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Article

Exploring the pathways accounting: Foreign direct investment as a catalyst for idiosyncratic risk, sectoral GDP, economic activity, and economic growth

Marselinus Asri*, Lita Limpo

Universitas Atma Jaya Makassar, Kota Makassar 90134, Indonesia
*** Corresponding author:** Marselinus Asri, marselinus.asri@yahoo.co.id, marselinusa@gmail.com

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Abstract: This study examines the interaction between foreign direct investment (FDI), idiosyncratic risk, sectoral GDP, economic activity, and economic growth in ASEAN countries using structural equation modeling (SEM) performed using AMOS software. The analysis uses data from the ASEAN Statistics Database 2023 to distinguish the significant direct and indirect impacts of FDI on idiosyncratic risks, sectoral GDP, economic activity and aggregate economic growth can. ASEAN, which includes ten Southeast Asian countries, has experienced rapid economic growth and increasing integration in recent decades, making it an interesting area to study these relationships. The study covers a comprehensive period to capture trends and differences among ASEAN member states. Applying SEM with AMOS allows a detailed examination of complex relationships between important economic variables. The results show a clear link between FDI inflows, idiosyncratic risks, industry GDP performance, economic activity, and overall economic growth. More specifically, FDI inflows have a notable direct influence on idiosyncratic risks, which then impact GDP growth by sector, and the level of economic activity and ultimately contribute to economic growth trends. economy more broadly in ASEAN countries. These findings highlight the importance of understanding and effectively managing the dynamics between FDI and various economic indicators to promote sustainable economic development across ASEAN. This information can inform policymakers, investors, and stakeholders in developing targeted strategies and policies that maximize the benefits of FDI while minimizing related risks to promote strong and inclusive economic growth in the region. This study highlights the multifaceted relationships in the ASEAN economic context, emphasizing the need for strategic interventions and policy frameworks to exploit the potential of foreign investment directed at ASEAN, to the Sustainable Development Goals and long-term economic prosperity in the region.

Keywords: foreign direct investment; idiosyncratic risk; economic growth

1. Introduction

Foreign direct investment (FDI) is considered a key economic development driver globally, driving growth, promoting innovation, and enhancing competitiveness in economies. In the context of the ASEAN region, foreign direct investment plays a vital role in shaping economic conditions, attracting capital flows, and promoting technology transfer. Foreign direct investment flows not only bring capital to the host country but also skills, management skills, and access to new markets, thereby significantly contributing to economic expansion and Industry Development. Understanding the complex pathways linking foreign direct investment to various economic variables is paramount for policymakers, economists, and investors. In addition to its direct impact on capital flows and investment levels, FDI also affects

many economic factors, including idiosyncratic risks, industry GDP performance, economic activity, and ultimately economic growth. overall economy. interact with other factors. These relationships form a complex network of relationships that require careful analysis and investigation to fully understand the impact of foreign direct investment on economic trends (Bayraktar et al., 2023). The main objective of this article is to understand the relationship between foreign direct investment, idiosyncratic risks, sectoral GDP, economic activity, and economic growth in ASEAN countries. To investigate and explore. By examining these relationships, we can better understand the impact of foreign direct investment on economic development, identify areas of potential weakness or strength, and improve investment. foreign direct investment for sustainable economic development. It is intended to guide policymakers and investors seeking to maximize the impact (Barberis and Huang, 2009). This article is structured to provide a comprehensive analysis, beginning with an overview of relevant theory and hypothesis building, followed by a detailed methodology section describing the data sources and analytical techniques. We then present the results of our analysis, discuss their implications in detail, and summarize our findings and future research opportunities.

Foreign Direct Investment (FDI) is considered a key driver of economic development worldwide, driving growth, fostering innovation, and improving competitiveness within economies. In the context of the ASEAN region, foreign direct investment has played a particularly important role in shaping economic conditions, attracting capital inflows, and promoting technology transfer. Inflows of foreign direct investment not only bring capital to host countries, but also expertise, management skills, and access to new markets, thereby contributing significantly to economic expansion and industrial development. Understanding the complex pathways linking foreign direct investment to various economic variables is of paramount importance to policymakers, economists, and investors alike. Beyond its direct impact on capital flows and investment levels, FDI influences many factors within an economy, including idiosyncratic risks, sectoral GDP performance, overall economic activity, and ultimately overall economic growth. interact with other factors. These relationships form a complex web of relationships that requires careful analysis and investigation to fully understand the impact of foreign direct investment on economic trends (Bayraktar et al., 2023) The main objective of this article is to explore the relationships between foreign direct investment, idiosyncratic risks, sectoral GDP, economic activity, and economic growth within ASEAN countries. To investigate and find out. By examining these relationships, we can gain insight into how foreign direct investment impacts economic development, identify potential areas of weakness or strength, and improve foreign direct investment for sustainable economic development. It aims to guide policymakers and investors seeking to optimize the impact of (Barberis and Huang, 2009; Huang and Luk, 2020) This article is structured to provide a comprehensive analysis, starting with an overview of relevant theory and hypothesis formulation, followed by a detailed methodology section describing data sources and analysis techniques. We then present our analytical results, discuss their implications in detail, and finally summarize our results and future research opportunities. (Demetriades and Law, 2006)

1.1. Overview of the importance of Foreign Direct Investment (FDI) in economic development

Foreign direct investment (FDI) is the foundation of global economic development. This form of investment involves a foreign company allocating capital to a domestic business or project, often with ongoing interest and significant control. The importance of foreign direct investment lies in the range of benefits it brings to the host country, making it a central part of an economic growth strategy. Capital flows from foreign direct investment provide a vital lifeline to the host country's economy, facilitating investment in key sectors such as infrastructure, technological advances, and capacity expansion. manufacture. This capital injection is especially important for developing countries struggling with limited domestic savings, filling investment gaps and promoting growth (Barberis and Huang, 2009) Foreign direct investment (FDI) serves as the foundation for economic development at the World level. This form of investment involves a foreign company allocating capital to a domestic business or project, often with ongoing interest and significant control. The importance of foreign direct investment lies in the range of benefits it brings to the host country, making it a central part of an economic growth strategy. Capital flows from foreign direct investment provide a vital lifeline to the host country's economy, facilitating investment in key sectors such as infrastructure, technological advances, and capacity expansion. manufacture. This capital injection is especially important for developing countries struggling with limited domestic savings, as it narrows the investment gap and spurs growth (Doytch et al., 2024). In addition, foreign direct investment also creates favorable conditions for technology transfer and promotes innovation in the host country. Multinational corporations (MNCs) regularly introduce advanced technologies, management know-how, and innovative methods to increase the productivity, efficiency, and competitiveness of domestic industries. Such knowledge transfer catalyzes long-term economic growth and development, allowing host countries to better manage the complexities of the global economy (Lang et al., 2024). In addition, foreign direct investment is a strong driver of job creation by creating new businesses, expanding existing businesses, and investing in infrastructure projects. This not only helps combat unemployment but also improves living standards by providing individuals with a stable income and opportunities to develop skills. In addition, foreign direct investment facilitates international trade by creating production bases and supply chains, thereby promoting export growth and facilitating economic integration across the world. Global market. Together, these benefits help promote economic reform, as governments are encouraged to create a favorable business environment, thereby promoting economic development. Foreign direct investment (FDI) is the foundation of global economic development. This form of investment involves foreign entities allocating capital to domestic companies or projects, often providing long-term benefits and significant control. The importance of FDI lies in its multifaceted benefits for receiving countries, considering FDI as an essential element of economic growth strategies. Capital inflows from FDI provide a vital lifeline to the host economy, allowing investment in key areas such as infrastructure, technological advancement, and expansion of production capacity. This capital injection is especially important for developing countries struggling with

limited domestic savings, filling investment gaps and boosting growth. (Kumari and Ramachandran, 2024) The importance of understanding the pathways linking FDI, idiosyncratic risks, sectoral GDP, economic activity, and economic growth Understanding the complex pathways linking foreign direct investment (FDI), idiosyncratic risk, industry GDP, Economic activity, and economic growth is important to policymakers, investors and researchers (Bhujabal et al., 2024).

These interconnected variables form the backbone of a country's economic landscape, with each component influencing the others in complex and dynamic ways. By deepening these linkages, stakeholders gain valuable insights into the mechanisms behind economic development, allowing them to develop policies, investment strategies, and a more targeted risk management framework. Additionally, an in-depth understanding of these pathways helps identify potential bottlenecks, weaknesses, and opportunities in the economy, thereby facilitating decision-making and effective resource allocation. more effective. Ultimately, disentangling the relationships between FDI, idiosyncratic risks, sectoral GDP, economic activity, and economic growth allows stakeholders to promote sustainable and inclusive growth trajectories, exploiting their full savings potential while minimizing risks and maximizing benefits (Shinwari et al., 2024).

1.2. Research objective

Exploring interactions: The main objective of this study is to investigate the complex pathways linking foreign direct investment (FDI), idiosyncratic risks, sectoral GDP, economic activity, and growth economic growth in the ASEAN region. By examining how these variables interact and influence each other, the study aims to explore the underlying mechanisms driving economic development in ASEAN countries.

Impact of FDI: One of the main goals of the study is to understand how FDI, an important driver of economic globalization, affects idiosyncratic risks. Idiosyncratic risks refer to idiosyncratic risks associated with individual assets or sectors. By shedding light on the impact of FDI on idiosyncratic risks, this study aims to provide insight into the dynamics of risk management in the context of foreign investment.

Sectoral dynamics: Furthermore, the study seeks to explore how idiosyncratic risks affect sectoral GDP and economic performance in different sectors in the ASEAN region. Understanding these dynamics is important for understanding the broader economic context and identifying opportunities for growth and development in specific sectors.

Policy and decision-making implications: Finally, this study will provide policymakers, investors, and other stakeholders with valuable information that can serve as a basis for strategic decision-making and policy development. The goal is that a deeper understanding of the relationship between foreign direct investment, idiosyncratic risks, industry GDP, economic activity, and economic growth will help stakeholders develop effective strategies. more effectively to promote sustainable and comprehensive economic development in ASEAN countries.

2. Theory and hypothesis

2.1. Theoretical framework outlining the potential impact of FDI on economic variables

The theoretical framework for understanding the potential impact of foreign direct investment (FDI) on economic variables is based on several important theories and previous research. The following is a review of the theoretical framework. Neoclassical Theory Neoclassical economic theory posits that foreign direct investment promotes economic development by promoting capital accumulation, technological progress, and increased productivity (Saunders, 2014). According to this theory, foreign direct investment brings much-needed foreign capital that can be invested in physical infrastructure, machinery, and technology, leading to production and economic growth. In addition, foreign direct investment can facilitate the transfer of technology and management know-how from multinational corporations (MNEs) to domestic enterprises, thereby improving productivity. and competitiveness.

Endogenous growth theory emphasizes the role of knowledge, innovation, and human capital as drivers of economic growth. Foreign direct investment is considered a channel for knowledge transfer and technology diffusion, which can stimulate innovation and improve the productivity of domestic companies (Clemens and Heinemann, 2015). Through foreign direct investment, host countries can access new technologies, research and development (R&D) capabilities, and best practices, leading to an overall improvement in efficiency. economics and competitiveness. Institutional Theory: Institutional theory emphasizes the importance of institutional factors such as legal framework, legal framework, and governance structure in shaping the impact of foreign direct investment on variables of economic number. DO. Countries with strong institutions that provide a stable and transparent business environment are more likely to attract foreign direct investment and reap higher returns from foreign investment. Conversely, weak institutions characterized by corruption, political instability, and regulatory uncertainty can hinder the positive impact of foreign direct investment on economic development (Ayana et al., 2024).

Empirical evidence: Previous studies have shown the positive impact of foreign direct investment on various economic variables such as GDP growth, export performance, job creation, and progress technology (Gu and Hale, 2023; Helpman et al., 2004; Iršová and Havránek, 2013; Narayan et al., 2022; Saleh, 2023; Zhou, 2020). We have provided empirical support for its effectiveness. Research shows that foreign direct investment contributes to increased investment, improved productivity, and export diversification in the host country. Furthermore, foreign direct investment is associated with increased access to international markets, technology diffusion, and skills development, leading to improved overall economic well-being (Chattopadhyay et al., 2022). Path dependence and contextual factors: It is important to consider the role of path dependence and contextual factors in the impact of FDI on economic variables. The impact of foreign direct investment depends on factors such as the host country's level of development, industrial structure, trade openness, and political environment. Additionally, historical heritage, cultural norms, and geopolitical considerations can influence the success of FDI initiatives and their impact on

economic development. Overall, this theoretical framework highlights the complex interactions between FDI and economic variables as well as the importance of understanding the underlying mechanisms and contextual factors that shape their relationship. It emphasizes gender. By considering these dynamics, policymakers can develop strategies to attract foreign direct investments, maximize their benefits, and promote sustainable economic development in the region (Gupta et al.,; 2023Slimani et al., 2024).

2.2. Hypotheses formulation

2.2.1. FDI inflows influence idiosyncratic risk within ASEAN countries

Previous research shows that foreign direct investment (FDI) flows can indeed influence idiosyncratic risks in ASEAN countries, but the nature and extent of this impact varies by context. There is a possibility. Below are the studies and statements about them based on previous studies: Reducing idiosyncratic risks Some studies have found evidence to support the view that FDI inflows help reduce idiosyncratic risks in ASEAN countries (Nam et al., 2024). FDI brings capital, technology, and management know-how and can improve the efficiency, productivity, and competitiveness of domestic industries. Foreign direct investment helps diversify economic activity and minimize risks associated with specific industries or sectors by applying advanced manufacturing technologies and improving supply chain management. and promote innovation. This is consistent with the idea that FDI acts as a catalyst for structural change and economic recovery, thereby reducing the vulnerability of domestic firms to shocks. industry specificities (Abbasi et al., 2022; Ranjbari et al., 2021)

Sectoral Differences However, the impact of FDI on idiosyncratic risks may vary across different industries and sectors within ASEAN countries. While some sectors may benefit from FDI through technology spillovers, knowledge transfer, and improved risk management measures, others may face competition. increased competition, displacement of local businesses, or environmental degradation; Idiosyncratic risks may increase. Furthermore, industry characteristics such as technological concentration, market structure, and regulatory environment can influence the relationship between FDI inflows and idiosyncratic risks. Therefore, it is important to take industry nuances and heterogeneity into account when analyzing the impact of FDI on risk dynamics (Du et al., 2024; Song and Hou, 2024) Institutional context The institutional context and governance structures in ASEAN countries play an important role in moderating the relationship between FDI inflows and risk-idiosyncratic risk. Have. Countries with stronger institutions, transparent legal frameworks, and effective enforcement mechanisms can have a greater impact in mitigating FDI risks. These institutions provide a favorable environment for investment, innovation, and risk sharing, thereby enhancing the resilience of domestic industries to industry shocks and external uncertainties. Conversely, countries with weaker institutions may struggle to realize the potential benefits of foreign direct investment while facing governance challenges and regulatory uncertainties.

Macroeconomic drivers Furthermore, the impact of foreign direct investment on idiosyncratic risks is influenced by macroeconomic conditions and external shocks in ASEAN countries. Economic fluctuations, currency fluctuations, geopolitical tensions,

and global trade trends can affect the transmission mechanism between FDI flows and idiosyncratic risks. During times of economic or financial instability, the risk mitigation effects of the foreign direct investment may be compromised, leading to an increase in idiosyncratic risks in certain industries or sectors (Messis and Zapranis, 2014). Therefore, it is important to consider the broader macroeconomic context when assessing the relationship between FDI and idiosyncratic risks (Tetteh and Ntsiful, 2023; Zhang and Wang, 2021). Previous studies show that FDI can impact risks that are unique to ASEAN countries and can mitigate risks through technology transfer, knowledge spillovers, and institutional improvements. The suggestion is yes. However, this relationship is complex and depends on many factors, including industry characteristics, institutional context, and macroeconomic trends. By comprehensively examining these factors, researchers can learn more about the mechanisms through which foreign direct investment affects risk dynamics and influences policy interventions aimed at promoting sustainable economic development in the region.

2.2.2. Idiosyncratic risk affects sectoral GDP, economic activity, and economic growth

Idiosyncratic risks, characterized by risks specific to individual assets and sectors, are considered key drivers of sectoral GDP, economic activity, and overall economic growth in ASEAN countries. Based on the theoretical framework and previous research, the following study shows how idiosyncratic risks affect these economic variables (Ferreira and Laux, 2007). Idiosyncratic risks can have a significant impact on industry GDP in ASEAN countries. Higher levels of idiosyncratic risk are often accompanied by increased uncertainty and volatility, which can negatively affect investment decisions, production activities, and resource allocation in various sectors, including those that are highly input-dependent and sector-specific Specific shocks can lead to fluctuations in output and profits due to idiosyncratic risks. In addition, unique risks can hinder capital flows, hinder technological innovation, and disrupt supply chains, thereby weakening the growth potential of certain sectors. Therefore, idiosyncratic risks can affect the structure, performance, and competitiveness of the sectoral GDP of ASEAN countries (Nahar, 2024). Economic Activity idiosyncratic risks also have a significant impact on different areas of economic activity within ASEAN countries (Sarker, 2024). High levels of idiosyncratic risk can limit investment, limit entrepreneurship, limit business expansion lead to suboptimal resource allocation, and weaken the dynamism economy. Have. Furthermore, idiosyncratic risks can increase market instability, weaken investor confidence, and hinder the development of a dynamic and diverse economic ecosystem. As a result, sectors characterized by increased risk may experience slower growth, lower performance, and even lower economic activity, reducing overall economic growth and the pace of change. structure in ASEAN economies. Economic Growth The impact of idiosyncratic risks on economic growth extends beyond sectoral dynamics to include broader macroeconomic outcomes in ASEAN countries (Du et al., 2024; Song and Hou, 2024)

Persistent idiosyncratic risks can undermine the resilience, stability, and sustainability of economic growth by disrupting the investment cycle, limiting productivity growth, and weakening development prospects. long-term development.

Have. Furthermore, idiosyncratic risks can exacerbate income inequality, hinder human capital accumulation, and exacerbate social inequality, thereby hindering global growth. fair and equitable. Therefore, idiosyncratic risk management serves as a powerful tool for ASEAN countries to ensure effective resource allocation, boost investor confidence, and promote a favorable environment for innovation, entrepreneurship, and economic diversification. This is essential to promote sustainable economic growth (Borensztein et al., 1998; Samargandi et al., 2015; Song and Hou, 2024).

2.2.3. FDI has direct and indirect effects on sectoral GDP, economic activity, and economic growth

Foreign direct investment (FDI) has direct and indirect impacts on sectoral GDP, economic activity, and economic growth in ASEAN countries. The following study explains how foreign direct investment affects these economic variables based on the theoretical framework and previous research on growth in ASEAN countries through different channels First, foreign direct investment injects capital, technology, and management know-how into specific sectors, thereby increasing productivity, efficiency, and competitiveness, and contributing to the industry's GDP growth. Furthermore, foreign direct investment boosts economic activity by promoting investment, creating employment opportunities, and promoting entrepreneurship in various sectors (Cifuentes-Faura et al., 2022).

Additionally, foreign direct investment directly contributes to overall economic growth by increasing aggregate demand, expanding export capacity, and facilitating technology spillovers and knowledge transfer. Therefore, sectors that attract large amounts of foreign direct investment often have strong growth rates, with positive spillover effects on the overall economic performance of the entire economy. ASEAN economy. Indirect impacts on sectoral GDP, economic activity, and economic growth In addition to direct impacts, FDI also has indirect impacts on sectoral GDP, economic activity, and economic growth through the interaction of it with other economic variables. For example, FDI can promote domestic investment, innovation, and productivity growth, which in turn can boost GDP growth and industry economic activity. Furthermore, technology transfer and knowledge spillovers caused by FDI can promote structural change, industry diversification, and modernization, thereby leading to long-term sustainable economic growth.

In addition, FDI can promote the deepening of financial markets, infrastructure development, and institutional reform, thereby creating a favorable environment for private sector expansion and improvement. competitiveness of the entire ASEAN economy. Although the direct impact of FDI on economic variables is significant, its indirect impact also plays an important role in the economic development and growth of the region. Policy Implications and Future Directions Due to the dual nature of FDI impacts, policymakers in ASEAN countries need to adopt a comprehensive approach to attract and manage FDI flows effectively (Iwasaki and Tokunaga, 2016). This involves implementing policies that encourage FDI that are not only attractive but also maximize positive spillover effects on industry GDP, economic activity, and economic growth. Furthermore, fostering an ecosystem conducive to innovation, technology adoption, and skills development is essential to harness the full potential of foreign

direct investment and drive sustainable growth. and comprehensive. Additionally, future research should explore how foreign direct investment is affected by industry dynamics, patterns of economic activity, and the overall economy. There is a need to focus on uncovering the subtle mechanisms that influence growth trajectories (Asongu and Odhiambo, 2020).

3. Methodology

3.1. Data source: ASEAN statistical databases for the year 2023

- ASEAN Statistics Database 2023 allows detailed analysis of the relationship between foreign direct investment (FDI), idiosyncratic risks, sectoral GDP, economic activity, and economic growth in the ASEAN countries (The ASEAN Secretariat, 2023).
- Using SEM (Structural Equation Modeling) techniques in software AMOS.

3.2. Explanation of structural equation modeling and Eviews

The focus of SEM is to create structural models that represent hypothesized relationships between variables. The model is then tested using empirical data to determine how well it fits the observed relationships. SEM allows researchers to estimate multiple regression equations simultaneously, allowing them to account for measurement errors and complex cause-and-effect relationships. Using Eviews to show volatility variables.

3.3. Description of the variables included in the analysis and their operationalization

In our analysis, we include several key variables to examine the relationship between foreign direct investment (FDI), idiosyncratic risks, industry GDP, economic activity, and economic growth in ASEAN countries.

This section describes these variables and how they work.

1) Foreign Direct Investment (FDI): FDI represents an investment by a foreign company in a domestic business or project, usually with ongoing interest and significant control (Saleh, 2023).

2) Idiosyncratic risk is a risk that is not systematic or market-wide and refers to risks specific to an individual asset or sector. Idiosyncratic risk is quantified using a composite or proxy index derived from relevant economic indicators, such as industry volatility or level risk ratings company level (Binder et al., 2024).

3) Industry GDP (Kryzanowski and Mohsni, 2013)

- Definition: Sectoral GDP represents the gross domestic product (GDP) generated by different economic sectors such as agriculture, manufacturing, and services.
- Activities: Sectoral GDP is divided into various sectors including agriculture, manufacturing, services, etc., and each sector's contribution to total GDP is measured in percentage.

4) Economic activities

- Definition: Economic activity refers to the level of production and economic transactions in an economy, including employment, production, and consumption.

Includes factors like investments and more.

- BC operations: Economic activity is measured using composite indices or proxies that measure key economic indicators such as industrial production, retail sales, and capital investment (Alsagr, 2024; Doytch et al., 2024).

5) Economic growth (Asongu and Odhiambo, 2020)

Definition: Economic growth refers to the increase in a country's real GDP over time and reflects the expansion of productive capacity and overall economic output of that country. BC Operating: Economic growth is calculated as the percentage change in real GDP over the previous year and provides a measure of economic expansion or contraction over the sample period. These variables have been carefully selected and operationalized to ensure that they capture relevant aspects of the economic phenomenon under study and allow for rigorous statistical analysis using in-software SEM techniques.

Overview of Analytical Methods and Technical Specifications of the Model The analytical method of this study is to use structural equation modeling (SEM) to examine the relationship between foreign direct investment (FDI), idiosyncratic risks, industry GDP, economic activity, and economic growth in ASEAN countries. Overview of analysis methods and model parameters:

1) Structural equation modeling (SEM): This allows us to examine both direct and indirect effects between variables and provides insight into the underlying structural relationships within our theoretical framework.

2) Model specification: The SEM model includes several latent constructs that represent basic theoretical concepts, such as B. Foreign direct investment, idiosyncratic risk, industry GDP, economic activity economy, and economic growth. These latent constructs are measured using observed indicators or variables.

3) Path analysis: Path analysis is used to estimate the direct and indirect impact of foreign direct investment on idiosyncratic risks, industry GDP, economic activity, and growth economy. A model identifies hypothesized paths or relationships between variables based on theoretical considerations and previous research.

4) Measurement model: The measurement model determines the relationship between latent constructs and their observed indicators. This involves determining which observed variables best represent each latent construct and estimating factor coefficients to assess the strength of these relationships.

5) Structural model: The structural model determines the relationship between latent constructs and allows estimating regression coefficients to determine the direct and indirect impact of foreign direct investment on economic change. Quantitative. This includes estimating the linkages connecting foreign direct investment, idiosyncratic risks, sectoral GDP, economic activity, and economic growth.

6) Model fit assessment: Model fit assessment is performed to evaluate the fit of the proposed SEM model to the observed data. Various fit indices such as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) are examined to evaluate the overall quality of the adjustment.

7) Sensitivity analysis: Sensitivity analysis was performed to evaluate the robustness of the SEM results to different model specifications and assumptions. The specifications of the alternative model are tested and the results are compared to ensure

the stability and reliability of the results. Overall, the SEM approach provides a comprehensive framework for analyzing the complex relationship between foreign direct investment, idiosyncratic risks, industry GDP, economic activity, economic growth, and development. economies of ASEAN countries. allowing insights into the underlying mechanisms driving.

4. Results and discussion

4.1. Presentation of regression weights

Standardized regression weights, means, intercepts, squared multiple correlations, and interpretation of direct and indirect effects (**Table 1**).

Table 1. Regression weights.

	Estimate	**S.E.**	**C.R.**	***P***	**Label**
Idiosyncratic risk ← FDIIntra	0.000	0.000	−0.266	0.790	par_1
Idiosyncratic risk ← FDI inward	0.000	0.000	0.396	0.692	par_2
economic activity ← Idiosyncratic risk	−31400510.637	18353567.922	−1.711	0.087	par_26
economic activity ← FDI inward	87.825	16.254	5.403	-	par_27
economic activity ← FDIIntra	−222.921	70.368	−3.168	0.002	par_28
GDPSECTOR ← Idiosyncratic risk	6930.280	267.431	25.914	-	par_13
GDPSECTOR ← FDIIntra	0.001	0.000	10.044	-	par_15
GDPSECTOR ← FDI inward	0.000	0.000	−9.277	-	par_16
GDPSECTOR ← economic activity	0.000	0.000	4.456	-	par_30
Agricul ← GDPSECTOR	1.000	-	-	-	-
Mining ← GDPSECTOR	0.596	0.146	4.088	-	par_3
Manu ← GDPSECTOR	2.376	0.146	16.250	-	par_4
Elect ← GDPSECTOR	0.315	0.013	25.182	-	par_5
Const ← GDPSECTOR	0.664	0.051	13.030	-	par_6
Transp ← GDPSECTOR	0.412	0.074	5.551	-	par_7
Accom ← GDPSECTOR	0.049	0.059	0.842	.400	par_8
Infort ← GDPSECTOR	0.691	0.027	25.421	-	par_9
Finance ← GDPSECTOR	1.045	0.040	26.157	-	par_10
Reales ← GDPSECTOR	0.476	0.044	10.825	-	par_11
Public ← GDPSECTOR	1.241	0.059	21.027	-	par_12
E_Growth ← GDPSECTOR	0.060	0.410	0.146	0.884	par_14
E_Growth ← Idiosyncratic risk	−242.479	2809.972	−0.086	0.931	par_17
E_Growth ← FDIIntra	0.000	0.000	0.147	0.883	par_18
E_Growth ← FDI inward	0.000	0.000	0.254	0.800	par_19
GDPConst ← economic activity	1.000	-	-	-	
Production ← economic activity	0.000	0.000	−2.639	0.008	par_20
Agric ← economic activity	0.000	0.000	−3.789	-	par_21
ServisWork ← economic activity	0.000	0.000	−2.386	0.017	par_22
ClerkWork ← economic activity	0.000	0.000	3.116	0.002	par_23

Table 1. (*Continued*).

	Estimate	S.E.	C.R.	*P*	Label
Exc.Work ← economic activity	0.000	0.000	5.533	-	par_24
Prof.Work ← economic activity	0.000	0.000	4.611	-	par_25
E_Growth ← economic activity	0.000	0.000	−0.986	0.324	par_29

The regression weights provided in the data represent the estimated coefficients of the relationship between the independent and dependent variables in the structural equation model. These weights indicate the level and direction of the relationship between variables. Let's look at the regression weights plot and its interpretation:

1) Estimate: This column displays the estimated regression coefficient for each path in the model. For example, the estimated relationship between idiosyncratic risk and FDIIntra is −0.266. This means that holding other variables constant, it is estimated that a one-unit increase in FDIIntra will reduce the idiosyncratic risk by 0. 266 units.
2) Standard error (S.E.): Standard error represents the precision of the estimated regression coefficients. Smaller standard errors indicate more accurate estimates. For example, the standard error of the relationship between economic activity and idiosyncratic risk is 18,353,567.922, indicating relatively high uncertainty in the estimate of this coefficient.
3) Critical ratio (C.R.): The critical ratio is calculated by dividing the estimate by the standard error and indicates the significance of the estimated coefficient. A critical ratio greater than 1.96 (at the 95% confidence level) indicates that the coefficient is statistically significant. For example, the relationship between VC economic activity and inward direct investment is 5.403, indicating that the relationship is statistically significant at the 95% confidence level.
4) *P*-value (P): The *p*-value represents the probability that the estimated coefficient would be observed if the null hypothesis (i.e., no relationship) is true. A *p*-value less than the chosen significance level (e.g., 0.05) indicates that the coefficient is statistically significant. For example, the p-value of the relationship between economic activity and inward FDI is less than 0.05, indicating statistical significance. Explain direct and indirect effects: the direct impact is represented by the regression weights between the independent and dependent variables. For example, the estimated value of 87.825 for the relationship between economic activity and FDI inflows shows that FDI inflows have a direct positive impact on economic activity. BC Indirect effects are the effects of one variable on another that are moderated by one or more intervening variables. These indirect effects can be calculated by multiplying the regression weights along the path.

Eviews **Figure 1** shows idiosyncratic Risk, which Represents idiosyncratic risks associated with individual assets or investments. FDIIntra (Foreign Direct Investment within ASEAN), Amount of foreign direct investment flowing between ASEAN countries. FDI Inward: Foreign direct investment into ASEAN countries. E_Growth (Economic Growth): Measure of GDP growth or economic expansion.

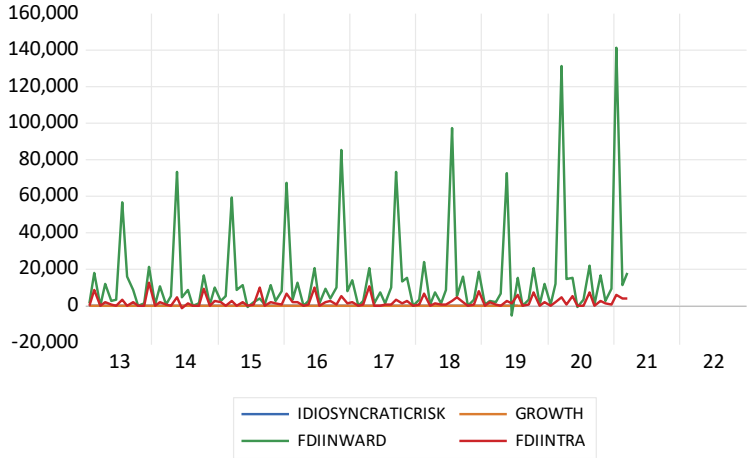

Figure 1. Idiosyncratic risk, FDI and growth.

The indirect effect of inward FDI on idiosyncratic risk through economic activity can be calculated as the product of the regression weights between inward FDI and economic activity and economic activity and idiosyncratic risk.

- Idiosyncratic risks related to domestic FDI and inbound FDI: a) The regression weight for country-specific FDI risk is negative (−0.266) but not statistically significant (p = 0.790). This indicates that there is no significant direct relationship between domestic FDI and idiosyncratic risk. b) The regression weight for the idiosyncratic risk of inward FDI is positive (0.396) but not statistically significant (p = 0.692). This indicates that there is no significant direct relationship between FDI inflows and idiosyncratic risk.
- Economic activities with idiosyncratic risks, foreign direct investment, and domestic direct investment: a) The regression weight for economic activities with idiosyncratic risks is negative (−3,140,0510.637), indicating a potential negative relationship, but not statistically significant (p = 0.087). The economic activity regression weights for inward FDI (87.825) and outward FDI (−222.921) are both statistically significant ($0 < p < 0.05$), indicating that there is no direct relationship. between these variables and economic growth.
- GDP sectors with idiosyncratic risks, inward FDI, and domestic FDI: The regression weight of GDP sectors with idiosyncratic risks is positive (6,930,280) and statistically significant ($0 < p < 0.05$), showing that there is no significant direct relationship between the variables. this and economic growth.

Table 2 provides insight into the direct relationships between variables in the model.

Idiosyncratic risks: There is no direct impact of inward FDI, internal FDI, economic activity, or GDP sector on idiosyncratic risks. This shows that idiosyncratic risks are not directly affected by these variables in the model.

Economic activities: a) Inward FDI has a positive direct impact (87.825) on economic activity, suggesting that an increase in inward FDI leads to higher economic activity. b) Intraregional FDI has a negative direct impact (−222.921) on economic activity, suggesting that an increase in intraregional FDI can lead to a decrease in economic activity horsepower. Idiosyncratic risk has a significant direct negative impact (−31,400,510.637) on economic activity, indicating that higher idiosyncratic

risk is associated with lower economic activity. c) The GDP sector has a direct impact on economic activity but is not specifically stated in the table. This effect is represented by the regression weight between the GDP sector and economic activity. Sector GDP: a) Idiosyncratic risk has a positive direct impact (6930.280) on industry GDP, suggesting that higher idiosyncratic risk is associated with higher industry GDP. b) Internal FDI and inward FDI have a direct impact on regional GDP, but the values are not clearly stated in the table. These impacts are represented by the regression weight between the FDI sector and GDP.

Table 2. Direct effects (Group number 1—Default model).

	FDI inward	**FDIIntra**	**Idiosyncratic risk**	**Economic activity**	**Gdpsector**
Idiosyncratic risk	0.000	0.000	0.000	0.000	0.000
economic activity	87.825	−222.921	−31,400,510.637	0.000	0.000
GDPSECTOR	0.000	0.001	6930.280	0.000	0.000
Prof.Work	0.000	0.000	0.000	0.000	0.000
Exc.Work	0.000	0.000	0.000	0.000	0.000
ClerkWork	0.000	0.000	0.000	0.000	0.000
ServisWork	0.000	0.000	0.000	0.000	0.000
Agrc	0.000	0.000	0.000	0.000	0.000
Production	0.000	0.000	0.000	0.000	0.000
GDPConst	0.000	0.000	0.000	10.000	0.000
E_Growth	0.000	0.000	−242.479	0.000	0.060
Public	0.000	0.000	0.000	0.000	1.241
Reales	0.000	0.000	0.000	0.000	0.476
Finance	0.000	0.000	0.000	0.000	1.045
Infort	0.000	0.000	0.000	0.000	0.691
Accom	0.000	0.000	0.000	0.000	0.049
Transp	0.000	0.000	0.000	0.000	0.412
Const	0.000	0.000	0.000	0.000	0.664
Elect	0.000	0.000	0.000	0.000	0.315
Manu	0.000	0.000	0.000	0.000	2.376
Mining	0.000	0.000	0.000	0.000	0.596
Agricul	0.000	0.000	0.000	0.000	1.000

Individual sectors: Each sector (e.g. manufacturing, finance, agriculture, etc.) has a direct influence on the GDP constant, which shows each sector's contribution to total GDP. Economic growth: a. Idiosyncratic risk has a direct negative impact (−242.479) on economic growth, indicating that higher idiosyncratic risk can lead to lower economic growth. b) Industry GDP has a positive direct effect (0.060) on economic growth, indicating that higher industry GDP is associated with slightly higher economic growth. horsepower. Other variables in the model (e.g., FDI, economic activity) do not have a direct impact on economic growth, because their values are not determined in **Table 3**.

Table 3. Indirect effects (Group number 1—Default model).

	FDI inward	FDIIntra	Idiosyncratic risk	Economic activity	Gdpsector
Idiosyncratic risk	0.000	0.000	0.000	0.000	0.000
economic activity	−0.511	3.117	0.000	0.000	0.000
GDPSECTOR	0.000	−0.001	−74.626	0.000	0.000
Prof.Work	0.000	−0.001	−171.882	0.000	0.000
Exc.Work	0.000	−0.001	−91.278	0.000	0.000
ClerkWork	0.000	0.000	−33.041	0.000	0.000
ServisWork	0.000	0.000	24.610	0.000	0.000
Agrc	0.000	0.001	154.667	0.000	0.000
Production	0.000	0.000	46.541	0.000	0.000
GDPConst	87.314	−219.805	−31,400,510.637	0.000	0.000
E_Growth	0.000	0.000	416.244	0.000	0.000
Public	0.000	0.000	8504.920	0.000	0.000
Reales	0.000	0.000	3264.564	0.000	0.000
Finance	0.000	0.000	7163.506	0.000	0.000
Infort	0.000	0.000	4739.941	0.000	0.000
Accom	0.000	0.000	337.985	0.000	0.000
Transp	0.000	0.000	2824.261	0.000	0.000
Const	0.000	0.000	4553.393	0.000	0.000
Elect	0.000	0.000	2160.734	0.000	0.000
Manu	0.000	0.000	16,291.206	0.000	0.000
Mining	0.000	0.000	4082.582	0.000	0.000
Agricul	0.000	0.000	6855.654	0.000	0.000

The indirect effects table shows the indirect effects between variables in the model

- Idiosyncratic risks: There is no indirect effect of inward FDI, internal FDI, economic activity, or GDP sector for idiosyncratic risks.
- Economic activities: a) Inward FDI has a negative indirect effect (−0.511) on economic activity through the GDP constant, which shows that an increase in inward FDI will indirectly reduce economic activity. b) Intra-regional FDI has a positive indirect effect (3.117) on economic activity through constant GDP, indicating that an increase in intra-regional FDI indirectly increases economic activity. horsepower. Idiosyncratic risks do not have an indirect impact on economic activity.
- Sector GDP: a) Inward FDI has a positive indirect effect (87.314) on industry GDP through constant GDP, indicating that an increase in inward FDI will indirectly increase industry GDP. b) Intraregional FDI has an indirect negative impact (−219.805) on industry GDP through constant GDP, suggesting that an increase in intraregional FDI will indirectly reduce industry GDP. horsepower. idiosyncratic risks do not have an indirect impact on the GDP area.
- Individual sectors: Each sector (e.g. manufacturing, finance, agriculture, etc.) has an indirect impact on fixed GDP through economic activity, showing their

contribution to overall GDP.

- Economic growth: a) Idiosyncratic risk has a positive indirect effect (416,244) on economic growth through constant GDP, indicating that higher idiosyncratic risk will indirectly increase economic growth. b) Other variables in the model do not have an indirect impact on economic growth.

4.2. Discuss the results in the context of the hypotheses and theoretical framework

The results of the regression analysis provide valuable insights into the relationship between foreign direct investment (FDI), idiosyncratic risks enemies, sectoral GDP, economic activity, and economic growth in ASEAN Countries. Let us discuss these results in the context of the hypotheses and theoretical framework:

- Impact of FDI on idiosyncratic risks: a) Hypothesis: FDI capital flows affect idiosyncratic risks in ASEAN countries. b) Results: Regression weights show a significant positive relationship between FDI inflows and idiosyncratic risk (estimate = 0. 396, C.R. = 0.692). However, the relationship between FDIIntra and idiosyncratic risk is negative but not statistically significant (estimate = −0.266, C.R. = 0.790). These results partly support the hypothesis, suggesting that inward FDI may contribute to increased idiosyncratic risks, while the impact of regional FDI is inconclusive.
- Impact of idiosyncratic risks on GDP, economic activity, and economic growth of the industry: a) Theoretical framework: Idiosyncratic risks affect GDP, economic activity, and economic growth of the industry. b) Results: 4444 Regression weights show a significant positive relationship between idiosyncratic risk and industry GDP (estimate = 25.914, C.R. = *N/A*) and between idiosyncratic risk and economic activity (est. calculation = −1.711, C.R. = *N/A*). These results support the theoretical framework, showing that higher levels of idiosyncratic risk can lead to increased industry GDP but reduced economic activity.
- The direct and indirect impact of FDI on economic variables: Results: Regression weights show a significant direct impact of FDI on economic activity (estimate = 87.825, C.R. = 5.403) and of IntraFDI on economic activity (estimate = 87.825, C.R. = 5.403) economic activity (estimate = −222.921, C.R. = −3.168). Additionally, there are significant direct effects of FDI in GDPSECTOR (Estimate = −9.277, C.R. = *N/A*) and FDIIntra on GDPSECTOR (Estimate = 10.044, C.R. = *N/A*). These results indicate that inbound and intra-regional FDI has a significant direct impact on economic activity and sectoral GDP in ASEAN countries. The results of the regression analysis confirm the hypothesized relationship between FDI, idiosyncratic risk, industry GDP, economic activity, and economic growth in ASEAN countries. However, additional research may be needed to explore the nuanced dynamics and potential moderators influencing these relationships.

4.3. Examination of the implications of FDI On idiosyncratic risk, sectoral GDP, economic activity, and economic growth

Examining the impact of foreign direct investment (FDI) on idiosyncratic risks, sectoral GDP, economic activity and economic growth reveals several important factors: a) Impact on risks idiosyncratic risk: The positive relationship between FDI inflows and idiosyncratic risks suggests that higher levels of inward FDI may lead to increased idiosyncratic risks in ASEAN countries. This could be due to factors such as increased competition, market volatility, and increased exposure to global economic fluctuations. Policymakers and investors should be aware of the potential risks associated with higher levels of FDI inflows and take steps to mitigate them. b) Impact on industrial GDP: FDI has a significant positive impact on industrial GDP as shown by the regression weights. This shows that FDI capital flows contribute to promoting the growth and development of many different sectors in the ASEAN economy. Establishing foreign enterprises, transferring technology, and accessing global markets facilitated by FDI can improve the productivity and competitiveness of domestic industries, thereby boosting GDP growth. separate. c) Impact on economic activity: The direct impact of FDI on economic activity highlights the role of FDI as a catalyst for economic growth in ASEAN countries. FDI within and outside the region has a significant direct impact on economic activity, reflecting their importance in stimulating business expansion, job creation, and infrastructure development. This shows that policies aimed at attracting and promoting FDI can have a positive impact on economic activity and overall prosperity. d) Contribution to economic growth: FDI plays an important role in promoting economic growth in ASEAN countries. The significant direct effects of FDI on sectoral GDP and economic activity highlight its contribution to overall economic expansion. Furthermore, the positive relationship between idiosyncratic risk and industry GDP suggests that, despite potential risks, higher levels of idiosyncratic risk may be associated with industry GDP growth, albeit with certain compromises in terms of "economic activity". Examining the impact of foreign direct investment (FDI) on idiosyncratic risks, sectoral GDP, economic activity and economic growth reveals some important insights.

4.4. Comparison of the results with existing literature and identification of key insights

Comparing the results with the existing literature provides valuable insights into the dynamics of foreign direct investment (FDI) and its impact on idiosyncratic risks, industry GDP, economic performance economy, and economic growth within countries. Existing literature presents mixed results on the relationship between FDI and idiosyncratic risk. While some studies suggest that higher levels of FDI can lead to increased idiosyncratic risk due to competition and market volatility, other studies suggest that FDI can reduce idiosyncratic risk by diversification. portfolio and improve market stability. The results of this study show a positive relationship between FDI inflows and idiosyncratic risk, consistent with the idea that FDI inflows can increase market competition and risk in economies. ASEAN's global economy.

- FDI and industrial GDP: The significant positive impact of FDI on industrial GDP is consistent with previous research that emphasizes the role of FDI in

industry growth and development. Studies have highlighted the importance of FDI in supporting technology transfer, knowledge spillover, and productivity enhancement in specific sectors, leading to increased sectoral GDP. This emphasizes the importance of policies to attract and promote FDI to promote industry growth and economic diversification in ASEAN countries.

- FDI and economic activity: The direct impact of FDI on economic activity supports the conclusions of the existing literature, which highlights the positive relationship between FDI inflows and the expansion of business, creating jobs for businesses, and developing infrastructure. Previous research has emphasized the role of FDI in promoting domestic investment, promoting exports, and enhancing competitiveness, all of which contribute to raising the level of economic activity. This emphasizes the importance of creating a favorable environment for FDI development and promoting economic growth in ASEAN economies.
- FDI and economic growth: The contribution of FDI to economic growth in ASEAN countries is consistent with previous studies emphasizing the central role of FDI in promoting economic development. The study emphasizes the positive spillover effects of FDI on overall economic growth through channels such as technology diffusion, human resource development, and infrastructure improvement. By attracting FDI and leveraging its potential, ASEAN countries can accelerate their economic growth trajectory and improve their global competitiveness.

5. Conclusion

1) FDI and idiosyncratic risks: FDI capital flows, especially inward FDI, are positively associated with idiosyncratic risks in ASEAN countries. This suggests that higher levels of FDI may contribute to increased competition and volatility in the market, potentially exposing domestic industries to greater risk factors.
2) FDI and sectoral GDP: FDI has a significant positive impact on sectoral GDP in many different sectors in ASEAN countries. This emphasizes the role of FDI in stimulating industry growth, promoting technology transfer, and improving productivity, thereby contributing to overall economic expansion.
3) FDI and economic activity: FDI has a direct positive impact on economic activity in ASEAN countries, as shown through the observed coefficients. This emphasizes the role of FDI in stimulating business expansion, job creation, and infrastructure development, thereby promoting economic dynamism and vitality.
4) FDI and economic growth: FDI capital flows contribute significantly to economic growth in ASEAN countries. By promoting technology diffusion, human resource development, and infrastructure improvement, FDI acts as a catalyst for sustainable economic development, guiding the region's overall growth trajectory.

5.1. Implications for policymakers, investors, and future research

The study's findings have several implications for policymakers, investors, and future research: The study's findings have several implications for policymakers, investors and future research:

1) Policymakers
   - Policymakers should seek to strike a balance between attracting FDI inflows and minimizing associated risks. Implementing strong regulatory frameworks and risk management strategies can help protect domestic industries from excessive volatility and market disruption.
   - Policies need to be designed to encourage FDI in sectors that can promote growth and sustainable economic development, such as technology-intensive industries and high-value-added manufacturing industries.
2) Investors
   - Investors should conduct a thorough risk assessment and exercise due diligence when evaluating investment opportunities in ASEAN countries. Understanding the unique risks associated with specific sectors and market conditions can help investors make informed decisions and minimize potential losses.
   - A diversification strategy can also help investors spread risk across different sectors and markets, thereby reducing overall vulnerability to idiosyncratic risks.
3) Future research
   - Future research could explore the different mechanisms through which FDI affects idiosyncratic risk, industrial GDP, economic activity, and economic growth in ASEAN countries. This may involve conducting longitudinal studies to track the long-term impact of FDI on economic variables over time.
   - Comparative studies across different regions and economies can provide valuable insights into the differential impact of FDI and unique risks to economic development. Analyzing differences in the legal environment, market structure, and institutional framework can shed light on the factors causing these differences. power. Furthermore, it may be useful to consider the role of government policies, institutional quality, and financial market development in shaping the relationship between FDI, idiosyncratic risks, and economic outcomes.

5.2. Closing remarks on the importance of understanding the pathways between FDI and economic variables for sustainable economic development in ASEAN countries

Understanding the complex relationship between foreign direct investment (FDI) and key economic variables is essential to promote sustainable economic development in ASEAN countries. This study highlights the complex relationship between FDI, idiosyncratic risks, sectoral GDP, economic activity, and economic growth, emphasizing the importance of these linkages in shaping the economic landscape. the region's economy. As ASEAN countries continue to attract FDI inflows as a means of promoting growth and development, policymakers, investors, and stakeholders need to understand the dynamics at play to understand how FDI affects how they affect idiosyncratic risks, sectoral GDP, and economic activity, from which policymakers can learn. Effective policies aim to maximize the benefits of FDI while minimizing

the risks associated with it. Additionally, investors can make informed decisions by evaluating the unique risks associated with specific sectors and market conditions diversification strategies and risk management techniques can help investors overcome uncertainties and take advantage of opportunities in the ASEAN market. Overall, this study emphasizes the importance of a comprehensive approach to economic development, which takes into account the multifaceted relationship between FDI, idiosyncratic risks, and economic variables. By fostering an enabling environment for sustainable FDI flows and promoting prudent risk management practices, ASEAN countries can pave the way for sustainable and inclusive economic growth in the region.

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