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Article

The Effectiveness of Macroprudential Policy Coordination in Managing Financial Risk in Systemic Economies

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Abstract

In an increasingly integrated global financial system, the effectiveness of macroprudential policy is shaped not only by domestic conditions but also by cross-border spillovers and regulatory interactions. Financial integration enables institutions to circumvent national regulations through regulatory arbitrage, while shocks are rapidly transmitted across economies via capital flows and interconnected financial markets. In response, countries often adopt inward-looking macroprudential measures to shield domestic systems; however, without coordination, such policies can generate offsetting effects, amplify volatility, and, in extreme cases, lead to regulatory conflicts. This has led to growing calls for cross-country macroprudential policy coordination, though its relative effectiveness compared to country-specific approaches remains an open empirical question. This study evaluates the relative effectiveness of coordinated and country-specific macroprudential policies in advanced systemic economies (ASEs) and systemic middle-income countries (SMICs), which collectively dominate global output and financial activity and generate substantial international spillovers. Despite extensive theoretical support for coordination, the empirical literature remains fragmented, with studies typically examining either coordination or domestic policies in isolation. To address this gap, the study develops a novel proxy for macroprudential policy coordination based on the co-movement of national policy indices and integrates it with country-specific measures within a unified empirical framework. Using a Dynamic Common Correlated Effects model and a Panel Structural Vector Autoregression model, the study examines the impact and transmission of both policy types on capital flows, credit growth, and property prices. The findings indicate that both coordinated and domestic macroprudential policies generate cross-country effects, particularly through capital flow reallocation. However, important trade-offs emerge. While domestic policies are effective in curbing excessive credit and housing market growth, coordinated policies tend to support expansion in these sectors. These results highlight that neither approach is universally superior. Instead, an optimal policy framework requires balancing country-specific flexibility with cross-country coordination to mitigate spillovers and enhance global financial stability.

Keywords: macroprudential policy; policy coordination; supranational prudential authority

1. Introduction

In recent decades, a growing consensus has emerged among scholars that financial stability in an increasingly integrated global economy requires cross-country macroprudential policy coordination. The rationale is straightforward: in a financially integrated environment, nationally implemented macroprudential measures are prone to policy leakages. Financial institutions operating across borders can circumvent domestic regulations by shifting activities to less regulated jurisdictions, thereby increasing risk-taking in the recipient economies (Agenor, Jackson, and Pereira da Silva, 2023; Portes et al., 2020). Beyond regulatory arbitrage, financial integration also amplifies and transmits shocks across borders. Through international capital flows and cross-country lending,

disturbances in one jurisdiction can generate ripple effects elsewhere, which in turn intensifies financial volatility (Agenor and Pereira da Silva, 2022). Faced with these external vulnerabilities, national prudential authorities often design macroprudential measures to insulate their domestic financial systems from external financial risks (Agenor, 2024). However, absent cross-country coordination, such inward-looking strategies may conflict across countries, producing offsetting policy responses and, in extreme cases, escalating into macroprudential regulatory wars. Hence, there is a clear need for cross-country macroprudential policy coordination to mitigate regulatory arbitrage, contain financial spillovers, and ensure that stability-enhancing measures in one jurisdiction do not undermine financial stability in another.

Cross-country macroprudential policy coordination, however, is not without significant challenges. Chief among them is the question of relative effectiveness: are coordinated macroprudential policies more effective than country-specific measures? If nationally implemented macroprudential policies yield superior domestic outcomes, countries may have little incentive to cede regulatory autonomy to a supranational prudential authority (Badarau et al., 2020). Moreover, even when international agreements are established, governments may renege if coordinated arrangements are perceived to be less effective than unilateral action (Rubio, 2020; Forbes, 2021; Biljanovska et al. 2023). These strategic considerations underscore the importance of comparing the effects of cross-country macroprudential policy coordination with those of country-specific interventions. Such an assessment is essential for determining whether coordination enhances financial stability or instead weakens domestic policy effectiveness. Accordingly, the main objective of this study is to evaluate the relative effectiveness of coordinated and country-specific macroprudential policies to inform their optimal design and implementation.

The central research problem addressed in this study is the absence of empirical frameworks that jointly incorporate cross-country macroprudential policy coordination and country-specific macroprudential measures. The existing literature treats these dimensions largely in isolation. Studies on cross-country coordination are predominantly theoretical and rely heavily on calibrated simulations rather than real-world data. For example, Jeanne (2014), Ghironi and Schembri (2014), Kara (2016), Acharya (2009), and Dalen and Olsen (2003) develop theoretical models showing that coordinated macroprudential policies can enhance consumption and investment outcomes or reduce volatility in output and financial activity.

However, the welfare gains from coordination are not necessarily uniform. Agenor et al. (2023) argues that although coordination may increase aggregate welfare, the benefits are unevenly distributed, with more financially integrated economies capturing a disproportionate share. Similar conclusions are drawn by Kincaid et al. (2013), Liu and Zhang (2023), Shlapak (2022) who highlight that cross-country macroprudential policy can have both negative and positive effects. For instance, Shlapak (2022) shows that while coordination of macroprudential reduces political losses, increases public welfare, it can also lead to capital wars to due to races to lower interest rates. These findings reinforce the view that even when coordination delivers measurable gains, member states that benefit relatively less retain incentives to defect from the agreement. This incentive to cheat intensifies when national macroprudential policy is perceived to generate greater domestic gains.

In contrast, the empirical literature on country-specific macroprudential policies largely ignores cross-country macroprudential coordination variables. Studies such as Lim et al. (2011), Kim and Mehrotra (2017), Cerruti et al. (2017), Dell'Araccia et al. (2015), Franta et al. (2020), Rojas et al. (2022), Araujo et al. (2024), and Alam et al. (2025) focus exclusively on domestic macroprudential policy tools. Their findings generally suggest that macroprudential instruments operate in a sector-specific manner. For instance, loan-to-value (LTV) and debt-to-income (DTI) caps are particularly effective in moderating credit growth and housing market expansion relative to other instruments.

Taken together, this bifurcation in the literature reveals a clear empirical gap. No study, to our knowledge, evaluates coordinated and country-specific macroprudential policies within a unified empirical framework. Addressing this gap is essential for understanding not only the standalone effectiveness of these policies but also their interaction and relative contribution to financial stability.

This study makes three main contributions to the literature. First, it develops a novel proxy for cross-macroprudential policy coordination by extracting and combining the co-movement of aggregate macroprudential policy indices across countries in the sample. This approach provides an empirical measure of coordination intensity that moves beyond purely theoretical or institutional classifications. Second, the study integrates this coordination proxy with domestic macroprudential policy indicators to jointly evaluate their effects on capital flows, credit growth, and property prices. Third, the analysis employs a range of econometric techniques, including the dynamic common correlated effects (DCCE) model and a panel structural SVAR, to address cross-sectional dependence, dynamic interactions, and structural transmission mechanisms.

The remainder of the study is structured as follows. Section 2 examines macroprudential policy and the case for coordination in systemic economies. Section 3 reviews the related literature. Section 4 outlines the data and econometric methods employed. Section 5 presents the empirical findings. The final section concludes.

2. Macroprudential Policy in Systemic Economies

The study focuses on systemic economies known as advanced systemic economies (ASEs) and systemic middle-income countries (SMICs). The ASEs include Germany (DEU), Japan (JPN), the United Kingdom (UK), and the United States (US). The SMICs group comprises eight economies: Brazil (BRA), China (CHN), India (IND), Indonesia (IDN), Mexico (MEX), Russia (RUS), South Africa (ZAF), and Turkey (TUR). These countries possess the world's largest and most integrated financial systems and therefore have the greatest capacity to influence global macroprudential policy standards (Adarov, 2022). They also top the list of jurisdictions identified by the International Monetary Fund (IMF) as having systemically important financial sectors, which are subject to mandatory monitoring under the Financial Sector Assessment Program (IMF, 2010).

This study focuses on advanced and systemic middle-income countries (ASEs and SMICs) because these economies occupy pivotal positions in the global financial system and exhibit both strong potential and an urgent need for cross-country macroprudential policy coordination. Collectively, they have dominated global economic activity for over three decades. Their average share of world Gross Domestic Product (GDP) consistently hovered around 70% from 1990 through 2023, only gradually declining from 73.8% in the 1990s to 67% in recent years (World Bank, 2023). This economic prominence is mirrored in their financial systems, which are among the largest and most influential globally, enabling them to shape financial conditions far beyond their borders. Their outsized impact was particularly evident during the global financial crisis of 2007–2009 and the ensuing European debt crisis (Adarov, 2017). Reflecting their systemic importance, the International Monetary Fund (IMF) designated these countries as priority cases for mandatory financial surveillance through its Financial Sector Assessment Program (IMF, 2010). This common supervisory framework implies that these economies operate under similar high standards of financial regulation and prudential oversight. Because they already share these robust financial and regulatory benchmarks, they possess a natural foundation for cooperation, which can facilitate more effective coordination of macroprudential policies. The alignment in standards and practices enhances mutual trust and the feasibility of collective action, which is critical for mitigating cross-border financial risks.

Financial volatility originating from ASEs and SMICs spreads worldwide through trade and asset price channels. For instance, analyses from the Bank for International Settlements (BIS) show that a 10% increase in imports from SMICs leads to a 2% rise in exports from major economies, while a comparable increase in imports from ASEs results in a 6% boost in exports from those economies (2000–2023). This highlights the deep trade interlinkages these countries maintain with the rest of the world. Similarly, from 1990 to 2023, fluctuations in their financial markets accounted for 50% to 80% of financial market variations observed in other economies (Agénor & Pereira da Silva, 2023), underscoring the profound interconnectedness and transmission of shocks. Beyond volatility, policy spillovers from these economies also have global repercussions. Numerous studies have demonstrated that international capital flows are highly sensitive to the financial regulatory

environment in these countries (Bremus & Fratzscher, 2012; Aiyar et al., 2014). When AEs and SMICs tighten regulations, capital often diverts to countries with laxer rules, and when they pursue policies that yield financial stability and high returns, capital tends to flow in their direction—potentially depriving other nations of necessary financial resources (Houston et al., 2012; Kang et al., 2018; Agénor & Pereira da Silva, 2023). These patterns highlight the externalities of national macroprudential policies and reinforce the imperative for cross-country coordination.

Calls for greater cross-country macroprudential policy coordination have consistently focused on these economies, reflecting their systemic significance, and intertwined financial dynamics (Agénor & Pereira da Silva, 2019). Despite some progress in broader economic policy coordination, particularly in the aftermath of the 2007–2009 global financial crisis, formal coordination of macroprudential policies remains conspicuously absent. Following the crisis, systemic middle-income countries gained greater representation in the G20, fuelling their advocacy for mechanisms to ensure advanced economies take into account the international consequences of their domestic policy choices (Mishra & Rajan, 2016; Stephen & Shin, 2015). This resulted in landmark agreements such as the 2009 G20 London Summit’s commitment to coordinated expansionary economic policies and the 2010 Seoul Summit’s decision to adjust IMF quotas to better reflect the economic weight of SMICs. However, the translation of these agreements into concrete regulatory frameworks has been slow, with key advanced economies like the United States lagging behind in implementing necessary reforms (Frankel, 2023).

Two influential policy arguments have shaped the discourse around cross-country macroprudential policy coordination among these countries. The first, voiced by Brazil’s Finance Minister Guido Mantega in 2010, concerns “currency wars,” where countries competitively devalue their currencies to enhance export competitiveness at the expense of others (Mantega, 2010). This dynamic, if universalized, is self-defeating and destabilizing. China’s substantial foreign exchange interventions in 2014, which led to nearly \$4 trillion in reserves and slight depreciation of the renminbi against the dollar, exemplify these competitive pressures. Successive rounds of quantitative easing in the US, Japan, and the European Union between 2010 and 2015 further contributed to currency depreciation cycles. Although some attempts to curb competitive devaluation have been made—such as the 2013 G7 agreement and the 2015 Trans-Pacific Partnership—these initiatives have largely excluded SMICs, prompting calls for more inclusive and enforceable arrangements (Bergsten, 2015; Gagnon, 2013; Frankel, 2015).

The second key argument was advanced by Raghuram Rajan, Governor of the Reserve Bank of India, in 2014. He highlighted how interest rate increases in advanced economies can have destabilizing spillover effects on emerging markets by triggering capital flow reversals and asset price volatility (Rajan, 2014). Rajan advocated for coordination mechanisms to compel central banks to internalize these cross-border externalities and promote mutual accountability. Despite these compelling arguments and initial efforts, formalized cross-country macroprudential policy coordination has yet to materialize. A major obstacle is that many economies have benefited from unilateral policy actions that insulate them from external shocks, making them hesitant to relinquish control or share policy space for the sake of collective gains (Ghosh et al., 2016). This reluctance continues to impede the development of a coordinated macroprudential framework among AEs and SMICs, even though the potential benefits of such cooperation remain substantial.

Systemic economies (ASEs and SMICs) have diverse macroprudential policy experiences, making them an ideal context for analysis. Figure 1 highlights that the advanced and systemic middle-income countries have increased their usage of macroprudential policy tools, in line with the notion that macroprudential policy is their preferred tool for financial stability. The figure suggests that AEs and systemic middle-income countries generally have increased the number of times they used macroprudential policy tools, starting with an overall average macroprudential policy index (MPI) of 0 in the early 1990s and exceeding 20 in 2018. In particular, they used macroprudential policy tools less frequently before the international financial crisis in 2007–08. However, there was a sharp increase in the usage of macroprudential policy in the aftermath of the crisis. Hence, the MPI slope

was relatively flat before 2007/09 and became steeper after 2007/09. Figure 2.1 further shows stark differences in the frequency of macroprudential policy usage between advanced and middle-income countries. For systemic middle-income countries and ASEs, separately, the index started just above 0 and ended up just above 50 and 10 during the same period.

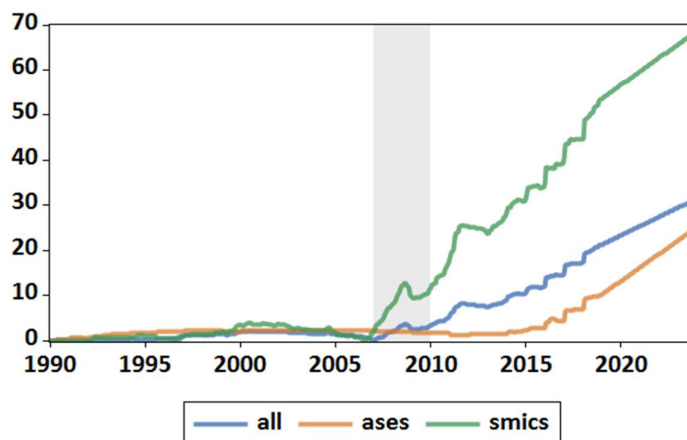


Figure 1. in ASEs and SMICs, 1980-2024; Source: Graph compiled by author using data obtained from the IMF, Macroprudential Policy Survey Database (2023); Notes: Grey Line: Structural break.

Figure 2 implies that SMICs frequently use macroprudential policies relative to advanced systemic economies (Cerruti, Claessens, and Laeven, 2017). The advanced systemic economies tend to be more averse to macroprudential policy, or macroprudential policy variability, because of the costs associated with the delay in the time it takes to implement a macroprudential policy measure after its proposition by prudential authorities, while SMICs often rely on macroprudential policy tools to shield their economies from external financial vulnerabilities (De Paoli and Paustian, 2017; Libich, 2020). Some of the tools that have been utilized thus far include asset-based tools (e.g., Loan-to-Value limits), liquidity-based tools (e.g., minimum liquidity requirements), which are frequently used by advanced economies, and capital-based instruments (e.g., countercyclical capital buffer) which are used more regularly by EMEs (see Alam, Alter, Eisenman, Gelos, Kang, Narita, Neir, and Wang, 2025).

Countercyclical capital buffers have been implemented across advanced systemic economies and systemic middle-income countries primarily between 2014 and 2016 under Basel III (Alam et al. 2019). Brazil, Indonesia, Japan, and Russia introduced their frameworks on 1 January 2016, all setting the buffer rate at 0 percent and maintaining it at that level thereafter. India and Mexico have similarly retained a 0 percent rate since adoption, while Russia conducts quarterly reviews despite no activation. In contrast, the United Kingdom moved from 0 percent to 2 percent by 2023, reflecting a more active cyclical calibration strategy. China and Germany introduced their frameworks later, in 2019, initially setting the buffer at 0 percent but raising it to 0.25 percent within the same year. The United States has kept the CCB at 0 percent for large banks but introduced a tailoring rule in 2019 that differentiates capital requirements by bank size and exposure. These figures reveal clear numerical divergence, with some countries maintaining a permanent 0 percent stance, others activating modest buffers at 0.25 percent, and others moving as high as 2 percent. Such dispersion in activation levels and timing reflects different domestic assessments of credit risk and financial cycle pressures, complicating agreement on common countercyclical thresholds across jurisdictions.

Similar heterogeneity is evident in loan to value caps and capital requirement frameworks (Alam et al., 2019). China tightened LTV regulations during housing booms in 2006 and 2010, Brazil introduced LTV caps in 2013, Indonesia eased restrictions in 2018 and again in 2021, and Turkey increased LTV caps for lower value homes in 2020. In capital regulation, Brazil shifted from a flat 100 percent risk weight on long term consumer loans in 2010 to LTV based calibration by 2015, and

reduced SME loan risk weights to 85 percent in 2020 during the pandemic. South Africa temporarily lowered its Pillar 2A capital requirement to 0 percent during COVID 19. These numerical adjustments, ranging from 0 percent buffers to 2 percent CCB activation, from 100 percent to 85 percent risk weights, and from tightening to relaxation of LTV ratios across different years, illustrate that countries not only prefer different tools but also calibrate them differently and at different speeds. This quantitative asymmetry makes cross country macroprudential coordination difficult, as agreement would require alignment not only on objectives but also on specific activation rates, risk weights, and timing decisions that currently vary substantially across jurisdictions.

Despite differences in macroprudential policy approaches, this study focuses on advanced systemic economies because they dominate global economic and financial activity and generate significant cross-border spillovers. Their large and interconnected financial systems shape global conditions, with shocks and policy changes transmitting widely through trade, capital flows, and asset prices. Evidence shows that financial fluctuations in these economies explain a substantial share of global volatility, while their regulatory actions influence the direction of international capital flows, creating important externalities. Although global forums such as the G20 have emphasized coordination—particularly after the global financial crisis—formal macroprudential cooperation remains limited, constrained by countries' incentives to pursue unilateral policies. Nonetheless, recurring concerns over currency wars and monetary policy spillovers highlight the costs of non-coordination. Given their systemic importance, financial interconnectedness, and shared regulatory frameworks, AEs and SMICs remain the most relevant group for assessing the feasibility and potential gains of cross-country macroprudential policy coordination.

3. Literature Review

The study builds on the theoretical foundations of macroprudential policy models, which suggest that such policies can enhance welfare at a cross-country level (Agenor et al., 2023; Ghironi & Schembri, 2014; Jeanne, 2014; Rubio, 2020). Most studies compare outcomes under a Nash equilibrium, where countries pursue self-oriented policies, with a coordinated solution, where policymakers act jointly. In a simple two-player setting—advanced economies versus emerging markets—-independent policies tend to increase welfare for the policymaker acting alone while reducing it for the other. For instance, Agenor et al. (2023) show welfare decreases by 0.92% for emerging economies but increases by 1.50% for advanced economies under unilateral action, whereas coordination yields a balanced global welfare gain of 1.30%.

These insights emerge from two complementary strands: partial equilibrium models of international banking and multi-country general equilibrium macroeconomic models. Banking-focused studies (Acharya, 2003; Dell'Ariccia & Marquez, 2006; Kara, 2016) show that independent policies can trigger a “race to the bottom” in prudential standards, whereas coordinated regulation raises system-wide stability and equitable profitability. Dell'Ariccia and Marquez (2006) highlight that harmonizing policy weights across countries, prioritizing financial stability over individual bank competitiveness, reduces competition and enhances global stability. Similarly, Acharya (2003) emphasizes that convergence in capital adequacy standards is insufficient without alignment in broader financial regulations, as regulatory arbitrage can undermine national macroprudential measures.

Recent studies further illustrate that in a financially interconnected world, global banks can bypass domestic regulations through cross-border lending and foreign branches, generating credit or asset price spillovers that weaken the intended effects of national policies (Aiyar et al., 2014; Bengui & Bianchi, 2014; Houston et al., 2012; Agenor & Pereira da Silva, 2022). Coordinated macroprudential policies can mitigate such externalities, but only if enforcement mechanisms ensure harmonization across jurisdictions.

Macro-level general equilibrium models reinforce these findings (Korinek, 2017; Bengui, 2014 & Bianchi, 2014; Jeanne, 2014). They show that national prudential policies improve stability, but coordination may be necessary when systemic spillovers are large, particularly amongst systemic

economies. Game-theoretic studies further indicate that coordinated macroprudential policies increase welfare compared to self-oriented policies, though the gains are unequally distributed (Chen & Phelan, 2017; Agenor et al., 2023; Agenor & Pereira da Silva, 2021; Lorenzoni, 2008; Federico, 2011).

The empirical contribution of this study lies in the introduction of a common macroprudential policy index (CMPI) and the evaluation of its effects alongside domestic macroprudential instruments on financial risk. While much of the existing literature has focused on the effectiveness of individual country-level tools, the CMPI allows for an integrated assessment of coordinated macroprudential policies, capturing the co-movement of policy actions across countries. This is particularly important in a financially interconnected world, where national policies alone may be insufficient to manage cross-border spillovers in capital flows, credit growth, and asset prices (Agenor & Pereira da Silva, 2022; Borio et al., 2014).

Early empirical studies provide foundational insights into the heterogeneity of macroprudential tools. Lim et al. (2011) focuses on 49 emerging market economies that have employed prudential tools such as caps on the loan-to-value ratio, caps on the debt-to-income ratio cap (DTI cap), ceilings on credit or credit growth, reserve requirements, countercyclical capital requirements and time-varying/dynamic provisioning. The study finds that these tools are substantially useful in smoothing out significant swings in credit growth. For instance, the study found that tightening the LTV cap reduces credit growth by 6% while tightening reserve requirements and the DTI cap shrink credit growth by 8 percent and 9%, respectively. The impact of other tools' limits on credit growth and dynamic provision has a negative impact of 1%. Thus, reserve requirements and the DTI are powerful influencers of credit growth. The study further reported a contradictory finding: that the capital countercyclical buffer (CCB) and limits on Forex lending (LFX) positively impact credit growth.

Thus, the results of Lim et al. (2011) were the first to demonstrate significant heterogeneity in how effective different macroprudential tools could be. In the case of Lim et al. (2011), this heterogeneity arises because LFX and the CCB are capital-based instruments while the LTV cap and DTI cap are borrower-based instruments. According to the International Monetary Fund (2013), which investigated if macroprudential tools similarly affect financial markets, the study finds that capital-based instruments tend to positively affect the credit market because they are often tightened in anticipation of a credit market boom. Still, the tightening may not be strong enough to eliminate the boom fully. As a result, in real-time, credit would grow even when capital-based tools are tightened. In contrast, the LTV and DTI caps dampen both credit and house prices. This is consistent with Neir and Kang (2016), who found that DTI and LTV caps have a mitigating effect on credit and housing markets. This implies that the LTV and DTI are useful tools for monitoring the housing and credit markets compared to capital requirements.

The positive effect of capital-based tools does not imply that they are no longer helpful. They may be needed to stimulate economies following a period of turmoil. For example, whether expansionary macroprudential policy effects are desirable has been examined by Gambacorta et al. (202); Silva et al. (2025); Nagel (2025) in Latin America. A common finding in these studies is that these instruments effectively inject liquidity into the economy following a financial crisis. Cordella et al. (2014) note that capital reserve requirements outperform the policy rates in restoring order to the financial system in Latin America. But Perez et al. (2014) find that capital reserve requirements and dynamic provisions are highly useful in curbing excessive credit growth. As a result, in Latin America, capital-based macroprudential policy tools could have a dual role, which is (i) to restore the economies following a financial disruption and (ii) to prevent the emergence of financial risk associated with credit growth (see Rossini et al., 2019).

Some studies focus on the effects of macroprudential policy on the banking sector (Chan et al., 2023; Cantu et al., 2020; Ding et al., 2024). In this regard, Bruno et al. (2015) assesses the impact of macroprudential tools employed by the Asia-Pacific Economies. These tools included borrower-based tools such as the LTV cap and numerous capital controls. The study found that both macroprudential policy tools negatively affect bank and bond inflows. Furthermore, the study finds that macroprudential policy is highly successful when monetary policies complement it. Kim and

Mehrotra (2022) investigate the effects of housing-market-related measures in Australia, Indonesia, Korea, and Thailand. They aggregate these measures into a single index and find that tightening macroprudential measures shrinks credit. Some cross-country effects have been found in Europe as well. Fernandez-Gallardo et al. (2025); Budnik (2020); Lorencinic, et al. (2020); Eller et al. (2021); Hodula et al. (2024) found that macroprudential policy is distinctively effective in managing financial stability and financial vulnerabilities through its credit channel.

Macroprudential policy in Africa shows mixed but generally positive effectiveness for financial stability and growth. In South Africa, DSGE and SVAR analyses find that combining macroprudential tools with standard monetary policy stabilizes output, credit and asset-price cycles more effectively than monetary policy alone, supporting a clear division of labour where macroprudential policy targets financial stability and monetary policy focuses on price stability (Magubane and Nzimande, 2024; Nyati et al., 2023; Magubane et al., 2024). Time-varying causality and Markov-switching models indicate that macroprudential policy is more effective in busts than in booms, as banks resist tighter regulation in exuberant periods, implying it needs to be applied more assertively in booms to curb systemic risk (Ma, 2028; Ibrahim and Alagidede, 2017). At the continental level, panel nonlinear models for emerging African economies show that the shift to a macroprudential regime strengthened the finance–growth link and that these policies “trigger” the finance–growth relationship when financial development is above a threshold, though caution is needed when the financial system is shallow (Zungu, 2022; Dlamini et al., 2023). African bank-level evidence suggests macroprudential and monetary regulations jointly enhance bank stability and dampen the destabilizing effects of excessive credit and insolvency risk, especially where institutions are strong (Ofori-Sasu et al., 2023; Oyedade and Muzindutsi, 2023; Masindi and Singh, 2022). However, important trade-offs emerge in South Africa and Kenya, Basel-type capital and liquidity measures reduce household credit and can shift lending toward large firms, undermining equitable access and sometimes lowering bank stability or credit supply (Merrino et al., 2025; Oyetade et al., 2021). In the WAEMU, open capital accounts and cross-border flows limit the effectiveness of purely domestic macroprudential tools, calling for an external dimension to regulation (Illy and Ouedraogo, 2020). Overall, African evidence suggests macroprudential policy can be effective for systemic risk mitigation and growth support, but its success depends on coordination with monetary policy, financial-development thresholds, institutional capacity, and careful management of distributional and inclusion trade-offs.

An important question is whether the effect of macroprudential policy tools is more substantial for emerging markets or advanced economies. In this regard, Alam et al. (2025) study the effects of various macroprudential policy tools in a group of 34 advanced economies and 29 emerging market economies. Their instruments include the macroprudential policy index (MPI), which captures the overall macroprudential policy effect, debt service-to-income ratio (DSTI), loan-to-value ratio (LTV), limits on growth of aggregate credit (LCG), loan loss provision requirements (LLP), loan restrictions (LOANR), and capital restrictions. The study found that, on average, tightening any macroprudential policy tool is associated with a decline in household credit growth of eight percentage points across all economies. However, the effect is typically larger and more significant for emerging markets. The study found that macroprudential policy tightening for these economies reduces household credit growth by 10.5 percentage points. Thus, it can be said that macroprudential policies are more effective in emerging markets than they are for advanced economies.

Cerruti et al. (2017) used a more extensive list of macroprudential policy tools and a broad category of countries. Their instruments included these additional instruments compared to Alam et al. (2019: limits on leverage of banks (LVR), measures taken to mitigate systemic risk from systematically important financial institutions (SIFI), countercyclical capital buffer (CCB), and reserve requirements (RR). The study found that credit growth declines by 7% across all economies when macroprudential policy tools are tightened. However, zooming in on regions revealed variations. In emerging markets, credit growth declines by 5% following a macroprudential policy tightening. Whereas in advanced economies, credit declines by only 1%. Moreover, for emerging economies, the

effect on credit growth is significant at all conventional levels, while it is only significant at the 10% level for the major economies. This finding corroborates the findings of Alam et al. (2025) and shows more macroprudential policy effectiveness for emerging markets. Moreover, Cerruti et al. found that macroprudential policy effects are more pronounced in the LTV cap and the DTI, in line with earlier findings.

The dampening effects of macroprudential policy have raised questions about its impact in mitigating the risk of a cross-country financial crisis occurring, which is a primary macro-financial concern (Cerruti et al., 2015). Dell'Ariccia et al. (2015) use a regression-based analysis to analyse the effects of DTI caps and LTV limits on financial crisis probability. The study finds that these instruments reduce the boom and bust incidents in credit and lower the likelihood of a crisis. Indeed, major financial disturbances are associated with booms and busts in credit (Borio et al., 2014). Hence, these macroprudential instruments aid policymakers by smoothing the booms and busts out. Likewise, Claessens et al. (2013) find that DTI caps and LTV limits shrink credit growth, leverage, and non-core and core liabilities. This is in line with the literature that suggests that extended periods of expansion in credit and leverage can generate significant financial crises; hence macroprudential policy that dampens these cycles is effective (for instance, Borio et al., 2014). These studies argue that too much credit and too little credit are not the appropriate ingredients for financial stability; hence, macroprudential tools should be able to maintain an optimal amount of credit in an economy (SARB, 2016). The findings are further corroborated by Zhang and Zoli (2014), who found that macroprudential policy reduces the growth of house prices, another source of financial vulnerability.

To conclude, two important findings emerged from the empirical literature. First, there could be heterogeneity in the effectiveness of different macroprudential policy tools. As a result, more macroprudential policy tools should be investigated to fully capture the effectiveness of these policies. Hence, in this study, we use a more extensive macroprudential policy toolkit (see the following section). The second crucial finding was that macroprudential policies are more effective in the emerging market economies than in the advanced economies. However, in the above studies, the cross-sectional dependency between emerging and advanced markets was not accounted for. We bridge this gap by employing the dynamic common correlated effects model, which accounts for cross-sectional dependence.

Despite extensive empirical work on country-specific tools, most studies have overlooked cross-country spillovers and interdependencies. Financially integrated economies experience capital flow, credit, and asset price co-movements, meaning that the effectiveness of one country's policy can be undermined if other economies pursue conflicting measures (Aiyar et al., 2014; Bengui & Bianchi, 2014). Regulatory arbitrage, where global banks shift activities across jurisdictions to avoid stricter rules, further reduces the potency of national macroprudential policies (Acharya, 2003; Dell'Ariccia & Marquez, 2006). These insights highlight the importance of evaluating both domestic and coordinated macroprudential tools simultaneously.

The introduction of the CMPI addresses this gap by capturing the degree of cross-country coordination in macroprudential policy. Unlike single-country indices, the CMPI reflects how policies move together across a sample of economies, providing a metric to study the joint effects of coordinated regulation. By incorporating the CMPI alongside domestic tools such as credit limits, property price controls, and policy rates, this study can assess the relative contribution of coordination to financial stability outcomes, including capital flows, credit, property prices, and volatility (Bruno et al., 2015; Turner, 2016).

Empirical evidence also points to the differential effectiveness of macroprudential policies across advanced and emerging markets. Studies show that tightening macroprudential tools has a larger effect on credit growth in emerging economies than in advanced economies, reflecting differences in financial depth, regulatory structures, and market sensitivity (Alam et al., 2019; Cerruti et al., 2017). However, prior analyses often ignore cross-sectional dependence between economies, potentially biasing results. By employing the dynamic common correlated effects (DCCE) model, this study

explicitly accounts for cross-sectional interdependencies, allowing for a more accurate assessment of coordinated policy impacts.

4. Data and Methodology

4.1. Data

The fundamental objective of macroprudential policies in an integrated environment is to achieve and manage financial stability by targeting excessive growth in capital flows, domestic credit, and asset prices (Jeanne, 2014). The chapter uses these three policy target variables: capital flows, domestic credit, and house prices to represent asset prices (Kim and Mehrotra, 2017). According to the literature, periods of excessive growth in these variables preceded episodes of financial distress (Adarov, 2017; Claessens et al., 2011; Rey, 2013). Moreover, cyclical peaks in these variables occur at or around a crisis time (Borio, 2014). As a result, these variables are good early indicators of financial distress by macroprudential policymakers (SARB, 2016). Hence, they are targeted by the country's macroprudential policy frameworks (*see*, for example, the surveys of Galati and Moessner, 2013; Upper, 2017; Alam et al., 2025; Carreras, Davis, and Piggott, 2016).

Table 1 below shows three policy variables that are used in this chapter: the macroprudential policy index, policy rates, and the combined macroprudential policy effects index. The MPI is an overall measure of macroprudential policy actions taken in response to fluctuations in capital flows, credit, and asset prices (Cerruti et al., 2017). We transform each macroprudential policy index (MaPP) into a time series using the procedure by Kim and Mehrotra (2017). When a MaPP tightening (loosening) is undertaken, regardless of measure or intensity, the level of the index increases (decreases) by one unit (Kim and Mehrotra, 2017). The new value is maintained until another action is taken. If two tightening measures are undertaken during the same month, and none in the direction of easing, the index level would increase by two units during that month (Bruno et al., 2016). In addition to the above, we aggregate macroprudential policy into two categories, one representing borrower-based tools and the other representing financier-based instruments along the lines of Cerruti et al. (2017) and Schoenmaker and Wiertz (2011).

Table 1. Data, definitions, and sources.

Definition	Variable	Source
Official central bank policy rates	PR	Bank of International Settlements
Real house indexes	PP	Organisation for Economic Cooperation and Development
VIX measure of uncertainty	VIX	Chicago Board Options Exchange
Credit from all sectors to the private non-financial sector % of GDP	CR	Bank of International Settlements
Balance of Payments, Financial Account, Net lending (+) / net borrowing (-) (balance from financial account), Direct investment, Net acquisition of financial assets, Equity, and investment fund shares [BPM6], US Dollar	CP	International Monetary Fund
Combined macroprudential policy effects index	CMPI	Own creation
Macroprudential Policy Index	MPI	International Monetary Fund
Real Gross Domestic Product at Market Prices	GDP	International Monetary Fund

The study includes the policy rate because macroprudential measures are often taken with monetary policy measures (Galati and Moessner, 2018). This is reflected in the fact that macroprudential policy institutions combine monetary and prudential authorities. Moreover,

monetary and macroprudential policies share similar transmission channels; consequently, employing one policy affects the other (Agenor and Pereria da Silva, 2019). Hence, it is important to distinguish monetary policy's effects from macroprudential policy's effects to prevent endogenous feedback between the two policies. The other explanatory variables used in the study are the VIX and gross domestic product (GDP). GDP is used to capture the effects of the state of the economy (Gambacorta et al., 2020). At the same time, the VIX is used to capture the effects of risk and uncertainty in global financial markets (Miranda-Agrippino and Rey, 2021; Cerruti, Claessens and Kose, 2018).

The CMPI variable is included to represent the common effects of macroprudential policies across countries. To construct this measure, the study employs principal component analysis (PCA), a statistical technique used to extract the shared variation from a set of correlated variables. In this context, country-specific macroprudential policy indices are likely to exhibit co-movement due to global financial cycles, shared regulatory standards, and coordinated policy responses. PCA allows this common component to be isolated and summarized into a single index, thereby providing an empirical proxy for cross-country macroprudential policy coordination (Jolliffe, 2002; Stock & Watson, 2002).

The construction process begins with the compilation of macroprudential policy indices for each country in the sample. These indices typically aggregate information on various policy instruments, such as loan-to-value ratios, capital buffers, and liquidity requirements. To ensure comparability, the data are first standardized by removing the mean and scaling by the standard deviation, thereby placing all variables on a common scale and preventing countries with larger variances from disproportionately influencing the results (Abdi & Williams, 2010). Following standardization, PCA is applied to the covariance (or correlation) matrix of the dataset to extract orthogonal principal components, each representing a linear combination of the original variables.

The first principal component, which explains the largest proportion of the total variance in the data, is retained as the Common Macroprudential Policy Index. This component captures the dominant pattern of co-movement in macroprudential policies across countries and is interpreted as the common or coordinated policy stance. Subsequent components, which explain progressively smaller shares of the variance, are discarded as they reflect more idiosyncratic or country-specific variations. By focusing on the first principal component, the CMPI effectively filters out noise and isolates the underlying common signal in macroprudential policy dynamics (Stock & Watson, 2016).

The use of PCA is particularly appropriate in this study for several reasons. First, it provides a data-driven method for dimensionality reduction, enabling the consolidation of multiple policy indicators into a single, tractable measure without imposing arbitrary weights. Second, it addresses potential multicollinearity among country-level policy variables, which could otherwise bias estimation results. Third, PCA has been widely used in macroeconomics and finance to construct composite indices and extract common factors, particularly in studies of financial cycles and global liquidity conditions (Bernanke et al., 2005; Kose et al., 2003). By capturing the shared component of macroprudential policies, the CMPI serves as a meaningful proxy for the intensity of cross-country policy coordination, facilitating a more comprehensive analysis of its macro-financial effects.

4.2. Econometric Specification and Estimation

The study employs the dynamic common related effects (DCCE) model to estimate the effects of macroprudential policies. The DCCE has several advantages over other methodologies. In contrast to the Mean Group (MG), the DCCE allows for consistent estimation of a dynamic panel by adding lags of the cross-sectional means to account for the dependency of unobserved heterogeneity across units (Chudik and Pesaran, 2015). Moreover, it can constrain parameters to be homogenous across all units and support an unbalanced panel (Ditzen, 2018). Compared to Pooled Mean Group (PMG), DCCE avoids maximum likelihood estimations, which can fit models including endogenous independent variables. Finally, the DCCE has an error-correction component, which is useful for

distinguishing short-run parameters from long-run parameters and accounts for the speed of adjustment toward long-run equilibrium (Ditzen, 2018).

The study estimates the DCCE of Chudik and Pesaran (2015) and follows the estimation procedure of Ditzen (2018). In particular, the study estimates the impact of macroprudential policies using the following DCCE specification in the equation:

$$Y_{it} = \alpha Y_{i,t-1} + \delta POL_{it} + \theta_{vars} + \sum_{p=0}^{P_T} \gamma_{pol,ip} \overline{POL}_{t-p} + \sum_{p=0}^{P_T} \gamma_{vars,ip} \overline{VAR}_{t-p} + \sum_{p=0}^{P_T} \gamma_{y,ip} \overline{Y}_{t-p} + \mu_{it} \quad (1)$$

In equation 1, Y refers to the dependent variable capital flows, $\alpha Y_{i,t-1}$ is the lags of the dependent variable, and δPOL_{it} refers to the impact of policy variables, MPI, PR and $CMPI$, whereas θ_{vars} refers to other control variables: CR, PP and VIX . Finally, P_T represents the number of lags included in cross-sectional averages.

Capital flows are chosen as the dependent variable in the DCCE because they are a key channel through which domestic and cross-border macroprudential policies transmit their effects, and they play a central role in global financial stability. Fluctuations in capital flows can amplify financial vulnerabilities in both advanced and emerging economies, as rapid inflows may fuel credit booms and asset price bubbles, while sudden outflows can trigger liquidity shortages and exchange rate volatility (Forbes & Warnock, 2012; Rey, 2015). Empirical studies have demonstrated that macroprudential policies, such as loan-to-value (LTV) or countercyclical capital buffers, are often targeted specifically at mitigating the risks associated with volatile capital flows (Cerutti, Claessens, & Laeven, 2017; Lim et al., 2011). Furthermore, in a financially integrated environment, cross-country coordinated macroprudential policies can influence international capital movements, creating spillover effects that affect both the sending and receiving economies (Agenor & Pereira da Silva, 2018; Bénétrix, Kalemli-Özcan, & Lombardi, 2020). Given their systemic importance and sensitivity to both domestic and global regulatory actions, capital flows provide a comprehensive measure of the effectiveness and externalities of macroprudential policy, making them a natural and informative choice for the dependent variable in this analysis.

In this study, we employ the panel structural vector (PSVAR) methodology to estimate the transmission mechanism of macroprudential policy at a cross-country level. PSVAR models have been extensively used in both closed and open economies to evaluate monetary policy transmission mechanisms in a unified framework (Pedroni, 2013; Roch, 2019; Schmitt-Grohe and Uribe, 2018, for example). PSVAR generally has not been utilized to evaluate macroprudential policies. The only exception is Kim and Mehrotra (2017), who uses the PSVAR to analyse the effectiveness of macroprudential policies in the case of inflation-targeting Asian economies. The primary advantage of the PSVAR model lies in its ability to identify and recover structural shocks by imposing theoretically grounded restrictions on the estimated reduced-form VAR system. Unlike purely statistical models, PSVAR enables researchers to trace out the dynamic causal effects of shocks such as those from macroprudential or monetary policy – on key financial and macroeconomic variables across countries or over time. The structural identification scheme, often based on economic theory (e.g., Cholesky decomposition, sign restrictions, or long-run restrictions), allows for meaningful interpretation of impulse response functions and variance decompositions (Canova & Ciccarelli, 2013; Abrigo & Love, 2016).

In addition to this foundational strength, PSVAR models offer several other advantages. First, they are particularly well-suited for multi-country or panel settings, enabling the analysis of cross-sectional heterogeneity and dynamic interdependencies across economies. This is especially useful when investigating the potential spillover effects or synchronization of financial cycles and policy shocks across countries. The panel structure increases estimation efficiency by pooling information while still accounting for country-specific fixed effects or dynamics (Pedroni, 2013).

Second, PSVAR models allow for the incorporation of common global shocks and local idiosyncratic disturbances, making them an ideal framework for assessing the trade-offs or complementarities between self-oriented and coordinated macroprudential policies. By modeling the

response of domestic variables to both domestic and foreign shocks, researchers can examine whether independent policy action suffices or if coordination yields superior outcomes in managing systemic risks.

Third, the PSVAR framework facilitates counterfactual simulations, which are essential for policy analysis. For example, researchers can simulate how financial conditions might have evolved in the absence of a specific policy intervention or under alternative coordination scenarios. These simulations offer valuable insights for designing optimal and responsive macroprudential policies in a globally interconnected financial system (Beetsma et al., 2018).

Consider the baseline model in equation 2.

$$A_{i,0}(L)x_{i,t} = B_i(L)x + u_{i,t} \quad (2)$$

where- $A_i(L)$ and $B_i(L)$ are the matrix polynomials in the lag operator L , $u_{i,t}$ are the structural shocks, and $x_{i,t}$ is the vector of country-specific dimension $t = 1, \dots, T$ for each member $i = 1, \dots, M$ of the unbalanced panel, given by:

$$x_{i,t} = \begin{pmatrix} CP_{i,t} \\ VIX_{i,t} \\ CR_{i,t} \\ HP_{i,t} \\ GDP_{i,t} \\ PR_{i,t} \\ MPI_{i,t} \\ CMPI_{i,t} \end{pmatrix} \quad (3)$$

Assuming $A_i L$ is invertible, a reduced form PSVAR is estimated; afterwards, an identification scheme discussed below is imposed on the reduced identified structural shocks. Numerous identification schemes, such as structural factorization based on relevant economic theory, are usually employed (see Ngalawa and Viegli, 2011; Bernanke and Mihov, 1998; Sims, 1986; Bernanke, 1986). Other studies employ zero long-run identification, known as the Blanchard-Quah long-run restrictions (Blanchard-Quah, 1989; Gali, 1999). Blanchard and Quah (1989) argue that imposing long-run restrictions offers more valid results since economic theory is generally concerned about the long run rather than the short run. Another approach is to use Sims' (1989) recursive factorisation based on the Cholesky decomposition of the matrix A . This identification scheme still uses economic theory to identify shocks. However, its main advantage is that it requires that the most endogenous variables are ordered last while exogenous variables are ordered first. This ensures that each variable responds to its most relevant shocks first. As a result, this approach is widely used in the literature (see Sims, 1980; Kim and Mehrotra, 2018; Christiano et al., 1999).

$$A = \begin{pmatrix} 1 & a_{12} & 0 & 0 & 0 & a_{16} & 0 & 0 \\ a_{21} & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & 1 & a_{34} & a_{35} & a_{36} & a_{37} & a_{38} \\ a_{41} & a_{42} & a_{43} & 1 & a_{45} & a_{46} & a_{47} & a_{48} \\ a_{51} & a_{52} & a_{53} & a_{54} & 1 & 0 & 0 & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & 1 & 0 & 0 \\ a_{71} & a_{72} & a_{73} & a_{74} & a_{75} & a_{76} & 1 & a_{78} \\ a_{81} & a_{82} & a_{83} & a_{84} & a_{85} & a_{86} & a_{87} & 1 \end{pmatrix} * B = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{pmatrix} \quad (4)$$

$$= u_{i,t} \begin{pmatrix} CP_{i,t} \\ VIX_{i,t} \\ CR_{i,t} \\ HP_{i,t} \\ GDP_{i,t} \\ PR_{i,t} \\ MPI_{i,t} \\ CMPI_{i,t} \end{pmatrix}$$

This study follows Kim and Mehrotra (2017) by imposing a recursive factorisation/Cholesky decomposition on equation 4 to get structural shocks. The model consists of three target variables:

capital flows (CP), credit (CR), and house prices (PP). Three policy instruments are included: the macroprudential policy index (MPI), the policy rate (PR), and the CMPI. Furthermore, two other explanatory variables are used. These are the gross domestic product (GDP) and the Volatility Index (VIX). In our identification scheme, CP, CR, HP, GDP, and VIX enter the system with contemporaneous relations to CMPI, MPI, and PR to allow policy stances to be taken after observing the state of the economy (see Quint and Rabanal, 2014; Christiano et al., 1999). This identification scheme is summarised in equation 4 above, where A is a lower triangular matrix, and C is a diagonal matrix.

The first row implies that capital flows only respond to the VIX and monetary policy PR. This is because existing studies have shown that monetary policy and the VIX drive a large cross-sectional change in capital flows compared to other variables (Rey, 2013; Cerruti et al., 2017; Miranda-Agrippino and Rey, 2021). The variable VIX responds with a lag to all variables. GDP responds to CP, VIX, CR, and HP. GDP is slow in responding to policy shocks. According to Ngalawa and Viegli (2011), real economic activity is likely to respond to lags of policy shocks because people are generally tense with changes, and it takes time to make plans to match the new policy stances. However, because recent studies show that there is a strong positive correlation between output, credit, and house prices, GDP reacts to these variables immediately. Consistent with this, it has been established that strong Granger causality runs in both directions between the real and the financial sectors (Gomez-Gonzalez, Villamizar-Villegas, Zarate, Amador, and Gaitan-Maldonado, 2015).

Credit is used to finance spending on the household's side and to finance investment on the firm's side, leading to an immediate response to all shocks (Agenor and Pereria da Silva, 2019). This is the same for house prices. Macroprudential policy and monetary policy are endogenous to all variables. This restriction is in line with existing literature. According to Kim and Mehrotra (2017), Quint and Rabanal (2014), Angelini et al. (2014), and Baillui et al. (2015), in most cases these policies are likely to be set after observing the state of the overall economy (Gelain and Ilbas, 2014). In our identification scheme, monetary policy does not respond to a macroprudential policy shock, but macroprudential policy responds to a monetary policy shock. This is because macroprudential policy regulators are followers of monetary policy authorities (Libich, 2019). As a result, macroprudential policy is likely to be taken after a monetary policy shock, but not vice versa.

5. Results and Discussion

The objective of study is to examine the effectiveness of macroprudential policies in ASEs and SMICs. To that extent, the DCCE approach was utilised in the study. The DCCE provides a sharper lens through which to view the cross-country repercussions of macroprudential policies on primary targets such as excessive growth in capital flows, credit, and asset prices. This insight is pivotal, especially as ASEs and SMICs consider synchronising their macroprudential agendas in G-20 summits. Concurrently, the panel structural vector autoregression (SVAR) analysis is used to delineate the transmission mechanisms of these policies spanning from 1980m1 to 2022m12 offering a holistic perspective on the interplay between common policy conduct and country-tailored strategies. This section presents the findings of the second objective of the study.

5.1. Preliminary Analysis

Table 2 below reports the descriptive statistics. A large variation is found for our explanatory variables. For instance, capital flows range from -1.04% to 12.1%, with a standard deviation of 2.33 and a mean of 7.74%. Credit ranges from zero percent to 214.02% of GDP, with a standard deviation of 54.36 and a mean of 88.77% of GDP. On the other hand, house prices range from zero percent to 189.45, with a standard deviation of 102.61 and a mean of 73.05. The range statistics suggest that there is more variation in credit compared to house prices and capital flows. Moreover, house price variations are larger than capital flow variations. The standard deviation statistics suggest that house price variations are more volatile, followed by credit variations, and capital flows have the least volatile changes.

Table 2. Descriptive statistics of macroprudential, real, and financial variables; *Source:* STATA estimates.

	Mean	Median	Minimum	Maximum	Std, Dev,
CAP	7.74	7.99	-1.04	12.17	2.33
CR	88.77	113.60	0.00	214.02	54.36
HP	73.05	93.76	0.00	189.45	102.61
MPI	3.18	0.00	-11.00	69.00	10.49
GDP	4.43	4.61	0.00	4.68	0.89
CMPI	137.65	124.00	1.00	225.00	102.61
PR	154.18	1.72	-3.00	355085.78	5718.00
VIX	19.67	17.77	10.12	62.67	7.59

Table 2 also reports large variations in the policy variables. The MPI ranges from -11% to 69%, with a standard deviation of 10.49 and a mean of 3.18. The policy rate, on the other hand, ranges from -3 to 355085.8 basis points. The standard deviation is 5718, and the mean is 154.18 basis points. The range and standard deviations show that monetary policy fluctuations are larger than those of macroprudential policies. This is because while monetary policy decisions can be easily taken, macroprudential policy faces problems of political lobbying. This means that there are many stakeholders, each with a different objective, seeking to influence macroprudential policy decisions. Harmonising these objectives results in delaying taking macroprudential policy actions or implementing an action once it has been agreed upon. Ultimately, this means macroprudential policy is slow to change compared to monetary policy.

After the descriptive statistics, the study conducted cross-sectional, unit root, and cointegration tests to determine the suitability of our variables for the DCCE. Due to the nature of macroeconomic variables and panel data, there are increasing chances that cross-sectional dependence may prevail. As a result, tests should be conducted to verify its presence to address it when estimating the DCCE. To this effect, the following tests, Pesaran (2004) – CD, Pesaran (2004) – scaled LM, and Pesaran (2004) – Friedman, are conducted to detect the presence of cross-sectional dependency. According to Ali et al. (2012), the findings of these tests are crucial not only for deciding on an estimation technique but also to determine the suitability of employing first-generation unit roots tests, which assume cross-sectional independence against second general unit roots tests (Chang and Pesaran, 2007), which consider cross-sectional dependency. The null hypothesis of the above tests is the absence of cross-sectional dependence. The alternative hypothesis is that cross-sectional dependency exists. Table 3 displays that the parameters of the Pesaran (2004) – CD, Pesaran (2004) – scaled LM, and Pesaran (2004) – Friedman tests are statistically significant at all levels. Therefore, the null hypothesis of no cross-sectional dependency is rejected.

Table 3. Cross-sectional dependency; *Source:* STATA estimates; *Notes:* ** and *** are p-values corresponding to the 95th and 99th level of significance respectively.

	Pesaran CD	Pesaran Freidman	Pesaran Scaled LM
CAP	29.42***	234.76***	234.73**
CR	6.15***	1379.66***	11543.85***
PP	6.15***	433.2***	147.81***
MPI	54.92***	1656.47***	736.01***
GDP	54.61***	1849.76***	369.32***
CMPI	94.18***	1580.12***	847.75***
PR	106.08***	2176.62***	706.40***
VIX	111.05***	3465.12***	144.00***

Consequently, the study accepts some degree of cross-sectional dependency in our variables. This may arise from several factors, including common shocks and unobserved components in the error terms, spatial dependency, and idiosyncratic pairwise dependency in the disturbances with no pattern of common components or spatial dependency (Robertson and Symons, 2000; Pesaran, 2004; Anselin, 2001). Over the past three decades, ASEs and SMICs have become increasingly financially and economically integrated, which implies that the interdependence of cross-sectional units has also increased between these economies (Hoyos and Sarafidis, 2006). Consistent with this, there is substantial evidence to show that share prices and house prices are driven by common global factors between these economies (Ray, 2015).

The findings of the cross-sectional dependency suggest that second-generation unit root tests should be employed. However, first- and second-generation unit roots tests are conducted to avoid misleading results. To this effect, Levin, Lin, and Chu (LLC), Hadri-LM, and the Pesaran CADF (PESCADF) are employed in this study. Table 4 below reports the findings. The LLC is a first-generation unit roots test that tests the null hypothesis of non-stationarity against the alternative hypothesis of stationarity. The parameters of the LLC at the level are statistically insignificant except for the variables TIGHT which are significant at all levels. Therefore, the study fails to reject the null hypothesis of non-stationarity at a level for most variables. However, when we take the first difference of all variables, then the parameters of the LLC are now significant at all levels. Consequently, the study rejects the null hypothesis of non-stationarity for all variables at first difference. The LLC is a classical unit root test with limited power to reject the null hypothesis and does not account for cross-sectional dependency. Consequently, to bridge the first gap, which is the limited power to reject the null hypothesis, the Hadri-LM test is used to corroborate the findings of the LLCs.

Table 4. First- and second-generation unit roots; *Source:* STATA estimates; *Notes:* *, **, *** are p-values corresponding to the 90th, 95th, and 99th level of significance respectively.

	LLC		HADRI		PESCADF	
	Level	1st Diff	Level	1st Diff	Level	1st Diff
CAP	0.00	-29.34***	178.93***	-2.17	2.16*	-6.19***
CR	-1.26	-30.24***	609.74**	-1.10	-2.68***	-6.18***
PP	2.46	-9.63***	92.34***	-1.76	-1.55	5.68***
MPI	15.60	-23.57***	615.32***	29.42	-0.80	-6.19***
GDP	5.10	-4.73***	246.29***	4.64	-2.81***	-5.37***
CMPI	-4.37***	-4.37***	144.42***	-3.50	-3.74 ***	-6.11***
PR	-0.57	64.04***	13.74***	-3.49	-1.99	-5.39***
VIX	-0.54	77.56***	34.32***	-1.53	-2.29	8.33***

The Hadri-LM tests the null hypothesis of stationarity against the alternative hypothesis of non-stationarity. At the level, the parameters of the Hadri-LM test are statistically significant at all levels. Therefore, the study fails to reject the null hypothesis of stationarity and accepts that all the variables are not stationary at the level. However, at the first difference, all parameters of the Hadri-LM are statistically insignificant. Hence, the study fails to reject the null hypothesis and accepts that all variables are stationary at the first difference. As noted earlier, first-generation unit roots tests such as the LLC do not consider cross-sectional dependency between variables. Considering this, the second-generation unit root test of Pesaran CDAF is conducted to cross-check the findings of the first-generation unit root tests. The parameters of PESCADF are statistically significant at all levels at first difference. Therefore, the null hypothesis of non-stationarity is rejected, and the study accepts that the variables are stationary at first difference. Consequently, to estimate the DCCE, we will take the first difference of all variables given the congruency of the unit root tests that all variables are only stationary at the first difference.

Before estimating the DCCE, the study conducts several cointegration tests to ascertain the presence of long-run relationships. To achieve this, the Westerlund (2007) cointegration test is employed. Westerlund (2007) accounts for cross-sectional dependency. Table 5 below displays the results. Gt and Ga tests the null hypothesis of no cointegration in at least one cross-sectional unit. The p-values suggest that the null hypothesis is rejected at all levels of significance. The rejection of the null hypothesis provides evidence of cointegration for at least one cross-sectional units. The Pt and Pa test statistics pool information over all the cross-sectional units to test the null hypothesis of no cointegration in the whole panel. Given the p-values in Table 8., the study rejects the null hypothesis and accepts that there is evidence cointegration for the whole panel.

Table 5. Westerlund cointegration test; *Source:* STATA estimates.

Statistic	Value	Z-value	P-value
Gt	-0.183	6.861	0.000
Ga	-1.031	4.824	0.000
Pt	1.024	6.171	0.000
Pa	0.626	3.771	0.000

5.2. DCCE Results

Table 6 presents the first results of the DCCE. In the DCCE, the dependent variable is capital flows. The other two target variables, CR and HP, are used as explanatory variables for now. First, consider the EC terms. They have negative signs, suggesting a long-run relationship between macroprudential policies and capital flows. This indicates that both domestic and common macroprudential policies, MPI and CMPI, have a cross-country effect. Thus, both policy types can be considered when coordinating macroprudential policies. A one percent unit change in the MPI decreases capital flows by 78 percent on average, holding everything constant. This suggests that macroprudential policies have a dampening effect on capital flows. However, there are differences. The MPI parameter (-0.20) in ASEs is statistically insignificant. However, the MPI parameter (-0.89) in SMICs is statistically significant at the five per cent level. This implies that macroprudential policies are more effective in systemic middle-income countries compared to ASEs. The parameters on CMPI capture the common effects of macroprudential policies. The negative suggests that there is a common contractionary effect of macroprudential policies globally and regionally. The corresponding parameters are -0.48 for ALL, -0.63 for ASEs, and -0.98 for SMICs. They are statistically significant.

Domestic credit positively impacts capital flows, which is significant for all countries at the ten percent level. The parameters of PR are positive and statistically significant at the 1 percent level. They are 0.03, 0.11, and 0.21 for ALL ASEs and SMICs. This means that monetary policy has a significant expansionary effect on capital flows. Tightening monetary policy increases capital flows. However, when comparing the parameters of PR to MPI, MPI parameters have a large magnitude, indicating that macroprudential policy has a more substantial impact. The parameters for GDP are -0.48, -0.50, and -0.81 for ALL, ASEs, and SMICs, respectively. The parameters on VIX are -0.54, -0.70, and -0.07, respectively. This demonstrates that GDP and the VIX have a dampening effect on cross-country lending. This is significant at the ten percent level.

The parameters on TIGHT and LOOSE are statistically insignificant. The TIGHT parameters are 0.03, -0.12, and 0.08 for ALL, ASEs, and SMICs. For LOOSE, they are 0.20, 0.27, -0.01. Hence, the study finds that differentiating between strict and loose macroprudential policies makes no difference. However, as it turns out, differentiating between finance-based and borrower-based instruments has crucial implications. Parameters for FINANCE are -0.99, -0.42, and -0.86, respectively. The first parameter is statistically significant at all levels, while the other two are statistically significant at the ten percent level. In contrast, the parameters 0.55, 0.18, and 0.37 on BORROWER are all statistically insignificant. Hence, the study finds that FINANCE-based macroprudential policy tools are more effective than borrower-based ones.

Table 6. Dynamic common correlated effects model results; *Source:* STATA estimates; *Notes:* *, **, *** are p-values corresponding to the 90th, 95th, and 99th level of significance respectively.

	ALL	ASES	SMICS
EC	-0.13*** (-7.18)	-0.12*** (-23.37)	-0.10*** (-5.05)
MPI	-0.78*** (-3.56)	-0.20 (-1.19)	-0.89** (-2.67)
TIGHT	0.03 (-1.12)	-0.12 (-0.74)	0.08 (-1.50)
LOOSE	0.20 (-0.93)	0.27 (-0.83)	-0.01 (-0.43)
FINANCE	-0.99*** (-3.67)	-0.42* (-1.96)	-0.86* (-2.44)
BORROWER	0.55 (-1.50)	0.18 (-1.49)	0.37 (-0.94)
GDP	-0.48* (-1.19)	-0.50* (-0.17)	-0.81* (-0.13)
VIX	-0.54* (-0.14)	-0.70* (-0.33)	-0.07* (-0.25)
CR	0.03 ** (-1.76) (-0.15)	0.04*** (-0.69) (-1.44)	0.02** (-1.08) (-0.25)
HP	0.12 (-0.11)	0.43 (-0.19)	0.22 (-0.14)
PR	0.03* (-0.89)	0.11* (-1.95)	0.21 * (-1.91)
CMPI	-0.48*** (-0.07)	-0.63** (-0.11)	0.98* (0.21)

Table 7 displays the estimated parameters for individual macroprudential policy tools. Consistent with the previous finding, the study finds that different macroprudential policy tools affect cross-country lending differently (IMF, 2013; Neir and Kang, 2016). Moreover, the study finds that the effectiveness of individual tools could differ between ASEs and SMICs. For example, in Table 7, most parameters for borrower-based instruments are statistically insignificant. Amongst the borrower-based tools, LVR is the most significant. The parameters for LVR are 0.25, 0.34, and -0.48 for ALL, ASEs, and SMICs, respectively. The first parameter is statistically significant at the five percent level. The second parameter is significant at the ten percent level, while the third is insignificant.

In contrast, DSTI has a less significant effect on capital flows. The parameters for DSTI in the ALL and ASEs column are both statistically insignificant. The parameters for LTV are -0.32, 0.11, and 0.29 for ALL, ASEs and SMICs accordingly. The LTV for all is statistically significant at all levels. Based on the above findings, different borrower-based tools could be used to achieve multiple aims. For instance, if policymakers aim to increase cross-country lending, then the LVR is the appropriate borrower-based tool to utilize. However, the LTV would be the most appropriate tool to dampen cross-country lending, especially internationally.

The study find the major tools concerning finance-based tools: the countercyclical capital buffer (CCB), the conservative capital buffer (CONS), and capital restrictions harm capital flows. For the CCB, the corresponding parameters in ALL, ASEs, and SMICs, are -0.53, -0.20, and -0.36. For CONS, they are -0.67, -0.46, and -0.39. Whereas for CAP, they are -0.51, -0.31, and -0.23 for ALL, ASEs, and

SMICs, respectively. Capital restrictions are statistically significant for ALL only. This suggests that capital restrictions are most effective when utilized globally instead of at a regional level. In contrast, the CCB is most effective at the regional level. The CCB parameters are statistically significant in ASEs and SMICs but not for ALL. This is similar to the parameters for CONS. Reserve requirements (RR) have an expansionary effect on capital flows. However, this is only significant in ALL and SMICs only. This is similar to loan restrictions (LOANR) and liquidity requirements (LIQ). However, LIQ is statistically significant in ALL ASEs and SMICs.

Table 7. Dynamic correlated effects model results by MaPP tool; *Source:* STATA estimates; *Notes:* *, **, *** are p-values corresponding to the 90th, 95th, and 99th level of significance respectively.

	ALL	ASES	SMICs
EC	-0.204*** (-17.41)	-0.19*** (-5.70)	-0.22*** (-7.56)
CCB	-0.53 (2.37)	-0.20** (-1.00)	-0.36*** (-3.3)
CONS	-0.67 (-0.48)	-0.46* (-1.89)	-0.39*** (-6.15)
CAP	-0.51* (-2.34)	-0.31 (-0.7)	-0.23 (-1.6)
LVR	0.25** (-2.66)	0.34* (-1.68)	-0.48 (-1.30)
LLP	-0.63 (-1.60)	0.00 (0.00)	0.03 (-0.57)
LCG	-0.19 * (-1.85)	0.00 (0.00)	0.18 (-0.23)
LOANR	0.29 * (-1.67)	0.72 (1.00)	0.14* (-2.00)
LFC	-1.36* (-2.00)	0 (0.00)	0.12* (-2.00)
LTV	-0.32*** (-3.34)	0.11 (0.00)	0.29 (-1.40)
DSTI	-0.29 (-0.70)	0.06 (0.91)	-0.19* (-2.00)
TAX	-5.88* (-2.11)	-0.46 (-1.00)	0.11* (-2.23)
LIQ	0.94*** (-4.42)	0.74** (-2.86)	0.98*** (-35.33)
LTD	0.00 (-0.01)	0.00 (0.00)	0.00 (0.00)
LFX	1.97* (-2.53)	(0.00)	(-0.17) (-0.45)
RR	0.24* -2.25	0.97 -1.04	0.11*** -7.67

5.3. PSVAR Results

In this section, the findings of the panel structural vector autoregression (PSVAR) are presented. The Cholesky decomposition was employed to identify structural shocks and responses. This means the most exogenous variables, VIX and CAP, were ordered first, whereas the most endogenous variables, PR, MPI, and CMPI, were ordered last. Figure 2 plots the impulse response functions of the three target variables to shocks, i.e., CAP, CR, and HP.

The solid blue lines represent all impulse response functions, while the dashed blue lines are 95 percent confidence intervals. The x-axis is measured in months and extends to 4 years, while the y-axis is percentage changes. Firstly, the study notes the responses of CAP, CR, and HP to the most endogenous shocks, CMPI and MPI. Shocks to CMPI and MPI triggered significant responses in these variables. Figure 2 shows that following a common macroprudential policy shock, CMPI, both CAP, CR, and HP reacted by increasing. This finding indicates that common macroprudential policy shocks have an expansionary effect on target variables. This aligns with the notion presented by Agenor and Pereria da Silva (2018) that if the international financial system is in a crisis, and policymakers pursue common conduct of policies, i.e., tightening or loosening policies, the system can benefit positively. This is because pursuing the same conduct of policy implies a greater pool of resources at the disposal of policymakers, whereas pursuing self-oriented policies may result in these policies pulling in opposite directions (Kim and Mehrotra, 2017). Thus, CAP, CR, and HP's responses to CMPI suggest that common macroprudential policies can stimulate or stabilize the financial systems during a financial turmoil.

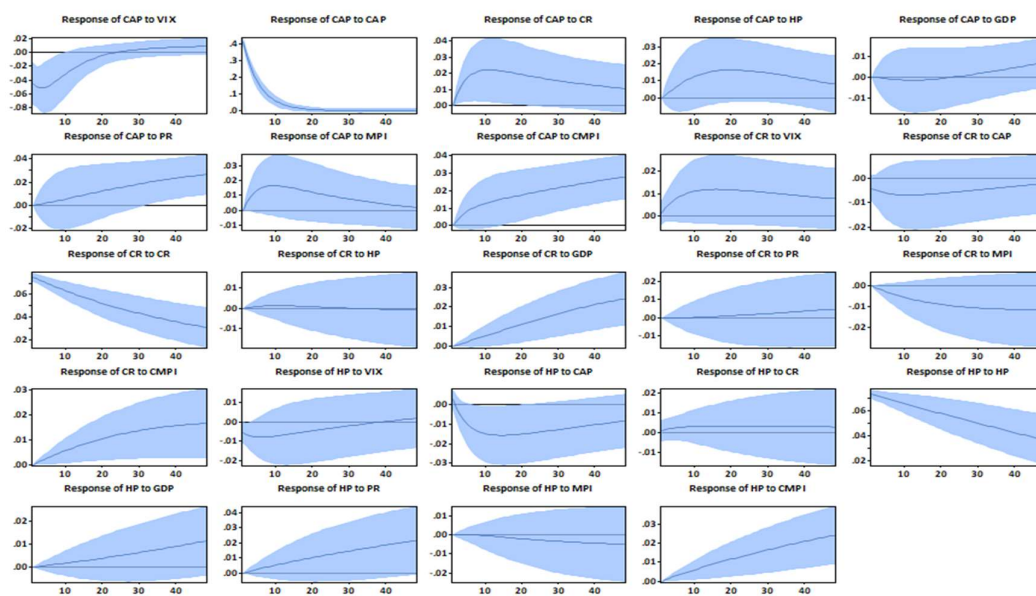


Figure 2. Impulse response Functions of CAP, CR, HP and GDP to shocks; *Source:* EViews estimates.

Following a shock to the MPI, CAP reacted by increasing, but CR and HP reacted by falling. This suggests that a domestic macroprudential policy shock raises capital flows but reduces domestic credit and house prices. The effect of the MPI on CAP can be associated with the 'reallocation effects' of macroprudential policies. When a domestic policymaker enacts a macroprudential policy measure, the financial institutions in the jurisdiction where the measure is enacted can face higher regulatory constraints (Kang, Vitek, Bhattacharya, Jeasakul, Munoz, Wang, Zandvakil, 2017). As a result, they may not be able to continue their activities as before (Bengui, 2014). Those financial institutions with a global presence will circumvent the regulation by shifting their activities to jurisdictions with less strict regulations (Houston et al., 2012).

This will result in high financial flows in the recipient jurisdictions. Hence, a shock to the MPI can be associated with increased capital flows. Similar findings were obtained by Cerruti et al. (2015), Houston, Lin, and Ma (2012), Buch and Goldberg (2016), and Akinci and Olmstead-Rumsey (2015). In contrast, Figure 2 shows that an MPI shock has a contractionary effect on CR and HP. This is because tightening domestic macroprudential policies increases the cost of borrowing and lending, causing credit to decline (Kim and Mehrotra, 2017). As credit declines, there is less spending on

housing; as a result, pressure on asset prices is reduced, causing them to decline (Carreras, Davis, and Piggott, 2016; Agur and Demertzis, 2018).

Next, we turn to the responses of the target variables to GDP and PR. Figure 2 shows that CAP, CR, and HP respond to GDP and PR shocks. Following a shock to PR, CAP responded by rising. This proves that a monetary policy shock has an expansionary effect on capital flows. This suggests that capital flows are sensitive to monetary policy shocks (Rey, 2013; Miranda-Agrippino and Rey, 2013; Claessens et al., 2017). Likewise, following a monetary policy shock, CR and HP respond by increasing, but the increase in credit is statistically insignificant, whereas the increase in HP is statistically significant (see Figure 2). The impact of the PR on HP can be linked to what has been termed the 'price puzzle,' an occurrence where the tightening monetary policy results in higher prices (Bernanke and Mihov, 1997). Several explanations exist for the price puzzle. For instance, if policymakers increase interest rates because they anticipate that prices will overheat, but the increase in the interest rates is not enough to cool down prices, in that case, tight monetary policy will coincide with a rise in the prices (Sims, 1992). Alternatively, if policymakers react with a delay to a price shock, prices will already be higher by the time they tighten policies (Sims, 1992).

Figure 2 shows that HP and CR responded by increasing following a GDP shock CAP. However, the responses of CAP and HP are not statistically significant, whereas the response of CR is statistically significant at the 95 percent confidence interval. This finding suggests that domestic credit is more sensitive to economic changes than capital flows and house prices. Next, the study considers the responses of the target variables to exogenous shocks. Figure 2 displays the responses of CAP, CR, and HP to the VIX. CAP and CR HP responded to VIX shocks. Following a VIX shock CAP and HP responded by falling. Similar findings were obtained elsewhere. For instance, Rey (2018) found that around a crisis time, the VIX rises, indicating high risk and uncertainty in financial markets; in turn, markets reduce their activity as a precaution. Rey and Miranda-Agrippino (2021) found that there is a negative relationship between the VIX capital flows and asset prices. These findings help justify why following a shock to the VIX, CAP, and HP responded by declining. On the other hand, CR reacted by increasing following a VIX shock, but the response is statistically insignificant.

After discussing the responses of target variables to endogenous and exogenous variables, we next turn to discuss the interactions between the target variables. First, let's consider the effects of CAP on CR and HP. Following a shock to capital flows, CR and HP reacted by falling. This provides evidence that capital flows harm credit and house prices. This is because capital flows are considered to be procyclical and volatile as they obey unstable global factors such as the VIX (Rey, 2018). As a result, capital flows may be inappropriate for the financial conditions of many economies. They may lead to excessive credit growth during good times and excessive retrenchment in bad times (Rey, 2018). The literature shows that excessive growth in credit and house prices is a good recipe for financial distress (Gourinchas and Obstfeld, 2012; Schularick and Taylor, 2012). Hence, CAP harms CR and HP. Second, following a shock in CR and HP, CAP increased. When domestic markets are booming, agents will also increase their financial activities abroad, resulting in higher capital flows. The study found that the response of HP to CR is insignificant, meaning the housing market is less sensitive to changes in the credit market (see Figure 2). Likewise, the response of CR to HP is not significant.

After discussing the responses of target variables to shocks, the section discusses the responses of policy variables to shocks. Figure 3 plots the impulse response functions of PR, MPI, and CMPI to shocks. The solid blue lines are the impulse response functions, whereas the dashed blue lines are the 95 percent confidence intervals. The x-axis is measured in months, whereas the y-axis is the percentage changes. First, let us consider the responses of PR, MPI, and CMPI to target variables. Following a CAP shock, the MPI and CMPI reacted by increasing (see Figure 3). However, the responses are not statistically significant. This finding indicates that macroprudential policies are less sensitive to changes in capital flows. Following a CR and HP shocks, the MPI, reacted by rising, but the CMPI reacted by declining. This finding suggests that domestic macroprudential are tightening in response to credit and house price shocks, but common macroprudential policies are loosened in

response to credit and price shocks. The response of the CMPI reflects common endeavours to stimulate growth in the housing and credit markets. However, the response of the MPI reflects domestic endeavours to slow down excessive credit and house price growth in order to promote domestic financial stability (Galati and Moessner, 2012).

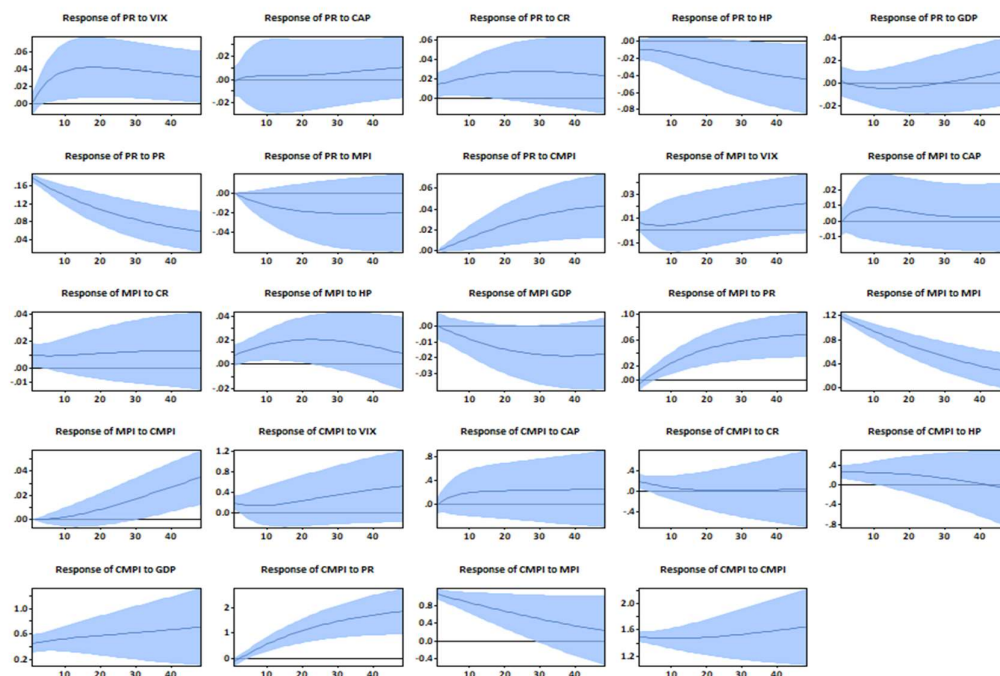


Figure 3. Impulse response functions of policy variables to shocks; *Source:* EViews estimates.

Figure 3 suggests that the PR responds to CAP, CR, and HP shocks. According to the figure, the PR responds by rising following a CAP shock, but this is not significant. However, when the CR is disturbed, the PR rises significantly. This suggests that monetary policy is tightened following a credit shock. The response of the PR to a credit shock can be associated with the 'lean against the wind' view on monetary policy and financial stability (see, Maih, 2016). In this view, monetary policy has an active role in containing credit shocks since they may induce inflation through their stimulatory effects on income and spending, thereby affecting the price stability objective (Al-Oshaibat and Bhanikhalid, 2019). In response to an HP shock, monetary policies are loosened. This can help explain the prize puzzle observed above. Relaxing monetary policy following an HP can stimulate the housing market, which means more spending on housing puts upward pressure on house prices.

Next, the study discusses the response of policy variables to the VIX and GDP. Following a shock to the VIX, the MPI, and CMPI reacted by declining. However, their responses are not statistically significant. In contrast, following a VIX shock, the PR rises, and the response is statistically significant at the 95 percent confidence interval. The policy responses to the VIX shocks suggest that macroprudential policies are not sensitive to changes to the VIX, but monetary policy is. Hence, monetary policy can be used to stabilize economies after an exogenous VIX shock. Following a GDP shock, both the MPI and PR reacted by falling. However, the fall in the PR is not significant. This suggests that domestic macroprudential policies are more sensitive to economic activity than monetary policy. Thus, domestic macroprudential policies can also be used to deal with developments in the real economy (see Angelini et al., 2014; Molise and Liu, 2020). In contrast, to the MPI and PR, the CMPI reacted by rising to a GDP shock. This finding suggests that common macroprudential policies can be used to stabilize real economic activity in order to achieve output stability.

The findings of this section presented above have significant crucial implications for the transmission mechanism of macroprudential policies. First, it was found that the MPI reacts significantly to HP, but the CMPI reacts significantly to both CR and HP. Both the MPI and the CMPI have insignificant responses to CAP shocks. This suggests that domestic macroprudential policies are sensitive to disturbances in the housing market. However, common macroprudential policies are sensitive to disturbances in the credit and housing sectors. Thus, common macroprudential policies have a wide reach compared to domestic ones. In turn, after the MPI reacts to the housing sector shocks, the resulting effect is a decline in domestic credit and house prices but a rise in capital flows, which indicates the reallocation effects of macroprudential policies. In contrast, when authorities use common macroprudential policies to respond to credit and house price shocks, the effects are a rise in capital flows, credit, and house prices.

The final step in discussing the impulse response functions is analysing policy variables' interactions. Firstly, in response to an expansionary monetary policy shock, the MPI and CMPI reacted by rising. This response shows the macroprudential policy authorities' desire to maintain financial stability following a positive monetary policy shock on the target variables. This occurs when monetary policy pushes credit too high, which can harm the financial system, causing prudential authorities to act strictly (Angelini et al., 2014). In contrast, the PR falls following an MPI shock but rises following a CMPI shock. For example, Alpanda and Zubairy (2017) and Kim and Mehrotra (2017) have documented the existence of endogenous responses from monetary policy to stabilize the real economy after a macroprudential policy shock. If macroprudential policy depresses output, monetary policy is loosened, as in these studies. However, if macroprudential policy stimulates output, then monetary policy is tightened.

6. Conclusions

In the literature, it is argued that countries that successfully coordinate their macroprudential policies can experience more stable financial systems and improved economic welfare (Agenor and Pereira da Silva, 2019; Agenor et al., 2020; Chen and Phelan, 2017). Accordingly, this study investigates the feasibility of cross-country macroprudential policy coordination in advanced and systemic middle-income economies by assessing the effectiveness of coordinated policies relative to country-specific macroprudential measures.

The Dynamic Common Correlated Effects Model was used to investigate the cross-country effects of macroprudential policies. Country-tailored macroprudential policies and common macroprudential policies were compared to each other. Moreover, the Panel Structural Vector Autoregression Model was used to analyse the transmission mechanism of macroprudential policies and to analyse the interaction between country-specific policies and common policies. The study's findings suggest that both policy types have a cross-country effect. Both policies are associated with reallocation effects of capital flows, a phenomenon that occurs when tightening macroprudential policies in one jurisdiction results into a fall in capital flows in that jurisdiction but strong capital inflow in other jurisdictions (Kang et al., 2017; Avdjiev et al., 2017; Cerruti et al., 2017). As a result, both policies could be used to stabilize economies to achieve financial stability following a capital flow shock (Agenor and Pereria, 2022). However, trade-offs exist between country-tailored and common policies (see, Paries, Kok, and Rancoita, 2019; Rubio, 2017; Cecchetti and Tucker, 2015; Ghironi and Schembri, 2017). For instance, a domestic macroprudential policy shock shrinks credit and house prices. However, a common macroprudential policy shock increases credit and house prices. Thus, domestic macroprudential policies can be most useful to tame excessive growth in the credit and housing markets. In contrast, common macroprudential policies are useful aids in stimulating growth in these markets.

The implications of the findings are that there are important trade-offs between self-oriented and common macroprudential policies. While domestic policies remain vital for addressing localized financial risks and tailoring responses to national economic conditions, the evidence of policy leakage and capital reallocation confirms that uncoordinated efforts can weaken regional financial resilience

through regulatory arbitrage (Kang et al., 2017; Cerruti et al., 2017). This supports arguments made by Cecchetti and Tucker (2015) that purely self-oriented policies may reduce their overall effectiveness if not complemented by coordination. Policymakers in ASEs and SMICs are therefore advised to strike a careful balance: maintaining flexibility to address country-specific circumstances while engaging in harmonized efforts to mitigate cross-border spillovers and enhance collective financial stability (Rubio, 2017; Paries, Kok, & Rancoita, 2019).

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