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ASEAN Regional Payment Connectivity and The Reconfiguration of Financial Dependence

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Abstract

ASEAN's efforts to strengthen regional financial autonomy through Regional Payment Connectivity (RPC) have raised questions about how financial dependence is changing within the region. Although RPC aims to reduce reliance on external payment mechanisms, closer regional integration may also create new patterns of asymmetric interdependence. This study examines how ASEAN RPC reshapes financial dependence among member states. Using a qualitative approach and Network Analysis method, the study maps regional payment connectivity from 2022 to 2025 through degree centrality, weighted degree, and modularity class. The findings are then examined using Keohane and Nye's concept of asymmetric interdependence, focusing on sensitivity and vulnerability. The analysis reveals significant differences in connectivity across ASEAN. Thailand, Indonesia, Singapore, and Malaysia hold relatively central positions, supported by more diverse payment linkages. In contrast, the Philippines, Vietnam, Cambodia, Lao PDR, and Brunei Darussalam have fewer connections and more limited alternatives, making them structurally more vulnerable. These findings suggest that ASEAN RPC expands regional financial autonomy without eliminating dependence, instead reshaping how dependence is distributed among member states.

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Abstrak

Upaya ASEAN dalam memperkuat otonomi finansial regional melalui *Regional Payment Connectivity* (RPC) memunculkan pertanyaan mengenai perubahan pola ketergantungan finansial di kawasan. Meskipun RPC bertujuan mengurangi ketergantungan terhadap mekanisme pembayaran eksternal, integrasi regional juga berpotensi membentuk pola interdependensi asimetris yang baru. Penelitian ini menganalisis bagaimana ASEAN RPC mengubah pola ketergantungan finansial di antara negara-negara anggotanya. Penelitian ini menggunakan pendekatan kualitatif dengan metode *Network Analysis* untuk memetakan konektivitas pembayaran regional selama periode 2022–2025 melalui pengukuran *degree centrality*, *weighted degree*, dan *modularity class*. Hasil pemetaan kemudian dianalisis menggunakan konsep interdependensi asimetris Keohane dan Nye, dengan berfokus pada dimensi sensitivitas dan kerentanan. Hasil penelitian menunjukkan adanya perbedaan tingkat konektivitas antarnegara ASEAN. Thailand, Indonesia, Singapura, dan Malaysia memiliki posisi yang relatif sentral dengan jaringan pembayaran yang lebih beragam. Sebaliknya, Filipina, Vietnam, Kamboja, Laos, dan Brunei Darussalam memiliki konektivitas dan alternatif pembayaran yang lebih terbatas sehingga cenderung lebih rentan secara struktural. Temuan ini menunjukkan bahwa ASEAN RPC memperkuat otonomi finansial regional tanpa sepenuhnya menghilangkan ketergantungan, melainkan mengubah pola dan distribusi ketergantungan di antara negara-negara anggota ASEAN.

Keywords: ASEAN regional payment connectivity; financial autonomy; asymmetric interdependence; network analysis; cross-border payments

Introduction

The increasing integration of Southeast Asia's economy has occurred within the framework of an international monetary and financial system heavily dependent on the United States (US) dollar. The US Dollar functions as the currency for trade invoicing and settlement, foreign exchange reserves, external borrowing, and cross-border financial transactions, even when transactions do not directly involve the United States[1]. Its dominance is supported by the depth and liquidity of US financial markets, institutional credibility, and strong network effects that make the dollar a widely accepted and convenient intermediary currency in international transactions. This condition is further reinforced by currency inertia, whereby an established international currency tends to retain its dominant position because economic actors have incentives to continue using a currency that is already liquid, widely accepted, and embedded in existing financial infrastructures. The historical role of the Federal Reserve as a provider of global dollar liquidity during periods of financial stress has likewise strengthened the dollar's systemic position and reinforced its attractiveness as a source of financial stability[2]. Consequently, ASEAN's reliance on the dollar is not merely a matter of currency preference, but reflects the deeper institutional and structural position of the dollar within the regional and global financial system.

Although dollar-based transactions provide liquidity and convenience, ASEAN remains highly dependent on the US dollar in its cross-border economic activities. Approximately 80–90% of ASEAN exports were invoiced in US dollars during 2015–2022, including transactions conducted among ASEAN economies themselves[3]. This indicates that deeper regional trade integration has not been fully matched by the development of regional payment arrangements, leaving intra-ASEAN transactions substantially reliant on external financial mechanisms. Such dependence increases exposure to US dollar exchange-rate fluctuations and changes in US monetary conditions, including dollar appreciation and interest-rate increases, which can affect borrowing costs, currency stability, and dollar-denominated liabilities. It may also generate additional transaction costs when payments between ASEAN currencies require conversion through the US dollar as an intermediary currency[1, 4].

Efforts to promote local-currency use preceded the establishment of the Regional Payment Connectivity initiative. Local Currency Settlement (LCS) arrangements, initially developed by Indonesia, Malaysia, and Thailand, enabled bilateral trade and investment transactions to be settled directly in participating countries' currencies. These arrangements subsequently evolved into the broader Local Currency Transaction Framework (LCTF). The framework aims to address persistent constraints on local-currency transactions, including dollar-dominated trade invoicing, shallow liquidity in some local-currency markets, costly hedging instruments, regulatory differences, and limited standardisation[5]. Rather than seeking the complete displacement of the US dollar, these initiatives represent efforts to reduce excessive reliance on third-party currencies and strengthen the use of regional currencies in cross-border economic activities.

This policy direction became increasingly institutionalised through the ASEAN Regional Payment Connectivity (RPC). At the G20 Summit in Bali in 2022, the central banks of Indonesia, Malaysia, the Philippines, Singapore, and Thailand signed a Memorandum of Understanding on Regional Payment Connectivity, aiming to make cross-border payments faster, cheaper, more transparent, and more inclusive[6]. The commitment was further strengthened at the 42nd ASEAN Summit in Labuan Bajo in May 2023 through the ASEAN Leaders' Declaration on Advancing Regional Payment Connectivity and Promoting Local Currency Transaction, which linked regional payment connectivity and local-currency use to broader objectives of regional economic integration and financial resilience[7].

RPC strives to connect existing national payment infrastructures rather than establish a common ASEAN currency or a single supranational payment system. Its implementation includes cross-border QR-payment connectivity and fund-transfer linkages built upon domestic fast-payment systems. The LCTF complements this infrastructure by promoting the settlement of cross-border

transactions in local currencies, thereby reducing dependence on third-party currencies and intermediaries[8]. In this context, RPC combines payment interoperability with the broader objective of strengthening regional financial integration. Local-currency settlement through cross-border digital payments may also reduce users' exposure to US-dollar exchange-rate movements that arise when conventional transactions rely on the dollar as an intermediary currency[8].

Nevertheless, the development of RPC has largely proceeded through bilateral payment linkages that have not emerged simultaneously or uniformly across ASEAN. Member states differ in their levels of financial development, technological readiness, domestic payment infrastructure, and regulatory capacity. Cross-border QR and fund-transfer linkages therefore vary across the region, while national fast-payment systems themselves have developed through different regulatory and institutional approaches[8]. These differences suggest that the benefits and alternatives available within the regional payment network may not necessarily be distributed equally among participating states.

This unevenness raises an important question. While RPC may reduce dependence on external payment arrangements, greater regionalisation does not automatically produce symmetrical interdependence. States with more extensive connections and alternative payment routes may occupy different structural positions from those with fewer linkages. Keohane and Nye's concept of asymmetric interdependence, particularly the dimensions of sensitivity and vulnerability, provides a framework for examining these differences. Existing studies have extensively discussed ASEAN de-dollarisation, local-currency transactions, and digital payment integration, but comparatively less attention has been paid to the structural configuration of the RPC network and the differentiated positions of participating states. Thus, this study examines to what extent ASEAN Regional Payment Connectivity creates new patterns of asymmetric interdependence within ASEAN.

Research Method

1. Research Design

This study employs a qualitative approach using Network Analysis. This method is used to map the structural relationships among states within a region based on their respective categories or internal characteristics. Network Analysis enables researchers to identify patterns of relationships within a social system and to understand how the resulting network structure may influence the behavior of actors embedded within it[9]. A network structure is represented through a graph consisting of two fundamental units: nodes and edges. Nodes refer to various individual entities within a social network, such as individuals, groups, organizations, or states. Edges are the links connecting these nodes and represent

relationships between entities, including communication, cooperation, agreements, or trade. Depending on the nature of the relationship between the entities involved, edges may be either directed or undirected[10].

In the context of ASEAN Regional Payment Connectivity (RPC), Network Analysis is employed to examine the relationships among actors involved in the integration of payment systems across Southeast Asia. Mapping these relationships provides a systematic understanding of the structure of interactions underpinning regional payment integration. The primary nodes in this network represent the central banks and monetary authorities of Southeast Asian countries, which serve as key actors in the governance and implementation of cross-border payment systems. These include Bank Indonesia, Bank Negara Malaysia, the Bank of Thailand, the Monetary Authority of Singapore, Bangko Sentral ng Pilipinas, Brunei Darussalam Central Bank, the National Bank of Cambodia, the Bank of the Lao PDR, and the State Bank of Vietnam.

In addition to central banks and monetary authorities, the network incorporates other actors connected to the ASEAN RPC framework, including financial technology (fintech) networks (as payment infrastructure) and ASEAN finance ministerial networks. The relationships between these actors and central banks are measured by the number of interactions established within the network. These connections are interpreted as indicators of the capacity of central banks to facilitate and provide cross-border payment arrangements. Meanwhile, the edges in the network represent relationships among central banks, as well as between central banks and other entities involved in the operationalization of ASEAN RPC. These relationships include cooperation agreements, policy adoption, and the transfer of payment-system technologies for implementation at the national level.

This study relies on secondary data obtained from Memorandum of Understanding (MoUs) between relevant entities, reports published by international and regional organizations such as ASEAN, and joint press releases issued by central banks and monetary authorities in Southeast Asia. The study covers the period from 2022 to 2025. The year 2022 marks the establishment of the ASEAN RPC framework, while 2025 represents the point at which nine ASEAN member states had joined the initiative through the signing of the relevant Memoranda of Understanding.

2. Network Construction

In this study, the nodes are represented by the central banks and monetary authorities participating in the ASEAN RPC framework. The

network comprises nine ASEAN central banks and monetary authorities that joined the initiative between 2022 and 2025, as follows:

Table 1. Network Construction

Nodes	Date of Accession
Bank Indonesia (BI)	November 14, 2022
Bank Negara Malaysia (BNM)	
Bangko Sentral ng Pilipinas (BSP)	
Monetary Authority of Singapore (MAS)	
Bank of Thailand (BoT)	
State Bank of Vietnam (SBV)	August 25, 2023
Brunei Darussalam Central Bank (BDCB)	February 29, 2024
Bank of the Lao PDR (BoL)	April 3, 2024
The National Bank of Cambodia (NBC)	April 8, 2025

Source: Bank Indonesia[11, 12], Bank of Thailand[13], Monetary Authority of Singapore[14]

3. Network Measures and Operationalization

The network in this study is operationalized using Gephi software, which is employed to visualize the structure of the network that has been constructed. The resulting network is subsequently analyzed using several key measures commonly applied in Network Analysis. These include Degree Centrality, which measures the level of connectivity or involvement of a node within the network and is calculated based on the number of ties directly connected to that node[11]. In addition, this study employs Modularity Class to identify the distribution of nodes across different groups or communities and to map the number of clusters formed within the network[15]. Finally, Weighted Degree is used to capture the intensity of relationships by taking into account the frequency of interactions between two actors, or nodes, within the network[16].

Conceptual Framework

This study employs the concept of **asymmetrical interdependence** by Robert O. Keohane and Joseph S. Nye, to examine patterns of dependence emerging within ASEAN Regional Payment Connectivity (RPC).

Interdependence refers to a condition in which actors are mutually affected by cross-border interactions. However, mutual dependence does not necessarily imply an equal relationship. Differences in the degree and cost of dependence may create asymmetries that become potential sources of power. In this perspective, the less dependent actor generally possesses greater bargaining resources because disruption or alteration of the relationship would impose relatively lower costs on it than on its partners.

Two dimensions of interdependence are particularly important for identifying such asymmetries: sensitivity and vulnerability. Sensitivity refers to the extent to which an actor is affected by external changes while the existing policy framework remains unchanged. It captures the speed and magnitude of costs generated by developments within an interdependent relationship. In the context of ASEAN RPC, sensitivity can be assessed by examining the intensity of cross-border payment connectivity, the concentration of payment linkages with particular ASEAN partners, and the degree to which domestic users and institutions rely on regional payment channels. Countries with more intensive and concentrated linkages may experience greater sensitivity when changes occur in the payment systems, infrastructure, or policies of their major partners.

Vulnerability refers to the extent to which a country lacks viable policy and payment-system alternatives when disruptions or changes occur within the regional payment network. Unlike sensitivity, vulnerability concerns whether a country can reduce the costs of external changes by shifting to alternative arrangements. A country is therefore more vulnerable when it lacks sufficient domestic policies, institutional mechanisms, or alternative payment infrastructures to respond to changes in regional payment relations.

Within ASEAN RPC, vulnerability can be identified through the absence or limitation of alternative payment policies and systems. Relevant indicators include the existence of domestic regulations supporting cross-border payments, interoperable national payment infrastructure, participation in multiple bilateral payment arrangements, and the availability of alternative settlement mechanisms. Countries that rely on only a few payment linkages, lack supporting regulatory frameworks, or have limited alternative payment channels are more vulnerable because their capacity to adjust is more constrained and potentially costly.

By comparing sensitivity and vulnerability, this study identifies differentiated patterns of dependence within ASEAN RPC. Asymmetry therefore arises not merely from differences in transaction volume or

economic size, but from unequal exposure to regional payment relations and unequal capacities to adjust through alternative policies and payment systems. Countries with greater vulnerability face higher adjustment costs, while those with more diversified policy frameworks and payment infrastructures possess greater structural flexibility within ASEAN's emerging regional payment architecture.

Result

1. The Structure of ASEAN Regional Payment Connectivity

Figure 1 presents the network visualization generated using Gephi, illustrating the structure of relationships among actors involved in cross-border payment cooperation within the ASEAN Regional Payment Connectivity (RPC) framework between 2022 and 2025. The network comprises 41 actors represented as nodes and 63 relationships represented as edges. The edges capture the forms of interaction recorded in this study, including cooperative arrangements that had not yet reached the stage of fully operational payment services during the period under examination.

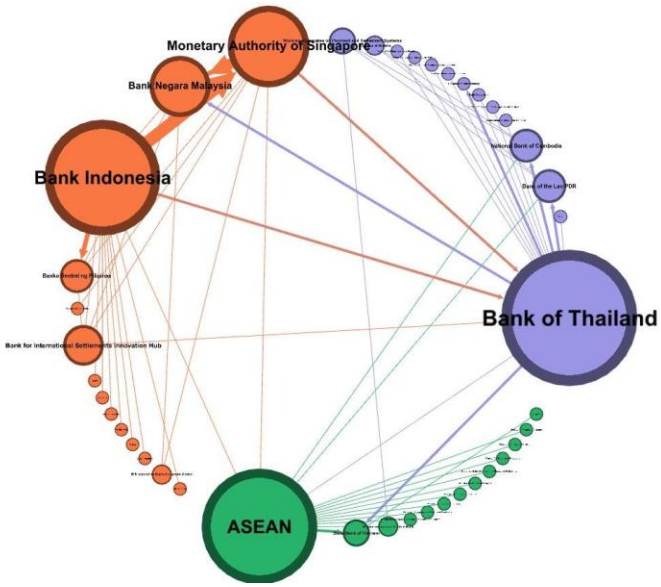


Figure 1. Mapping the Intensity of Relationships Among Actors in the ASEAN RPC using Gephi

Based on the Modularity Class analysis, the actors in the network are divided into three clusters, visualized in orange, purple, and green. This clustering indicates how actors are grouped according to the concentration of their interactions within the network. Actors within the same cluster

exhibit denser patterns of interaction with one another than with actors outside their respective clusters. Nevertheless, the division into three clusters does not imply that interactions are confined within each group, as cross-cluster relationships remain evident throughout the network. For instance, Figure 1 shows a connection between the Monetary Authority of Singapore (MAS) and the Bank of Thailand (BoT), despite their placement in different clusters.

The orange cluster, comprising Bank Indonesia (BI), the Monetary Authority of Singapore (MAS), Bank Negara Malaysia (BNM), and the Bangko Sentral ng Pilipinas (BSP), demonstrates a relatively intensive and mature pattern of cross-border payment cooperation. This is reflected in the repeated establishment of QR payment and real-time payment linkages, memoranda of understanding concerning the use of local currencies, and official statements supporting the strengthening of ASEAN RPC during central bank meetings. The purple cluster, meanwhile, reflects a pattern of connectivity centered on the Bank of Thailand (BoT), particularly through its bilateral initiatives with the Bank of the Lao PDR (BoL) and the National Bank of Cambodia (NBC), alongside its connections with actors outside the cluster. In contrast, the green cluster primarily reflects regional coordination and international support for the expansion and implementation of regional payment connectivity, involving ASEAN institutions and governmental actors. Despite the emergence of these three distinct clusters, ASEAN RPC integration is not confined to cluster boundaries. Rather, cross-cluster linkages connect these different groups within a broader and interconnected regional network.

2. Network Positions among Participating Countries

Degree is used to measure the number of direct connections held by each actor within the network. In the Gephi visualization, degree is represented by the relative size of the nodes. The results show that the Bank of Thailand (BoT) has the highest number of direct connections among the central banks included in the network. BoT's high degree reflects its extensive involvement in bilateral cross-border payment linkages and its active efforts to expand the use of PromptPay through cross-border QR payments and real-time fund transfers across ASEAN countries. BoT had already established payment connectivity with the National Bank of Cambodia (NBC) in February 2020, prior to Cambodia's formal participation in ASEAN RPC, and subsequently developed linkages with Vietnam, Singapore, Malaysia, and Indonesia in 2021, followed by Lao PDR in April 2024[17]. Bank Indonesia (BI), the Monetary Authority of Singapore (MAS), and Bank Negara Malaysia (BNM) occupy the next most connected positions, while the Bangko Sentral ng Pilipinas (BSP) displays a comparatively lower degree.

This finding is notable because these five central banks, together with BoT, were among the original initiators of RPC through the signing of the Memorandum of Understanding on 14 November 2022[12]. The variation in degree therefore suggests that formal status as an RPC initiator does not necessarily correspond to a similarly high level of network connectivity. This pattern is consistent with the IMF's (2026) observation that the Philippines has progressed more slowly in developing cross-border payment linkages than several of the other initiating countries.

In addition to degree, weighted degree captures the intensity of relationships by taking into account the frequency with which particular connections appear in the dataset. In the Gephi visualization, this is reflected in the thickness of the edges. An actor may have fewer direct connections yet still record a high weighted degree when its relationships recur frequently across different forms of interaction. In Figure 1, the connection between MAS and BI is represented by the thickest edge, indicating that interactions between the two central banks appear repeatedly in the dataset through payment linkages, memoranda of understanding, and official statements.

In contrast, the Bank of the Lao PDR (BoL), the National Bank of Cambodia (NBC), and the State Bank of Vietnam (SBV) display relatively smaller node sizes and more frequently appear as recipients of ties originating from other actors. Taken together, the number, weight, and direction of these relationships reveal a heterogeneous distribution of positions among central banks within the ASEAN RPC network. This structural variation provides the empirical basis for examining patterns of interdependence in the discussion section.

3. Alternative Payment Linkages

The network structure also reveals differences in the availability of alternative payment linkages across countries. In the visualization, the Bank of Thailand (BoT) has the highest number of direct connections among the central banks in the network. Bank Indonesia (BI) follows, with payment-related connections to Bank Negara Malaysia (BNM), the Bangko Sentral ng Pilipinas (BSP), and BoT, as well as a relatively intensive relationship with the Monetary Authority of Singapore (MAS) and connections with other actors. MAS and BNM also maintain a relatively large number of direct ties within the network. A greater number of direct connections indicates that these central banks have access to a wider range of alternative payment linkages. Consequently, if one connection is disrupted, they retain other linkages through which their connectivity within the regional network can be maintained.

In contrast, BSP has only four direct connections in the observed network. Compared with the other initiating members of ASEAN RPC, BSP therefore exhibits a relatively lower level of direct connectivity. This suggests that BSP has a more limited set of alternative payment linkages than the other central banks that initiated ASEAN RPC.

At the regional level, the National Bank of Cambodia (NBC) is directly connected only to BoT and ASEAN as the regional framework for cooperation. A similar pattern can be observed for the Bank of the Lao PDR (BoL) and the State Bank of Vietnam (SBV). Within the regional network captured by the dataset, BoT represents the only direct central-bank connection recorded for NBC, BoL, and SBV. These three central banks therefore have relatively limited alternative payment linkages within the observed regional network.

Meanwhile, the Brunei Darussalam Central Bank (BDCB) is visualized as having only one edge connecting it to ASEAN as the institutional framework for regional cooperation, with no direct link to other ASEAN RPC central banks. This pattern indicates that the dataset does not yet capture significant operational payment cooperation between BDCB and other ASEAN central banks. Consequently, BDCB has no alternative payment linkage recorded within the observed network.

Discussion

1. RPC and Regional Financial Autonomy

Regional Payment Connectivity (RPC) and the Local Currency Transaction Framework (LCTF) can be understood as complementary instruments for strengthening ASEAN's regional financial capacity[7,8]. The ASEAN RPC is designed to connect national payment systems across member states, thereby making cross-border payments more integrated, efficient, and accessible[15]. Meanwhile, the LCTF promotes the use of local currencies in regional cross-border transactions. Greater reliance on local currencies can reduce transaction costs and facilitate faster payments by mitigating dependence on third-party currencies and enhancing financial resilience[8].

ASEAN's regional financial autonomy does not entail complete independence from the global financial system. Rather, it reflects an enhanced capacity to address intra-ASEAN transaction barriers through digital payment connectivity, including QR code-based payment systems, and the use of local currencies. Such capacity is particularly relevant given ASEAN's substantial reliance on external financial intermediaries.

Bank Indonesia (2025) reports that the use of local currencies in cross-border transactions among ASEAN countries increased by 112%. This growing use of local currencies suggests that RPC and LCTF expand ASEAN member states' capacity to conduct cross-border transactions without relying exclusively on third-party currencies, particularly the US dollar.

In this context, RPC does not necessarily eliminate ASEAN's dependence on the US dollar. Instead, it provides an alternative regional payment mechanism that enables transactions to be conducted more directly through local currencies. Cross-border payments through local-currency-based QR systems may reduce exposure to exchange-rate risks that arise when the US dollar serves as an intermediary currency in transactions[8]. Accordingly, regional financial autonomy in the context of RPC is better understood as an expansion of ASEAN's capacity to provide and utilize alternative regional payment mechanisms, rather than as a complete decoupling from the global financial system or the elimination of dependence on the US dollar.

2. Reconfigured Asymmetric Interdependence: Sensitivity and Vulnerability

Although RPC enhances ASEAN's capacity to conduct cross-border transactions through regional infrastructure and the use of local currencies, these gains are not distributed evenly across member states. The network analysis reveals differences in structural positions, relationship intensity, and the availability of alternative linkages within the ASEAN RPC network. Keohane and Nye (2012) argue that interdependence does not necessarily constitute an evenly distributed form of mutual dependence. Rather, differences in the degree of dependence may generate asymmetries in bargaining power between relatively weaker and stronger actors. Within the ASEAN RPC network, this condition is reflected in the varying structural positions of the central banks of ASEAN member states.

The findings indicate that the Bank of Thailand (BoT) occupies the highest degree centrality position, while Bank Indonesia (BI), the Monetary Authority of Singapore (MAS), and Bank Negara Malaysia (BNM) also exhibit relatively high levels of connectivity. By contrast, the Bangko Sentral ng Pilipinas (BSP) maintains a more limited number of connections compared with other initiating central banks. The National Bank of Cambodia (NBC), the Bank of the Lao P.D.R. (BoL), the State Bank of Vietnam (SBV), and the Brunei Darussalam Central Bank (BDCB) likewise maintain relatively limited payment linkages with other central banks. These findings suggest that although the ASEAN RPC has generated regional connectivity, the structural positions afforded to member states within the network remain uneven.

Some central banks maintain a greater number of direct linkages, more intensive relationships, more developed supporting instruments, and a wider range of alternative linkages. Other central banks, by contrast, exhibit relatively limited connectivity within the region. Consequently, the interdependence emerging from the ASEAN RPC network demonstrates an asymmetrical pattern. These differences in structural position indicate that interdependence within the ASEAN RPC network is not distributed evenly across member states.

Keohane and Nye (2012) conceptualize asymmetrical interdependence through two dimensions: sensitivity and vulnerability. These dimensions provide a framework for examining how dependence operates across individual states and, in turn, contributes to the emergence of an asymmetrical pattern across the network as a whole.

a. Sensitivity

Based on the mapping of the ASEAN RPC network, actors exhibit different levels of sensitivity within the regional payment connectivity structure. In the context of ASEAN RPC, sensitivity refers to the extent to which member-state central banks are required and prepared to adjust to changes originating at the regional or external level. More specifically, it concerns how rapidly central banks are able to translate the ASEAN RPC framework into domestic policy and regulatory arrangements that enable the operationalization of cross-border payment services. Sensitivity is also assessed through the intensity of payment relationships maintained by each actor, as these patterns indicate the extent to which changes in the regional payment network may generate adjustment pressures across participating central banks.

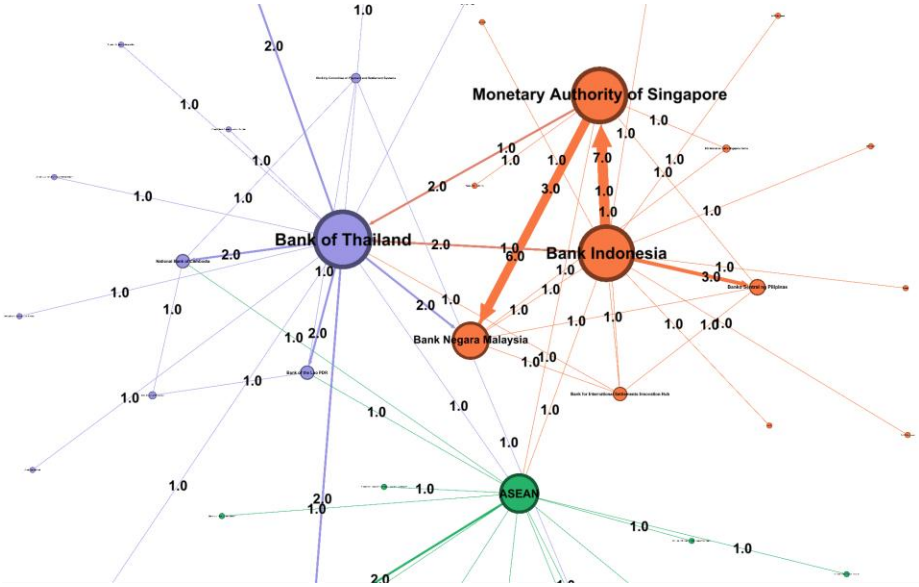


Figure 2. Mapping the Intensity of Relationships Among Actors in the ASEAN RPC

Based on the network mapping, BI, MAS, BNM, and BoT can be categorized as actors with relatively high levels of payment-system interaction. Among these actors, BI and MAS record the highest weighted degree in the ASEAN RPC network, with a value of 7.0. This value indicates a particularly intensive relationship between BI and MAS, as their interaction appears repeatedly across the observed forms of payment cooperation. Such a high level of interaction suggests that BI is likely to be more sensitive to policy or operational changes originating from MAS, as changes affecting this relationship may generate more immediate adjustment pressures for BI. Consequently, BI may be required to adapt more rapidly than actors whose relationships with MAS are less intensive.

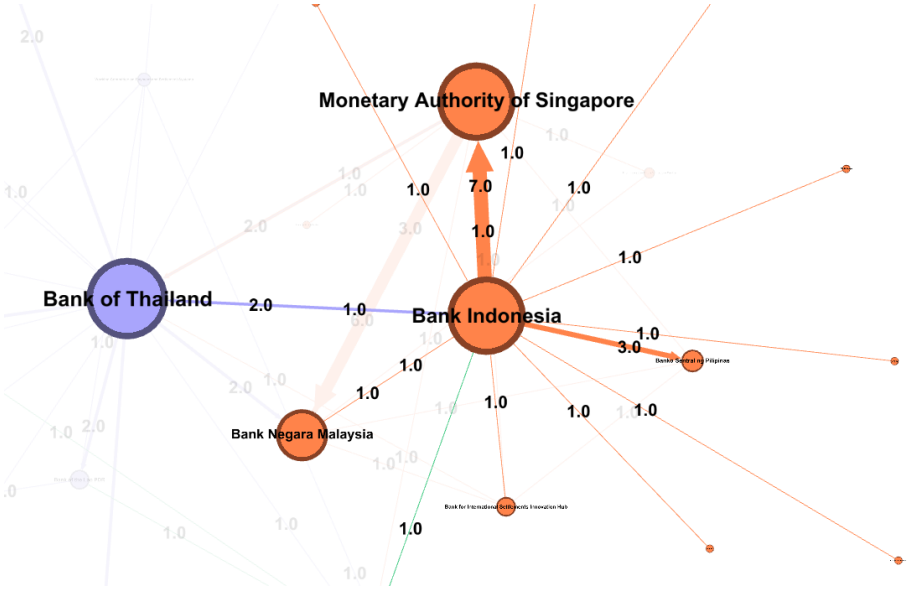


Figure 3. Mapping the Intensity of the Bank Indonesia (BI) Relations within the ASEAN RPC

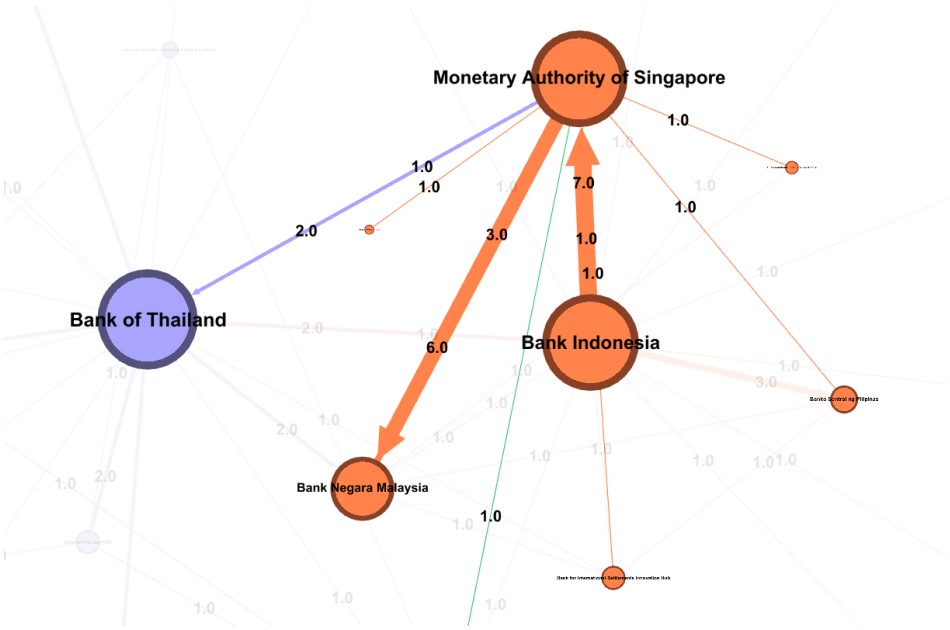


Figure 4. Mapping the Intensity of the Monetary Authority of Singapore's (MAS) Relations within the ASEAN RPC

The mapping of relationship intensity also shows that MAS maintains a relatively intensive relationship with BNM, as reflected in a weighted degree value of 6.0. This pattern suggests that MAS may be more sensitive to policy or operational changes originating from

BNM, as changes affecting this relationship could generate relatively immediate adjustment pressures for MAS. Consequently, MAS may need to respond and adapt more rapidly than other actors whose relationships with BNM are less intensive.

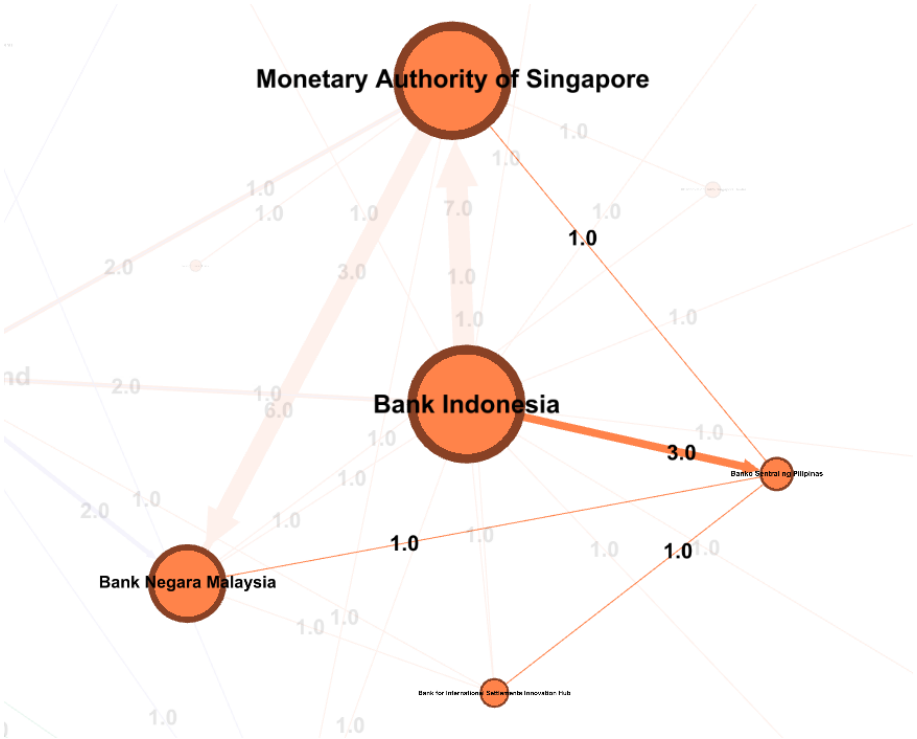


Figure 5. Mapping the Intensity of the Bangko Sentral ng Pilipinas' (BSP) Relations within the ASEAN RPC

Another finding of this study indicates a relatively high intensity of cross-border payment linkages between BSP and BI, with a weighted degree value of 3.0. This suggests that BSP is relatively more sensitive to policy changes originating from BI and therefore needs to maintain sufficient readiness to adjust its policies accordingly.

b. Vulnerability

In the context of ASEAN RPC, vulnerability is determined not merely by the number of connections maintained by an actor, but more importantly by its capacity to shift toward alternative arrangements when a particular payment relationship is disrupted. In this study, network analysis is used to identify the availability and diversification of alternative payment linkages, while the readiness of domestic payment infrastructure and regulatory support is used to assess each actor's capacity for adjustment. Countries with a larger and more diversified set of connections across multiple partners

possess a broader range of payment alternatives and therefore face relatively lower structural adjustment constraints. By contrast, countries with only a limited number of connections, or whose connectivity is heavily concentrated on a single partner, have fewer alternatives available. Disruptions to such relationships may therefore generate higher adjustment costs and increase their structural vulnerability within the regional payment network.

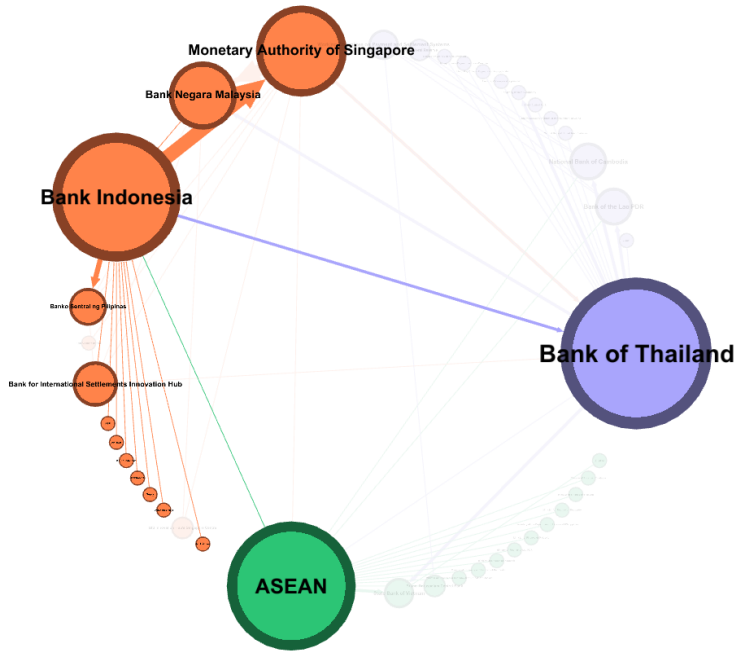


Figure 6. Mapping the Bank Indonesia's (BI) Relations within the ASEAN RPC

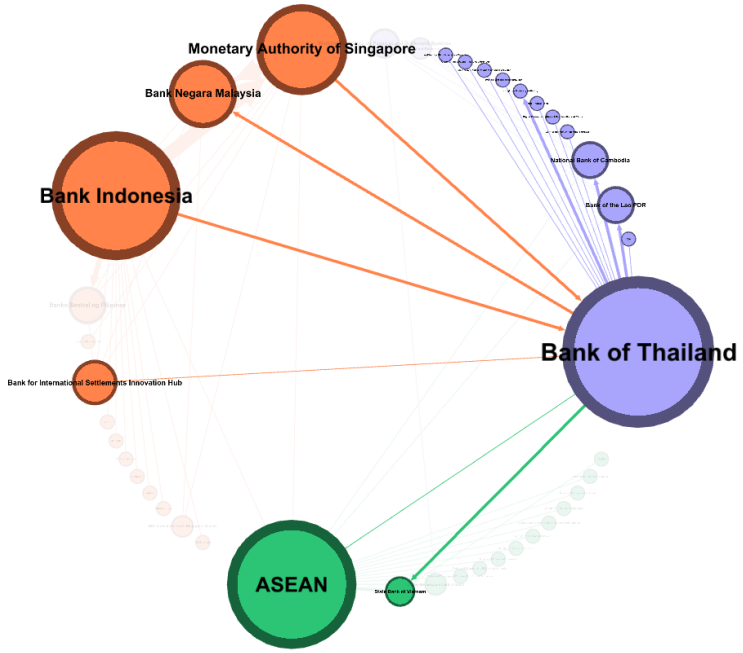


Figure 7. Mapping the Bank of Thailand's (BoT) Relations within the ASEAN RPC

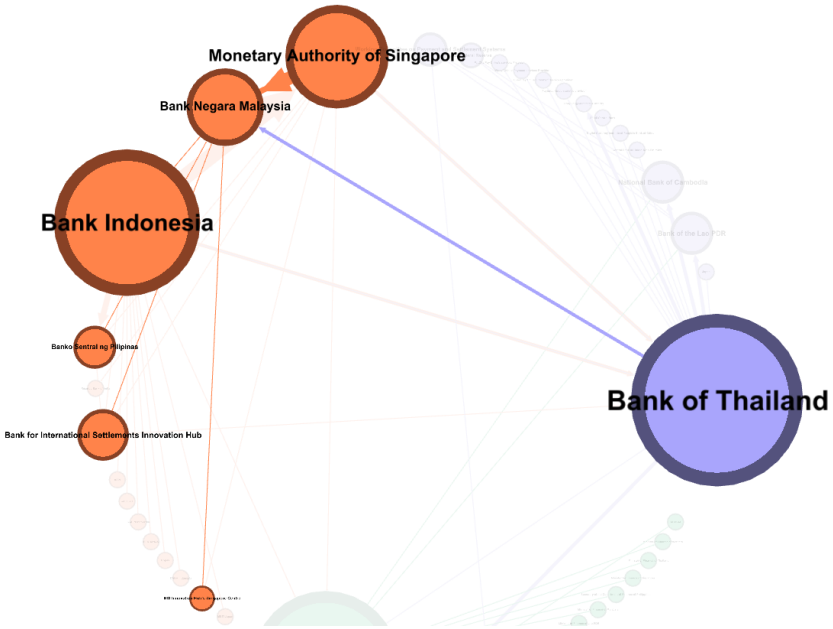


Figure 8. Mapping the Bank Negara Malaysia's (BNM) Relations within the ASEAN RPC

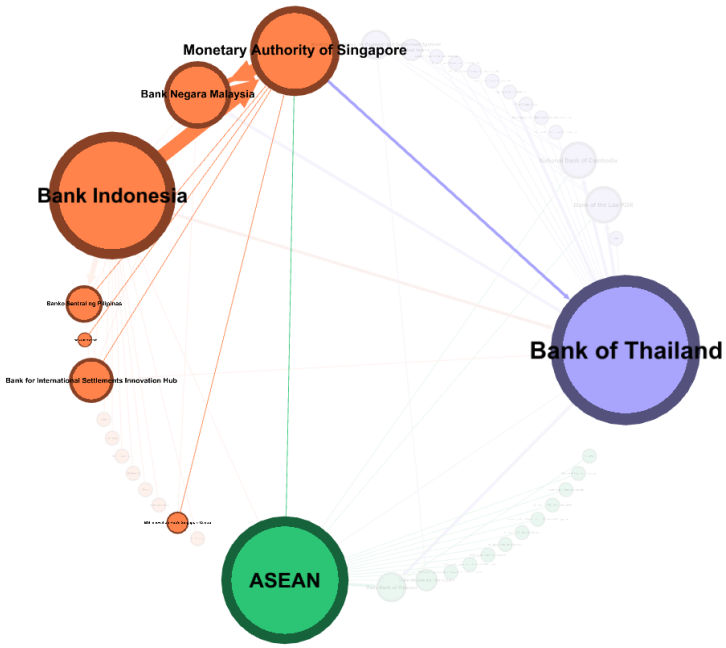


Figure 9. Mapping the Monetary Authority of Singapore's (MAS) Relations within the ASEAN RPC

Based on the network mapping, BI, BoT, BNM, and MAS emerge as central actors within the ASEAN RPC network and can be categorized as exhibiting relatively low levels of vulnerability. Their position is supported by the relatively large and diversified number of connections they maintain within the network, which provides them with a broader range of payment linkages and, consequently, greater opportunities to shift toward alternative channels if one particular relationship is disrupted. This structural advantage is further reinforced by their relatively more developed domestic payment infrastructures and regulatory mechanisms, which increase the likelihood that alternative linkages can be effectively utilized as part of the adjustment process. Taken together, the combination of diversified network connectivity, domestic infrastructural capacity, and regulatory preparedness reduces the adjustment constraints faced by these actors and therefore contributes to their lower vulnerability within the ASEAN RPC network.

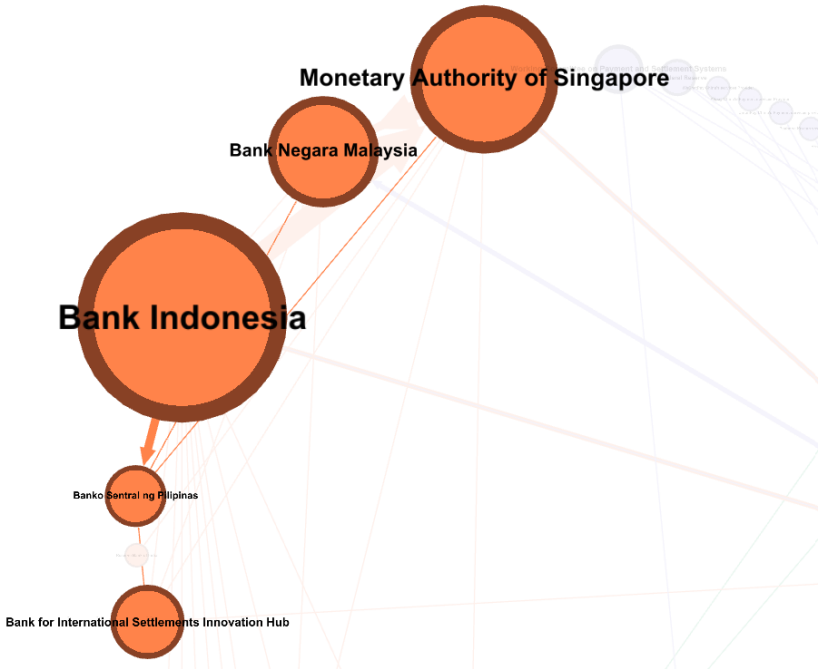


Figure 10. Mapping the Bangko Sentral ng Pilipinas' (BSP) Relations within the ASEAN RPC

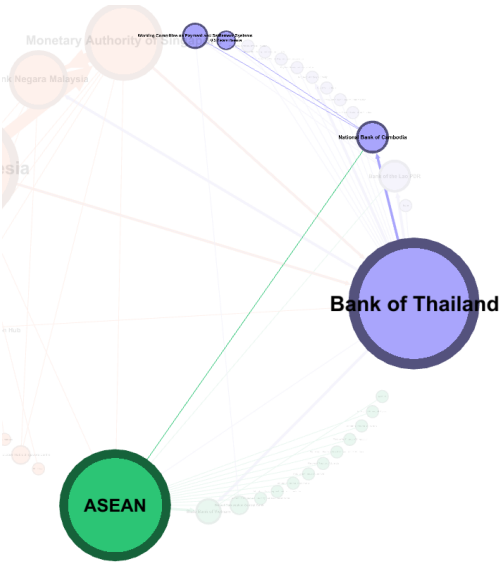


Figure 11. Mapping the National Bank of Cambodia's (NBC) Relations within the ASEAN RPC

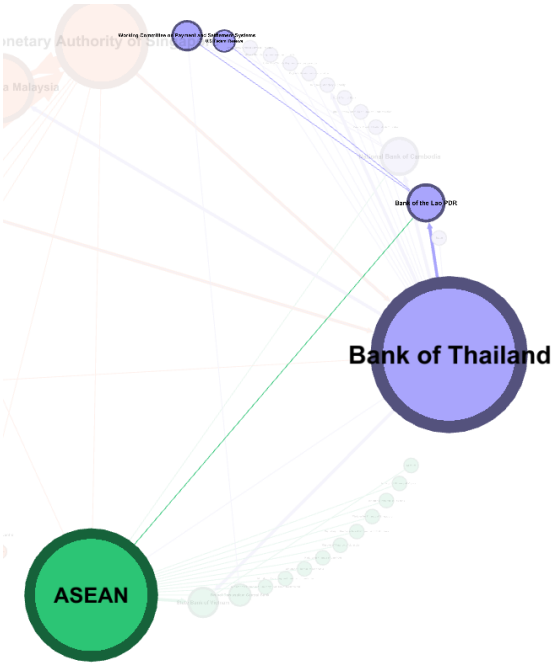


Figure 12. Mapping the Bank of the Lao PDR's (BoL) Relations within the ASEAN RPC

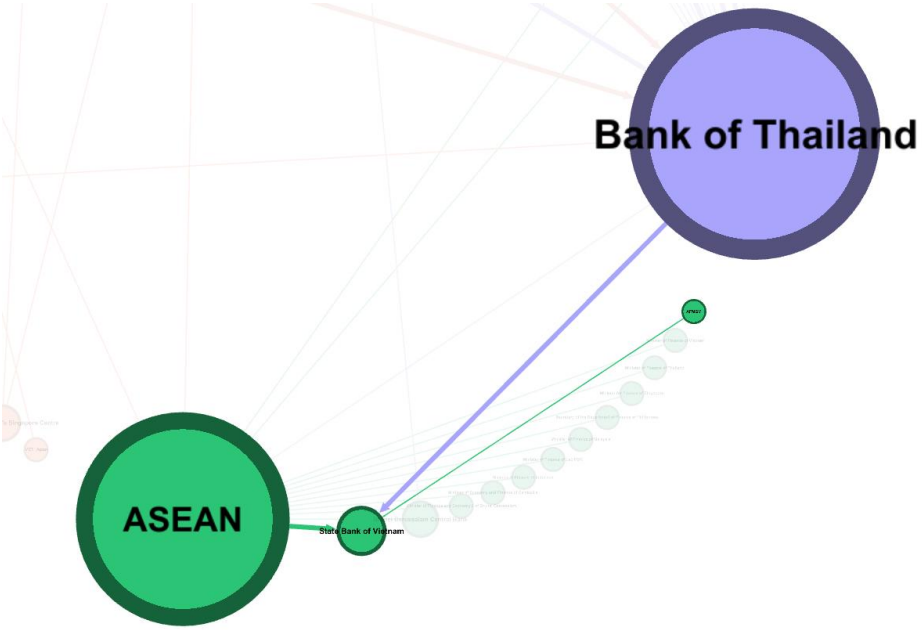


Figure 13. Mapping the State Bank of Vietnam's (SBV) Relations within the ASEAN RPC

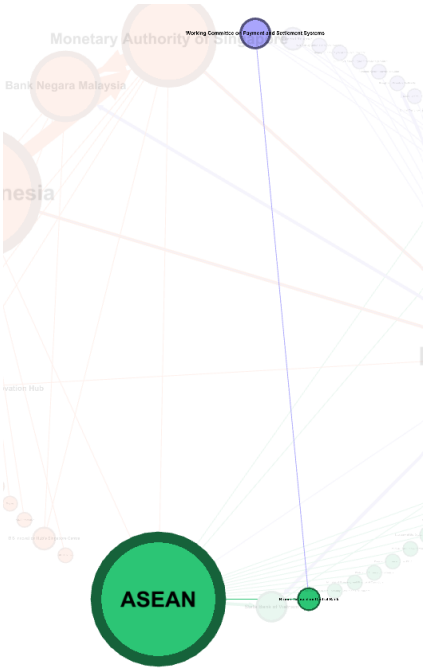


Figure 14. Mapping the Brunei Darussalam Central Bank's (BDCB) Relations within the ASEAN RPC

This study shows that ASEAN RPC does not eliminate ASEAN's dependence on external currencies and financial infrastructure, particularly the US dollar. The presence of RPC and the LCTF in the region can be understood as an effort to reduce external dependence by providing alternatives for cross-border transactions through regional payment system connectivity and the use of local currencies. Through these mechanisms, ASEAN countries have greater capacity to conduct intra-ASEAN transactions without relying on a third-party currency as an intermediary. Thus, ASEAN's regional financial autonomy does not necessarily imply full independence from the external financial system, but rather focuses on strengthening the region's capacity to reduce its reliance on external mechanisms.

Table 2. Distribution of Sensitivity and Vulnerability within the ASEAN RPC Network

Actors	Sensitivity	Vulnerability
Bank Indonesia (BI)	High	Low
Bank Negara Malaysia (BNM)	High	Low
Bank of Thailand (BoT)	High	Low
Monetary Authority of Singapore (MAS)	High	Low

Bangko Sentral ng Pilipinas (BSP)	High	Low
State Bank of Vietnam (SBV)	Low	High
Brunei Darussalam Central Bank (BDCB)	Low	High
Bank of the Lao PDR (BoL)	Low	High
The National Bank of Cambodia (NBC)	Low	High

The table reveals varying levels of sensitivity and vulnerability among actors within the ASEAN RPC network, indicating distinct patterns of interdependence. BI, BNM, BoT, and MAS occupy a position of high sensitivity–low vulnerability; while their significant involvement in the regional network results in greater exposure to changes within the regional payment system, their vulnerability remains relatively low due to extensive connectivity and a wider range of alternative linkages. Conversely, SBV, BoL, NBC, and BDCB fall into the low sensitivity–high vulnerability category, reflecting limited network engagement alongside restricted alternatives for responding to potential disruptions within the network. BSP exhibits a different pattern of high sensitivity–high vulnerability, whereby its relatively high exposure to developments within the regional network is not matched by adequate alternative connectivity options.

Thus, the ASEAN RPC network demonstrates that sensitivity and vulnerability do not move in a linear manner; highly connected actors are not necessarily more vulnerable, nor are less connected actors necessarily less sensitive. Ultimately, this study shows that ASEAN RPC generates a pattern of asymmetric interdependence shaped by the uneven distribution of relationships among actors.

Conclusion

This study shows that ASEAN RPC does not eliminate ASEAN's dependence on external currencies and financial infrastructure, particularly the US dollar. The presence of RPC and the LCTF in the region can be understood as an effort to reduce external dependence by providing alternatives for cross-border transactions through regional payment system connectivity and the use of local currencies. Through these mechanisms, ASEAN countries have greater capacity to conduct intra-ASEAN transactions without relying on a third-party currency as an intermediary. Thus, ASEAN's regional financial autonomy does not necessarily imply full independence from the external financial system, but

rather focuses on strengthening the region's capacity to reduce its reliance on external mechanisms.

However, mechanisms aimed at reducing dependence on external systems do not produce an entirely equal pattern of interdependence among ASEAN member states. The analysis shows that connectivity within ASEAN RPC is unevenly distributed. Countries such as Thailand, Indonesia, Malaysia, and Singapore have relatively extensive connectivity and a broader range of alternative linkages. By contrast, the Philippines, Vietnam, Laos, Cambodia, and Brunei Darussalam have more limited connections that are concentrated among a smaller number of partners. Countries with broader connectivity possess more alternatives for maintaining transactions when one linkage is disrupted, whereas countries with limited connectivity have narrower room for adjustment.

Accordingly, ASEAN RPC generates a pattern of asymmetric interdependence through the uneven distribution of connectivity among member states. This asymmetry is reflected in differences in the number and intensity of relationships, the availability of alternative payment linkages, and the capacity to adjust to disruptions. ASEAN RPC demonstrates that strengthening regional financial autonomy does not directly eliminate dependence, but rather reconfigures its form and distribution within the ASEAN region. The regionalization of payments in ASEAN has therefore produced a new structure in which reduced external dependence simultaneously gives rise to a pattern of asymmetric regional interdependence.

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