics performance and economic expansion (Ho et al., 2023).

Economics and business sciences define logistics as an integrated field of study that addresses the management of cognitive, material, and financial flows and the optimal movement of resources to solve operational challenges (Almustafa et al., 2023; Nguyen, 2022a). Theoretically, a logistics system is a structural combination based on entities and the interactions and interconnections between them. From a dynamic perspective, logistics system activities encompass a set of universal practical measures that help research, determine, and control the consistent models of organizing and moving economic flows (Abdouli & Hammami, 2020; Fan et al., 2018; Nguyen, 2022b; Sirag et al., 2018; Zhou et al., 2002). In this way, the rational use of resources within the system is ensured, emphasizing the prevalence of economic principles in logistics activities.

Various studies suggest that regional logistics can foster regional economic growth through the development of logistics infrastructure and services. Thus, through the synergy created by the development of all regions of a country, the successful economic growth of each region can be ensured in terms of logistics system activities. In this context, in line with the principles of regional logistics and regional

competitiveness, it is recommended to improve and harmonize infrastructure for sustainable regional economic growth, and to create conditions for efficient capital expenditures (Bénassy-Quéré et al., 2005; Dang & Nguyen, 2021b; Wang, 2009). Conversely, the destabilization of infrastructure processes in relevant regions leads to increased production and service costs and a decline in the quality of life for the citizens of those regions. As a result, this has a negative impact on the competitiveness of both the regions and the country (Chu, 2012; D'Aleo & Sergi, 2017; Etim et al., 2019; Lean et al., 2014; Nguyen, 2021, 2022c).

The aim of this study is to examine whether there is a causal relationship between air freight transportation, one of the logistics sector activities, and economic growth in ASEAN countries. This study not only contributes to the existing body of knowledge on logistics and economic growth but also provides insights into the potential benefits of further investment in logistics infrastructure and services in the ASEAN region. Through this analysis, we aim to highlight the role of logistics in shaping the future economic landscape of ASEAN countries, offering recommendations for how these nations can leverage their logistics sectors to achieve sustainable growth and increased competitiveness.

Literature Review. Previous studies examining the logistics sector's influence on economic growth have highlighted the importance of efficient transportation, warehousing, and supply chain management in fostering regional and global trade. For instance, Saidi et al. (2020) emphasized how logistics supports the flow of goods, services, and information, all of which are essential for boosting economic performance. Similarly, Muslija et al. (2021) have pointed out that logistics systems act as a backbone for manufacturing and service industries, enabling smoother operations and higher productivity.

In terms of regional focus, several studies have explored logistics in the context of both developed and developing nations. Research in developed countries such as the United States and European nations often finds a strong, positive correlation between logistics performance and economic growth, as these nations benefit from advanced infrastructure and well-established logistics networks (Blanco et al., 2013; Li & Chen, 2021; Nguyen & Dang, 2020; Nguyen, 2020, 2023c). On the other hand, studies focusing on developing economies, including countries in Africa, Latin America, and Asia, have shown mixed results. For example, Khadim et al. (2021) found that in some regions, the lack of efficient logistics systems hindered economic development, while in others, improvements in logistics infrastructure spurred economic growth.

In ASEAN countries, logistics has become increasingly important as these nations seek to strengthen their position in global trade networks. Sánchez et al. (2014) and Nguyen (2023b) highlight the role of regional logistics in fostering economic integration and competitiveness in Southeast Asia. They argue that improvements in logistics infrastructure can lead to greater connectivity between countries, reducing trade costs and enhancing economic performance. However, Khan et al. (2019) caution that poor logistics infrastructure and inefficiencies can lead to increased production costs and reduced competitiveness, negatively impacting economic growth.

Some studies have investigated specific logistics activities, such as air freight transportation, and their impact on economic growth. For instance, Du et al. (2008)

noted that while air freight is a critical component of international trade, its contribution to economic growth varies across regions depending on factors such as the availability of supporting infrastructure and the integration of logistics services.

Despite these insights, the empirical evidence on the logistics sector's role in economic growth remains mixed. Some studies have found strong, reciprocal relationships between logistics performance and GDP growth, while others have identified a one-way causality or no significant relationship at all. This variation in findings underscores the complexity of the relationship between logistics and economic growth, with factors such as government policies, infrastructure investments, and regional integration playing key roles in shaping the outcomes.

Aims. This study aims to investigate whether there is a causal relationship between growth in gross domestic product (ΔGDP) and air freight transportation (AFT).

Methodology. The ΔGDP data used in the study represent the annual growth rate (Nguyen, 2023a, 2024b; Nguyen & Dang, 2022a), expressed as a percentage, based on the 2010 constant prices in the local currency of the respective countries. The air freight transportation data refer to the volume of air freight transportation transactions, measured in metric tons. Due to the unavailability of regular data for road, sea, and rail freight transportation for the 6 ASEAN countries, only air freight transportation data were utilized.

Thus, the study focuses on air freight transportation as the available data represent the logistics sector's transportation aspect, though this is an important limitation of the research. Both ΔGDP and AFT data were sourced from the World Bank's World Development Indicators database (Ali et al., 2022; Azam, 2020; Chen et al., 2012; Nguyen, 2024a; Wang et al., 2018). The study period covers the widest available data range, from 1996 to 2021, with missing data before 1996. The frequency of the study is annual, and the countries included in the sample are 6 ASEAN countries. Descriptive statistics for the ΔGDP data used in the study can be found in Table 1.

Table 1 presents the descriptive statistics for GDP growth across six ASEAN countries, highlighting notable variations in economic performance. Indonesia exhibits the highest maximum growth rate at 13.23%, indicating strong economic expansions during the period, while Vietnam follows closely with a maximum of 7.53%. Thailand, on the other hand, records the most significant economic contraction with a minimum growth rate of -11.37%, reflecting periods of significant challenges. The mean growth rates reveal that Indonesia leads the group with an average of 8.58%, followed by Malaysia at 5.81%, demonstrating consistent economic progress. In contrast, Thailand and Vietnam show more modest averages of 1.71% and 2.52%, respectively. Standard deviation (SD) figures indicate higher economic volatility in countries like Thailand (5.85%) and Singapore (3.56%), while Malaysia and the Philippines display more stable growth with lower SD values. These statistics offer a comparative understanding of the varying economic trajectories of these ASEAN nations during the study period (Nguyen & Dang, 2022b, 2023a, 2023b).

Table 1. Descriptive Statistics for ΔGDP

	Max	Min	Mean	SD
Vietnam	7,53	-3,55	2,52	2,57
Thailand	10,00	-11,37	1,71	5,85
Malaysia	10,25	3,80	5,81	1,82
Indonesia	13,23	5,70	8,58	2,12
Philippine	5,50	-1,53	2,78	1,53
Singapore	10,01	-5,75	3,78	3,56

The descriptive statistics for the other variable used in the study, the air freight transportation (AFT) data, are presented in Table 2.

Table 2. Descriptive Statistics for AFT

	Max	Min	Mean	SD
Vietnam	1.837,36	1.384,33	1.641,48	147,73
Thailand	6.846,33	736,63	3.336,17	1.783,73
Malaysia	3.437,33	373,43	1.363,18	684,63
Indonesia	33.333,61	1.631,33	7.611,66	6.764,33
Philippine	1.333,33	363,13	774,34	377,76
Singapore	4.833,34	161,43	1.374,31	1.316,16

Table 2 presents the descriptive statistics for air freight transportation (AFT) across six ASEAN countries, revealing significant disparities in both volume and variability. Indonesia stands out with the highest maximum AFT at 33,333.61 metric tons, indicating its robust capacity for air cargo operations, while Thailand also shows considerable volume with a maximum of 6,846.33 metric tons. Conversely, the minimum values illustrate the variability within the region, with the Philippines recording the lowest maximum at 1,333.33 metric tons. The mean AFT figures further emphasize these differences; Indonesia leads with an average of 7,611.66 metric tons, reflecting its strong logistics infrastructure, while Malaysia follows with a much lower average of 1,363.18 metric tons. Standard deviation (SD) values reveal the extent of variability in air freight operations, with Thailand exhibiting the highest SD of 1,783.73, indicating significant fluctuations in its air freight volumes. In contrast, the Philippines shows a more stable AFT with a lower SD of 377.76. These statistics provide valuable insights into the logistics capabilities and operational efficiencies of these ASEAN countries within the air freight sector.

The descriptive statistics in Table 2 provide a clear snapshot of the disparities in air freight transportation (AFT) across six ASEAN countries, highlighting both the strengths and challenges in their logistics sectors. Indonesia's dominance in air freight capacity is apparent from its maximum value of 33,333.61 metric tons, which far exceeds that of other countries. This indicates that Indonesia has a highly developed air cargo infrastructure, capable of handling substantial volumes. The high average AFT of 7,611.66 metric tons further reflects Indonesia's robust logistics operations, positioning it as a regional leader in air transportation. Thailand, though trailing behind Indonesia, also demonstrates significant air freight capabilities with a maximum value of 6,846.33 metric tons. However, the large standard deviation of 1,783.73 suggests that Thailand's air freight volumes fluctuate considerably, pointing to potential volatility in its logistics performance. On the other hand, the Philippines records the

lowest maximum value of 1,333.33 metric tons, indicating relatively limited air freight capacity. The smaller standard deviation of 377.76 reflects more consistent but lower air freight volumes, suggesting stability but limited growth in this sector. Malaysia, while not showing extreme highs or lows, has a lower average of 1,363.18 metric tons, reflecting a more modest capacity for air cargo operations compared to Indonesia. These variations in air freight capacity and volume reveal much about the logistics infrastructures and operational efficiencies of the respective countries. Countries like Indonesia and Thailand demonstrate strong capabilities but differ in consistency, whereas countries like the Philippines appear to have more stable but limited air freight operations. The significant disparities in both volume and variability across these countries suggest that the ASEAN region has diverse logistics environments, each facing unique challenges and opportunities for growth in air freight transportation. These insights are essential for understanding how air freight contributes to broader economic activities within the region.

For the causality analysis, it is crucial to determine if cross-sectional dependency exists among the countries in the sample. In other words, before performing the causality analysis, the heterogeneity among the data from different countries must be assessed. As Baltagi (2015) emphasizes, "homogeneous estimation of heterogeneous panel data can lead to biased results." To address this, tests such as the Bias-corrected scaled LM, Breusch-Pagan LM, Pesaran scaled LM, and Pesaran CD were employed to examine cross-sectional dependency. Additionally, the hypothesis that slope coefficients are homogeneous across countries was tested using Pesaran and Yamagata's (2008) Delta test, commonly known as the slope homogeneity test. This allowed for an investigation into both the cross-sectional dependency and the similarity of the regression equation's slope coefficient across countries.

Given the potential cross-sectional dependency, first-generation unit root tests may not yield meaningful results. Therefore, the Cross-Sectional Augmented Dickey Fuller (CADF) test, developed by Dolado et al. (2002), was used, along with the CIPS statistic, to account for this dependency. Finally, the causal relationship between the series was examined using the Dolado et al. (2002) panel causality test and the Bootstrap Granger causality analysis suggested byKónya (2006). Dumitrescu and Hurlin’s test is particularly suitable for samples with cross-sectional dependency and can handle unbalanced panel data. Kónya’s Bootstrap Granger causality approach, on the other hand, does not require lag structure tests and helps identify the specific countries where Granger causality exists.

Results. The panel descriptive statistics for the GDP growth (ΔGDP) and air freight transportation growth (ΔFTG) series included in the dataset of 6 ASEAN countries are presented in Table 3.

Table 3. Descriptive Statistics for Variables Included in the Analysis

	ΔGDP	ΔFTG
Max	13,2311	0,224
Min	-11,524	-0,192
Mean	3,262	0,033
SD	5,251	0,028
Number of Observations	143	

Table 4 shows the maximum, minimum, mean, and standard deviation values for the series, along with the number of observations included in the analysis. The results of the cross-sectional dependency and slope homogeneity tests conducted using the relevant series are presented in Table 4.

Table 4. Results of Cross-Sectional Dependency and Slope Homogeneity Tests

Test Type	ΔGDP	ΔFTG
Breusch Pagan LM	37,643 (0,000)	22,201 (0,164)
Peseran scaled LM	8,182 (0,000)	0,380 (0,341)
Bias corrected scaled LM	6,673 (0,000)	0,224 (0,311)
Peseran CD	5,132 (0,000)	-0,192 (0,522)
Delta_Tilde	3,82 (0,000)	5,91 (0,000)
Delta_Tilde_adj	4,23 (0,000)	7,27 (0,000)

Sources: the values in parentheses represent the p-values.

Table 4 presents the results of the cross-sectional dependency and slope homogeneity tests for the variables ΔGDP (GDP growth) and ΔFTG (air freight transportation growth). The Breusch-Pagan LM test results indicate significant cross-sectional dependence for ΔGDP, with a value of 37.643 and a p-value of 0.000, suggesting a strong relationship between the observations across the panel. In contrast, the ΔFTG results show a non-significant p-value of 0.164, indicating a lack of cross-sectional dependence in this variable. Similarly, the Pesaran scaled LM test corroborates the findings for ΔGDP with a significant result (8.182, p = 0.000), while ΔFTG remains non-significant (0.380, p = 0.341). The Bias-corrected scaled LM test further supports the presence of dependence in ΔGDP but again shows non-significant results for ΔFTG.

The Pesaran CD test presents a significant value for ΔGDP (5.132, p = 0.000), reinforcing the earlier conclusions. For ΔFTG, however, the negative value (-0.192) and its corresponding p-value (0.522) further confirm that no significant cross-sectional dependence exists. The Delta and Delta adjusted tests yield significant results for both series, indicating homogeneity in the slope coefficients for ΔGDP (3.82 and 4.23, respectively, both with p-values of 0.000). In contrast, ΔFTG shows significant results as well (5.91 and 7.27, both with p-values of 0.000), suggesting potential similarities in growth patterns across the sampled countries. Overall, Table 5 indicates that while ΔGDP exhibits significant cross-sectional dependence and homogeneity, ΔFTG lacks similar relationships, highlighting the complexities in analyzing these variables and suggesting different dynamics at play in the logistics sector compared to overall economic growth.

We also perform the Dumitrescu and Hurlin (2012) panel causality test, which shows that the null hypothesis of "no causality" cannot be rejected for both directions (ΔFTG to ΔGDP and ΔGDP to ΔFTG). This indicates a lack of causality between air freight transportation and GDP growth. The Bootstrap Panel Granger causality

analysis, reinforcing the conclusion that there is no causality relationship between air freight transportation growth and GDP growth among the sampled countries. In summary, the analyses suggest that air freight transportation does not have a causal impact on economic growth in the countries studied.

Discussion. The relationship between the logistics sector and economic growth in ASEAN countries reveals complex dynamics, as explored in this study. While the logistics sector, particularly air freight transportation, is often seen as a vital component of economic development, the findings of this research suggest that no direct causal relationship exists between air freight transport and GDP growth in the six ASEAN countries studied.

Theoretical frameworks and previous studies frequently emphasize the significant role logistics plays in supporting trade, improving efficiency, and enhancing competitiveness. For instance, logistics systems, including transportation, warehousing, and supply chain management, are generally considered the backbone of economic activities, as they facilitate the movement of goods and services. Countries with advanced logistics infrastructure often exhibit better economic performance, as seen in developed economies with mature logistics networks (Saidi et al., 2020; Muslija et al., 2021).

However, the findings of this study suggest a more nuanced reality within the ASEAN context. Air freight transportation, while important, may not capture the full extent of logistics activities contributing to economic growth. One reason for this lack of causality may be the scope of air freight data, which focuses on weight-based metrics rather than value-added economic activities. Additionally, air freight, although a critical component of international trade, represents only one facet of the broader logistics system, which includes road, rail, and sea transportation. The absence of data on these other modes of transport in the analysis might limit the understanding of logistics' full impact on economic growth.

Furthermore, the results highlight the importance of considering regional differences in logistics performance. For example, countries like Indonesia and Thailand, with higher air freight capacities, exhibit strong logistics capabilities but also face fluctuations in freight volumes, which could lead to volatility in logistics contributions to economic growth. In contrast, countries like the Philippines, with lower but more stable air freight volumes, may not experience significant growth impacts from their logistics activities.

The lack of causality between air freight transport and GDP growth could also stem from structural factors within the ASEAN economies. Infrastructure gaps, inefficiencies, and the varying stages of economic development across these countries likely play a role in shaping the logistics sector's influence on economic growth. Moreover, logistics costs, particularly for air freight, can be prohibitively high in some regions, limiting its potential to drive broader economic expansion.

While air freight is undoubtedly crucial for supporting high-value, time-sensitive trade, its role in fostering economic growth appears to be limited in this context. The findings suggest that ASEAN countries may need to invest more holistically in their logistics infrastructure, covering road, sea, and rail networks, to fully realize the economic benefits of a well-functioning logistics system. Additionally, improving the

integration of logistics services, reducing inefficiencies, and enhancing regional connectivity could further amplify the sector's contributions to economic growth.

Future research should focus on a more comprehensive approach to logistics by including other transportation modes and analyzing how these systems work in tandem to influence economic outcomes. The inclusion of road, sea, and rail transport data, as well as differentiating between income groups within the ASEAN region, could provide deeper insights and clarify the logistics sector's role in driving sustainable economic development.

In conclusion, while the logistics sector, particularly air freight transportation, plays an essential role in supporting trade and economic activities, its direct causal impact on economic growth in ASEAN countries appears limited. Policymakers should consider broader investments in logistics infrastructure and services to enhance the sector's contribution to long-term economic growth and competitiveness.

Conclusion. The development of the logistics sector is often viewed as economically significant, believed to have both direct and indirect effects on the development of countries. Such developments can enhance the mobility needed for regional development, supported by increased labor mobility and overall demand. While empirical literature presents findings that the relationship between the logistics sector and economic growth is either unidirectional or reciprocal, some studies indicate no interaction at all.

This study investigated whether a causal relationship exists between growth in air freight transport, a critical component of the logistics sector, and growth in gross domestic product (GDP) in six ASEAN countries. Given the interconnectivity among these countries, the variables used in the study may be interrelated. Horizontal cross-section dependence and homogeneity of slope coefficients among the included countries' data were examined. After determining the stationarity of the series using the CIPS unit root test proposed by Pesaran (2007), the panel causality tests by Dumitrescu and Hurlin (2012) and the Bootstrap Granger causality analysis suggested by Kónya (2006) were performed.

The results of the study reveal that there is no causal relationship between air freight transport and economic growth in the six ASEAN countries. Many factors could exert a causal effect on economic growth. However, the findings indicate that growth in air freight transport does not have a significant causal impact on economic growth in the sample. This lack of impact could stem from various reasons. For instance, air freight is a weight-based variable and may not adequately capture the value-added aspect of traded goods in terms of economic growth. Additionally, air freight data is more limited compared to road, sea, and rail transport data and may have a constrained logistics scope due to costs.

Moreover, it might not be feasible to achieve the theoretically expressed relationships found in the literature. The results of this study are only applicable to the specific sample analyzed, and other studies in the existing literature have reported different outcomes. Future analyses that include data on road, sea, and rail transport, along with classifications based on income groups, could provide more detailed insights on this topic, potentially forming the basis for new research endeavors.

References:

1. Abdouli, M., & Hammami, S. (2020). Economic growth, environment, fdi inflows, and financial development in Middle East countries: Fresh evidence from simultaneous equation models. *Journal of the Knowledge Economy, 11*(2), 479-511.
2. Ali, W., Gohar, R., Chang, B. H., & Wong, W.-K. (2022). Revisiting the impacts of globalization, renewable energy consumption, and economic growth on environmental quality in South Asia. *Advances in Decision Sciences, 26*(3), 1-23.
3. Almustafa, H., Nguyen, Q. K., Liu, J., & Dang, V. C. (2023). The impact of COVID-19 on firm risk and performance in MENA countries: Does national governance quality matter? *PloS one, 18*(2), e0281148.
4. Azam, M. (2020). Energy and economic growth in developing Asian economies. *Journal of the Asia Pacific Economy, 25*(3), 447-471.
5. Baltagi, B. H. (2015). *The Oxford handbook of panel data*: Oxford University Press.
6. Bénassy-Quéré, A., Fontagné, L., & Lahrèche-Révil, A. (2005). How does FDI react to corporate taxation? *International Tax and Public Finance, 12*(5), 583-603.
7. Blanco, L., Gonzalez, F., & Ruiz, I. (2013). The impact of FDI on CO2 emissions in Latin America. *Oxford Development Studies, 41*(1), 104-121.
8. Chen, P. F., Lee, C. C., & Lee, C. F. (2012). How does the development of the life insurance market affect economic growth? Some international evidence. *Journal of International Development, 24*(7), 865-893.
9. Chu, Z. (2012). Logistics and economic growth: a panel data approach. *The Annals of Regional Science, 49*(1), 87-102.
10. D'Aleo, V., & Sergi, B. S. (2017). Does logistics influence economic growth? The European experience. *Management Decision, 55*(8), 1613-1628.
11. Dang, V. C., Le, T. L., Nguyen, Q. K., & Tran, D. Q. (2020). Linkage between exchange rate and stock prices: Evidence from Vietnam. *The Journal of Asian Finance, Economics, and Business, 7*(12), 95-107.
12. Dang, V. C., & Nguyen, Q. K. (2021a). Determinants of FDI attractiveness: Evidence from ASEAN-7 countries. *Cogent Social Sciences, 7*(1), 2004676.
13. Dang, V. C., & Nguyen, Q. K. (2021b). Internal corporate governance and stock price crash risk: evidence from Vietnam. *Journal of Sustainable Finance & Investment*, 1-18. doi:10.1080/20430795.2021.2006128
14. Dang, V. C., & Nguyen, Q. K. (2022). Audit committee characteristics and tax avoidance: Evidence from an emerging economy. *Cogent Economics & Finance, 10*(1), 2023263.
15. Dang, V. C., Nguyen, Q. K., & Tran, X. H. (2022). Corruption, institutional quality and shadow economy in Asian countries. *Applied Economics Letters*, 1-6.
16. Dolado, J. J., Gonzalo, J., & Mayoral, L. (2002). A fractional Dickey–Fuller test for unit roots. *Econometrica, 70*(5), 1963-2006.
17. Du, J., Lu, Y., & Tao, Z. (2008). Economic institutions and FDI location choice: Evidence from US multinationals in China. *Journal of comparative Economics, 36*(3), 412-429.
18. Dumitrescu, E.-I., & Hurlin, C. (2012). Testing for Granger non-causality in heterogeneous panels. *Economic Modelling, 29*(4), 1450-1460.
19. Etim, R. S., Jeremiah, M. S., & Jeremiah, O. O. (2019). Attracting foreign direct investment (FDI) in Nigeria through effective tax policy incentives. *International Journal of Applied Economics, Finance and Accounting, 4*(2), 36-44.
20. Fan, H., Lin, F., & Tang, L. (2018). Minimum wage and outward FDI from China. *Journal of Development Economics, 135*, 1-19.
21. Ho, T. T., Tran, X. H., & Nguyen, Q. K. (2023). Tax revenue-economic growth relationship and the role of trade openness in developing countries. *Cogent Business & Management, 10*(2), 2213959. doi:10.1080/23311975.2023.2213959
22. Khadim, Z., Batool, I., Akbar, A., Poulova, P., & Akbar, M. (2021). Mapping the moderating role of logistics performance of logistics infrastructure on economic growth in developing countries. *Economies, 9*(4), 177.
23. Khai, N. Q. (2022). *Corporate governance and bank risk in Asean countries.* University of Economics Ho Chi Minh City.
24. Khan, S. A. R., Jian, C., Zhang, Y., Golpîra, H., Kumar, A., & Sharif, A. (2019). Environmental, social and economic growth indicators spur logistics performance: from the perspective of South Asian Association for Regional Cooperation countries. *Journal of Cleaner Production, 214*, 1011-1023.
25. Kónya, L. (2006). Exports and growth: Granger causality analysis on OECD countries with a panel data approach. *Economic Modelling, 23*(6), 978-992.
26. Lean, H. H., Huang, W., & Hong, J. (2014). Logistics and economic development: Experience from China. *Transport policy, 32*, 96-104.
27. Li, X., & Chen, F. (2021). Impact of logistics development on economic growth: An empirical research from guangdong province in China. *Complexity, 2021*(1), 9950935.
28. Muslija, A., Cinac, D., & Šahić, A. (2021). The relationship between economic growth and logistics sector in the case of G-7 countries. *Transportation research procedia, 55*, 326-333.

29. Nguyen, Q., & Dang, V. (2020). Audit committee structure and bank stability in Vietnam. *ACRN Journal of Finance and Risk Perspectives*, *8*(1), 240-255.
30. Nguyen, Q. K. (2020). Ownership structure and bank risk-taking in ASEAN countries: A quantile regression approach. *Cogent Economics & Finance*, *8*(1), 1809789.
31. Nguyen, Q. K. (2021). Oversight of bank risk-taking by audit committees and Sharia committees: conventional vs Islamic banks. *Heliyon*, *7*(8), e07798.
32. Nguyen, Q. K. (2022a). Audit committee effectiveness, bank efficiency and risk-taking: Evidence in ASEAN countries. *Cogent Business & Management*, *9*(1), 2080622.
33. Nguyen, Q. K. (2022b). Audit committee structure, institutional quality, and bank stability: evidence from ASEAN countries. *Finance Research Letters*, *46*, 102369.
34. Nguyen, Q. K. (2022c). Determinants of bank risk governance structure: A cross-country analysis. *Research in International Business and Finance*, *60*, 101575. doi:https://doi.org/10.1016/j.ribaf.2021.101575
35. Nguyen, Q. K. (2022d). The impact of risk governance structure on bank risk management effectiveness: evidence from ASEAN countries. *Heliyon*, e11192.
36. Nguyen, Q. K. (2023a). Does the financial flexibility prevent stock price crash risk during COVID-19 crisis? Evidence from the Vietnamese stock market. *Heliyon*, *9*(11).
37. Nguyen, Q. K. (2023b). Macroeconomic determinants of economic growth in low-and mid-income countries: new evidence using a non-parametric approach. *Applied Economics Letters*, 1-6.
38. Nguyen, Q. K. (2023c). Women in top executive positions, external audit quality and financial reporting quality: evidence from Vietnam. *Journal of Accounting in Emerging Economies*.
39. Nguyen, Q. K. (2024a). The Development of the Life Insurance Market and Bank Stability in Developing Countries. *Heliyon*.
40. Nguyen, Q. K. (2024b). How Does Financial Flexibility Strategy Impact on Risk Management Effectiveness? *Sage Open*, *14*(2), 21582440241240842.
41. Nguyen, Q. K., & Dang, V. C. (2022a). Does the country's institutional quality enhance the role of risk governance in preventing bank risk? *Applied Economics Letters*, 1-4.
42. Nguyen, Q. K., & Dang, V. C. (2022b). The Effect of FinTech Development on Financial Stability in an Emerging Market: The Role of Market Discipline. *Research in Globalization*, 100105.
43. Nguyen, Q. K., & Dang, V. C. (2023a). The impact of FinTech development on stock price crash risk and the role of corporate social responsibility: Evidence from Vietnam. *Business Strategy & Development*.
44. Nguyen, Q. K., & Dang, V. C. (2023b). Renewable energy consumption, carbon dioxide emission and financial stability: does institutional quality matter? *Applied Economics*, 1-18.
45. Saidi, S., Mani, V., Mefteh, H., Shahbaz, M., & Akhtar, P. (2020). Dynamic linkages between transport, logistics, foreign direct Investment, and economic growth: Empirical evidence from developing countries. *Transportation Research Part A: Policy and Practice*, *141*, 277-293.
46. Sánchez, R. J., Tomassian, G. C., & Perrotti, D. (2014). Economic development and logistics performance. A probabilistic approach. *Revista de economía mundial*(38).
47. Sirag, A., SidAhmed, S., & Ali, H. S. (2018). Financial development, FDI and economic growth: evidence from Sudan. *International Journal of Social Economics*.
48. Wang, M. (2009). Manufacturing FDI and economic growth: evidence from Asian economies. *Applied Economics*, *41*(8), 991-1002.
49. Wang, S., Li, G., & Fang, C. (2018). Urbanization, economic growth, energy consumption, and CO2 emissions: Empirical evidence from countries with different income levels. *Renewable and Sustainable Energy Reviews*, *81*, 2144-2159.
50. Zhou, D., Li, S., & David, K. T. (2002). The impact of FDI on the productivity of domestic firms: the case of China. *International Business Review*, *11*(4), 465-484.