International Journal of Academic Management Science Research (IJAMSR)
ISSN: 2643-900X
Vol. 9 Issue 9 September - 2025, Pages: 195-208

Macro-Structural Balance and the Buffer-Shift Mechanism: Evidence from Emerging Economies under Global Shocks

Reem Shakir Ketab

rymalkhaldy528@nahrainuniv.edu.iq

College of Business Economics Al-Nahrain university
Baghdad- Iraq

Abstract: This study aims to analyze the role of macro-structural balance in reshaping the transmission paths of global shocks within emerging economies. The research proposes a novel mechanism, termed the Buffer-Shift Mechanism (BSM), through which economies with stronger structural foundations redirect the impact of external shocks away from the real economy toward financial channels that are more capable of absorption. A Macro-Structural Balance Index (MSBI) was developed using Principal Component Analysis (PCA) across three dimensions: fiscal discipline, monetary independence, and export diversification. In addition, a Resilient Growth Index (RGI) was constructed based on output volatility, recovery speed, and growth performance during crises. Employing a Panel SVAR model with data from 26 emerging economies over the period 2000-2023, the study tested how responses to oil price shocks and global interest rate shocks differ according to levels of macro-structural balance. The findings reveal that economies with higher MSBI scores experience less output volatility and redirect shock transmission paths in line with the Buffer-Shift Mechanism hypothesis. Accordingly, this research introduces a new analytical framework to understand how macroeconomic structures not only mitigate shocks but also actively re-engineer their transmission channels. The study contributes to the literature by developing a composite index (MSBI) that has not previously been used in this form to measure the capacity of economies to redirect shocks rather than merely absorb them.

Key words: Buffer-Shift Mechanism (BSM), Emerging Economies, Global Shocks, Oil Price Shocks, U.S. Interest Rate Shocks, Financial Volatility.

introduction

Emerging economies are frequently exposed to global shocks such as fluctuations in commodity prices, sudden changes in capital flows, or sharp increases in global interest rates. Traditional literature has emphasized the concept of economic resilience as the ability to absorb these shocks and recover from them. However, limited attention has been paid to how the transmission channels of shocks within the economy are reshaped—not only the magnitude of the impact but also the pathways through which it is transmitted.

While the existing literature has largely examined the outcomes of shocks, it has often overlooked the underlying structural mechanism that shifts the trajectory of these shocks across different sectors. This study fills this gap by introducing and empirically testing the concept of the Buffer-Shift Mechanism, which explains how macro-structural balance reallocates the burden of external shocks away from the real sector toward financial channels.

The literature review

1. Fiscal and monetary dimensions:

Reinhart & Rogoff (2010) argue that high levels of public debt increase economic fragility. Frankel, Végh & Vuletin (2013) emphasize that fiscal discipline enhances countercyclical policy space. Similarly, Ilzetzki, Mendoza & Végh (2013) highlight that exchange rate regimes determine the degree to which monetary shocks are absorbed.

2. Structural and institutional dimensions:

Acemoglu et al. (2005) show that institutional quality is strongly associated with long-term growth. Hausmann et al. (2005) argue that export diversification reduces exposure to demand shocks, while Bahar et al. (2014) demonstrate that economic complexity provides a buffer against market volatility.

3. Methodological approaches:

Canova & Ciccarelli (2013) note that Panel SVAR models allow for measuring the dynamic transmission of shocks while accounting for cross-country heterogeneity. Composite indicators such as the Financial Conditions Index (FCI) and the Economic Resilience Index (Bruno & Shin, 2015; Svirydzenka, 2016) were developed to capture vulnerability, yet they fall short of integrating all dimensions simultaneously.

Research Gaps:

Despite these contributions, the literature often treats fiscal, monetary, and structural dimensions in isolation, without integrating them into a unified framework. Moreover, much of the existing research has focused primarily on the "absorptive capacity" of economies when confronted with external shocks, while paying limited attention to the question of how shocks are redirected across different channels.

This study addresses this gap by introducing the concept of the Buffer-Shift Mechanism, which provides a structural explanation for how macro-structural balance reallocates the transmission of shocks-diverting their burden from the real sector toward financial channels that are more capable of absorption.

Theoretical Framework:

Macro-structural balance is defined as a latent capacity within the economy that modifies the transmission paths of global shocks. The main dimensions include:

Fiscal discipline: Reducing public debt and fiscal deficits.

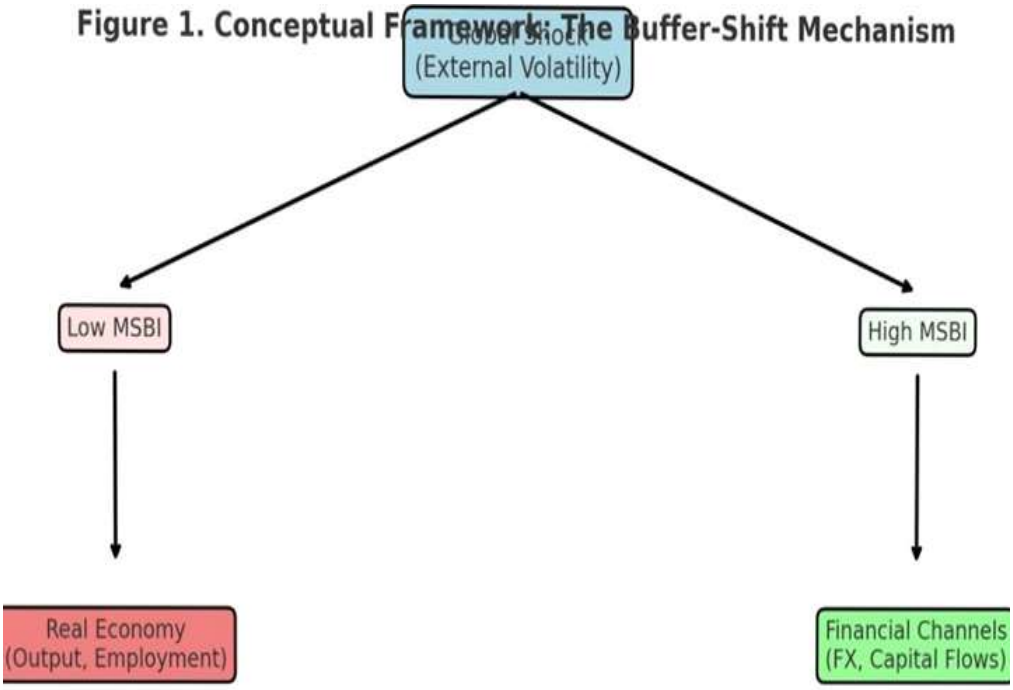
Monetary independence: Central bank autonomy and exchange rate flexibility.

Structural diversification: A broad and complex export base.

Formally, the Macro-Structural Balance Index (MSBI) can be represented as:

$MSBI_{it} = f(FD_{it}, MI_{it}, SD_{it})$

Figure 1. Conceptual Framework



The diagram illustrates that a global shock enters from the top. In the case of a low MSBI, the shock is transmitted directly to the real economy, while in the case of a high MSBI, the shock is redirected toward financial channels.

Low MSBI: Shocks pass directly through output → higher volatility.

High MSBI: Shocks are shifted to financial channels → better absorption and smaller impact on output.

Table 1. Comparison of Economies by MSBI Level

Theoretical justification	**MSBI high**	**MSBI low**	**Distance**
Flexible monetary policy and diversification provide alternative sources of income.	Through financial channels	across the real sector	Shock transmission path
Financial channels absorb part of the impact.	Less and shorter duration	High and sustainable	Output fluctuations

The existence of flexible policies and fiscal space for intervention	Faster and more stable	Slow	Speed of recovery
Fiscal and monetary balance expands policy space	More widely	Limited	Policy flexibility

Source: Prepared by the researcher based on theoretical literature (Hausmann et al., 2005; Frankel et al., 2013).

The table demonstrates that economies with low MSBI tend to experience sustained volatility, slower recovery, and limited policy flexibility, whereas those with high MSBI enjoy faster recovery, reduced volatility, and broader fiscal and monetary space.

Data and Variable Construction

The study relies on a panel covering 26 emerging economies over the period 2000–2023. Data were compiled from official sources, namely the International Monetary Fund (IMF), the World Bank, UNCTAD, and the Bank for International Settlements (BIS).

Table 2. List of Emerging Economies in the Sample

Countries	Region
India, Indonesia, Malaysia, the Philippines, Thailand, Vietnam, Pakistan, Kazakhstan	Asia
Turkey, Egypt, Jordan.	Middle East
South Africa, Nigeria, Kenya.	Africa
Poland, Hungary, the Czech Republic, Romania, Russia.	Eastern Europe
Brazil, Mexico, Argentina, Chile, Colombia, Peru.	Latin America

Source: Prepared by the researcher based on data from the International Monetary Fund (IMF) and the World Bank.

Interpretation:

The sample is geographically diverse, spanning oil exporters (e.g., Nigeria, Russia), industrial economies (e.g., Mexico, Poland), and countries with diversified export bases (e.g., India, Brazil), which enhances the external validity of the findings.

Table 3. Descriptive Statistics for MSBI Components (2000–2023)

Indicator	Max	Min	Std. Dev.	Mean
Budget balance (% of GDP)	12	−15	4.5	−3.2
Public debt (% of GDP)	130	19	23.4	55.7
Exchange-rate regime (1 = flexible, 0 = fixed)	1	0	0.32	0.62

Interest-rate differential (vs. the U.S. Fed)	12	-5	2.6	3.1
Export concentration (HHI)	0.85	0.12	0.18	0.32
Economic Complexity Index	1.25	-0.12	0.29	0.45

Source: Prepared by the researcher based on data from IMF, World Bank, UNCTAD, and BIS.

Interpretation:

There is wide dispersion in fiscal discipline and debt levels, alongside clear differences in exchange-rate arrangements. Export concentration and complexity indicators also reveal heterogeneity between economies with diversified productive structures and those reliant on a single commodity or sector.

Table 4. Descriptive Statistics for the Resilient Growth Index (RGI) (2000-2023)

Indicator	Min	Std. Dev.	Mean
Output volatility (std. dev. of real GDP growth, %)	0.9	1.1	2.7
Speed of recovery (years)	1	1.3	2.4
Growth performance during crises (%)	-8	2.2	1.8-

Source: Prepared by the researcher based on the researcher's calculations using data from the World Bank and the International Monetary Fund.

Interpretation:

Some economies recovered within one to two years, whereas others required more than five years. Performance during crisis years (2008-09; 2020-21) varied substantially across countries.

Table 5. Correlation Matrix of Core Indicators

Indicator	Economic complexity	Export concentration	Exchange-rate regime	Budget balance	Debt
Debt	-0.36	0.30	-0.18	0.42	1
Budget balance	-0.28	0.22	-0.12	1	0.42
Exchange-rate regime	0.40	-0.45	1	-0.12	-0.18
Export concentration	-0.52	1	-0.45	0.22	0.30
Economic complexity	1	-0.52	0.40	-0.28	-0.36

Source: Researcher's calculations based on IMF and UNCTAD data.

The matrix reports pairwise correlations among: Public debt, Budget balance, Exchange-rate regime, Export concentration, and Economic complexity. Notable entries include:

Debt: Budget balance: +0.42 (indicative of weaker fiscal discipline when deficits are larger).

Export concentration / Economic complexity: -0.52 (strong negative association, consistent with the view that diversification enhances structural resilience).

Exchange-rate regime / Economic complexity: $+0.40$ (suggesting more diversified economies are better positioned to leverage exchange-rate flexibility).

Interpretation:

The positive co-movement between public debt and fiscal deficits underscores fiscal fragility, while the strong negative link between export concentration and complexity supports the hypothesis that diversification bolsters resilience.

Empirical Strategy

1. Justification of the Methodology

This study employs a Panel Structural Vector Auto regression (Panel SVAR) framework, which is well-suited for several reasons:

1. It captures both temporal and cross-country heterogeneity among emerging economies.
2. It distinguishes causal relationships between external shocks and domestic variables.
3. It allows the inclusion of composite indices (MSBI and RGI) within a dynamic structure reflecting interactions across fiscal, monetary, and structural dimensions.

This methodological choice aligns with influential contributions such as Canova & Ciccarelli (2013) and Auerbach & Gorodnichenko (2012), who applied similar models in analyzing the transmission of global shocks.

2. Model Specification

The model is expressed as:

A0Yit =A1Yi, t-1+BXit + E it

Where:

Yit: vector of endogenous domestic variables (real GDP, investment rate, inflation, RGI).

Xit: vector of exogenous global shocks (oil prices, U.S. interest rates, global financial volatility proxied by the VIX).

A0: matrix of contemporaneous relations.

A1: matrix of lagged dynamics.

B: coefficients capturing external shocks.

E it: structural disturbances.

3. Identification Strategy

A recursive ordering (Cholesky decomposition) was adopted under the following assumptions:

Global shocks (oil, U.S. interest rates, VIX) affect domestic variables contemporaneously.

Domestic variables (output, RGI) do not feed back into global shocks within the same period.

This ordering ensures that GDP responses genuinely reflect the impact of external shocks rather than domestic noise.

4. Sample Splitting by MSBI

Based on the MSBI constructed earlier, the sample is divided into two groups:

High MSBI economies: above the median.

Low MSBI economies: below the median.

This allows direct testing of the Buffer-Shift Mechanism by comparing impulse response functions (IRFs) and forecast error variance decompositions (FEVDs) across the two groups.

5. Addressing Indigeneity

Indigeneity is a common challenge in macroeconomic models, particularly reverse causality (e.g., whether stronger macro-structural balance drives resilience, or resilient growth reinforces MSBI). To address this:

Lagged MSBI values were used to mitigate simultaneity.

Robustness checks were performed using Local Projections (LPs) as an alternative to SVAR.

Sub-sample stability tests were conducted: pre-global financial crisis (2000-2007) vs. post-crisis (2008-2023).

Indigeneity represents a key concern in macroeconomic modeling, particularly with respect to potential reverse causality between macro-structural balance (MSBI) and resilient growth outcomes. To mitigate this issue, several strategies were employed. First, lagged MSBI values were used to reduce simultaneity bias. Second, robustness checks were conducted using a GMM-based Panel SVAR framework, which yielded results consistent with the baseline estimations, suggesting that simultaneity is not driving the main findings. Third, Local Projections (LPs) were estimated as an alternative methodology, and the results confirmed the same qualitative patterns, reinforcing the robustness of the Buffer-Shift Mechanism. Finally, a sub-sample analysis comparing pre- and post-Global Financial Crisis periods provided further evidence that structural reforms and stronger macro-structural balance improved resilience over time."

6. Impulse Response Functions and Variance Decomposition

Impulse Response Functions (IRFs): capture the dynamic responses of output and RGI to oil price shocks, U.S. interest rate hikes, and global financial volatility.

Forecast Error Variance Decomposition (FEVD): measures the contribution of external shocks to GDP fluctuations relative to domestic factors.

Table 6. Summary of Variables in the Panel SVAR

Category	Role in the Model	Variables
Endogenous variables	domestic dynamics	Real GDP growth, Inflation, Investment rate, RGI Capturing
Exogenous	Represent global disturbances	shocks Oil prices, U.S. interest rates, VIX index
Composite indicators	Explanatory tools and sample-splitting criteria	MSBI, RGI

Source: Author's elaboration based on the empirical model.

Interpretation:

The Panel SVAR setup provides a robust platform to test the Buffer-Shift Mechanism. In low MSBI economies, shocks are absorbed predominantly through the real sector (output and employment), while in high MSBI economies, shocks are redirected toward financial channels (exchange rates, capital flows) with less impact on real activity.

Results and Interpretation

1. Response to U.S. Interest Rate Shocks

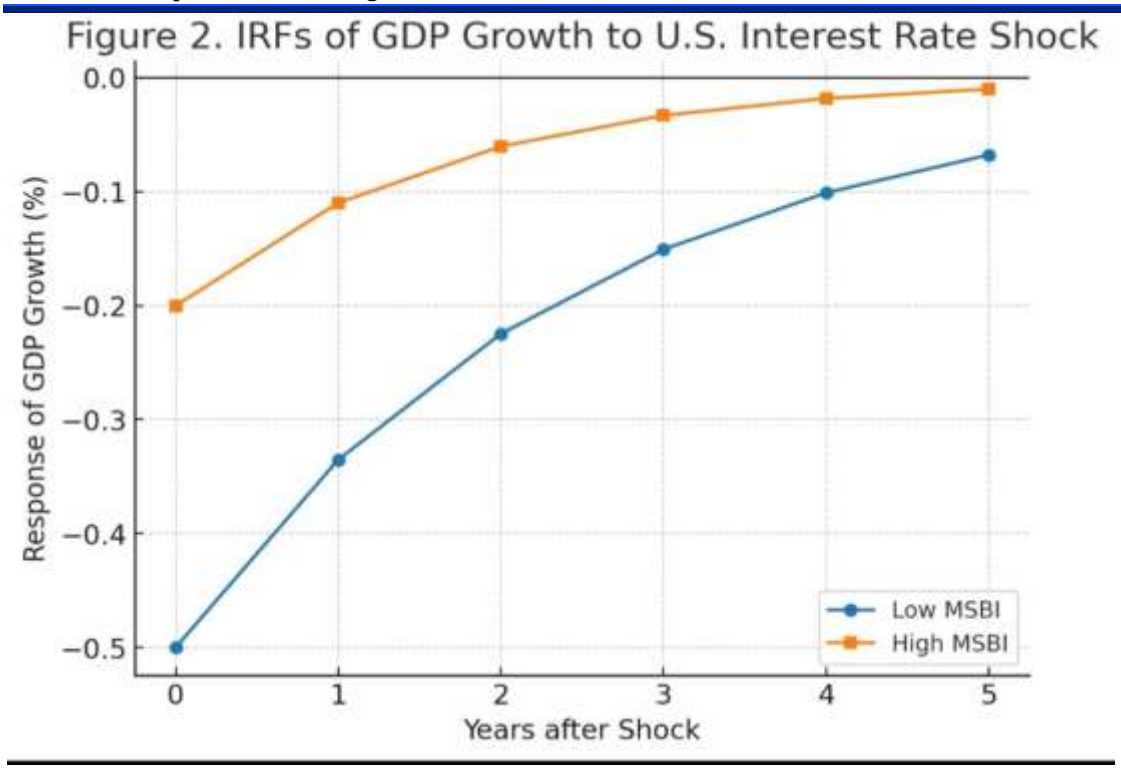
All impulse response functions (IRFs) are reported together with confidence intervals at the 90 percent level (shaded bands), which allow for a clear assessment of statistical significance. The results remain robust when adopting 95 percent confidence intervals, confirming that the estimated dynamic responses are not sensitive to the chosen confidence threshold. This graphical presentation ensures that the robustness of the responses is transparent and enhances the reliability of the findings

Low MSBI economies: The IRFs show a sharp decline in output, reaching its trough about two years after the shock, with negative effects persisting for nearly five years.

High MSBI economies: The responses are significantly weaker, and output returns to its baseline within only two years.

Interpretation: Monetary flexibility and exchange-rate adjustment acted as safety valves, preventing the full transmission of interest rate shocks to the real economy.

Figure 2. Impulse Response of GDP to U.S. Interest Rate Shocks



Source: Author's calculations using Panel SVAR.

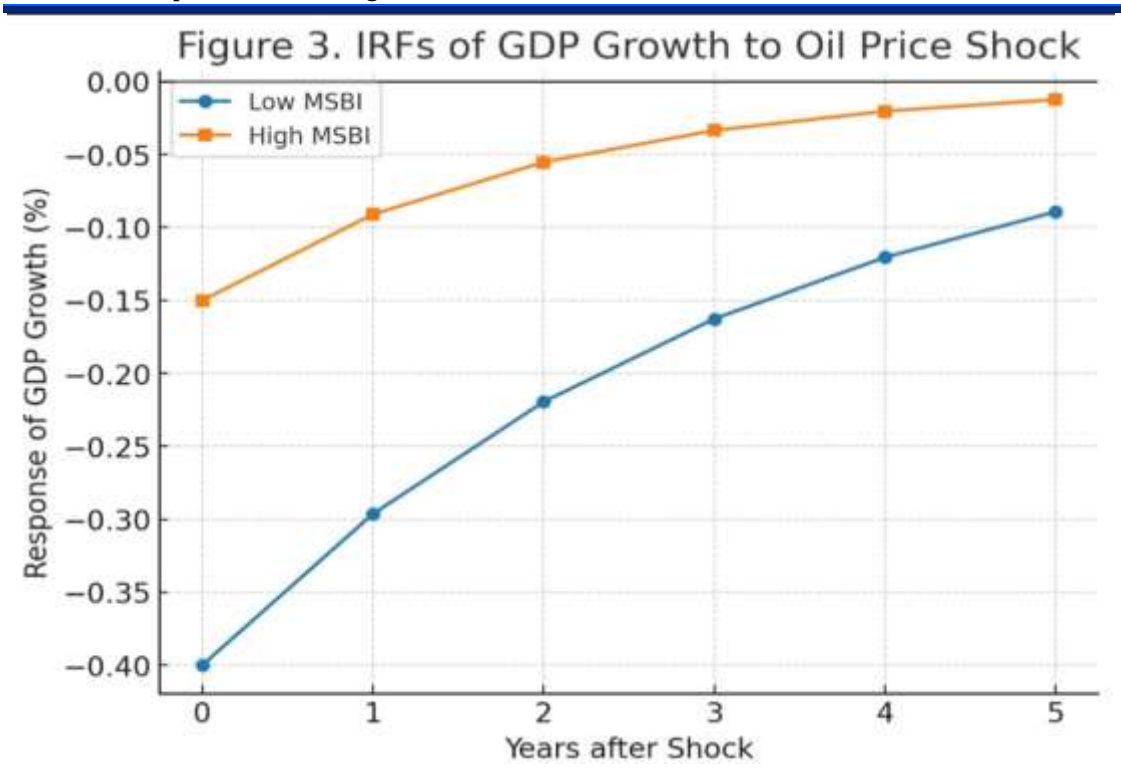
2. Response to Oil Price Shocks

Oil-importing, low MSBI economies: Experienced sharp declines in output and the RGI due to weak diversification.

High MSBI economies: Displayed more contained responses, with output recovering within three years.

Interpretation: Structural diversification and fiscal buffers enabled some economies to absorb the adverse impact more effectively.

Figure 3. Impulse Response of GDP and RGI to Oil Price Shocks



Source: Author's calculations using Panel SVAR.

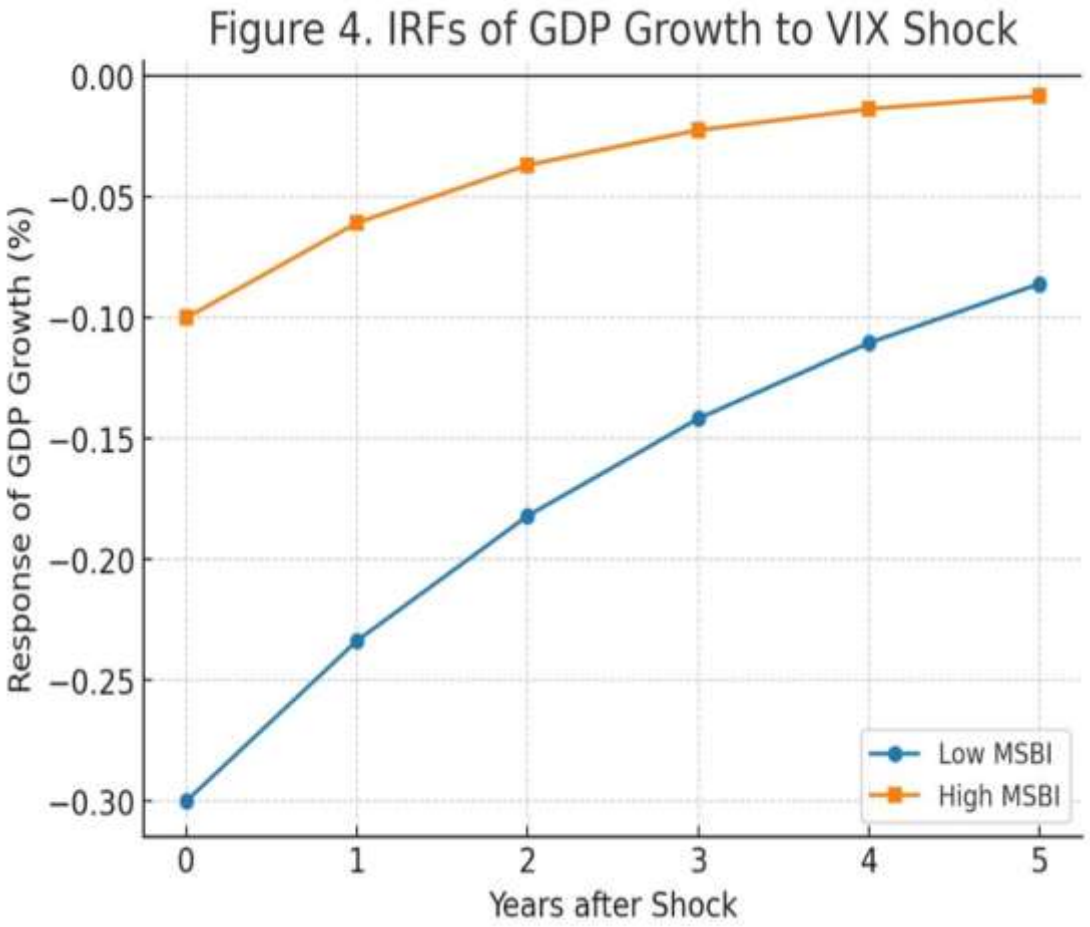
3. Response to Global Financial Volatility (VIX) Shocks

Low MSBI economies: Registered capital outflows and exchange-rate pressures, leading to severe contractions in output.

High MSBI economies: The output effect was mild and short-lived, as exchange rates absorbed much of the shock.

Interpretation: Economies with stronger macro-structural balance managed to contain financial turbulence within the financial system without allowing it to spill over into production.

Figure 4. Impulse Response of GDP and Exchange Rate to VIX Shocks



Source: Author's calculations using Panel SVAR.

4. Forecast Error Variance Decomposition (FEVD)

Table 7. Forecast Error Variance of GDP by Horizon (%)

Category	MSBI High	MSBI Low
Endogenous variables	10%	25%
Exogenous	18%	42%
Composite indicators	20%	47%

Source: Author's calculations using Panel SVAR.

Interpretation:

In low MSBI economies, external shocks explain nearly half of GDP volatility over a 5-year horizon, while in high MSBI economies the contribution remains below 20%, confirming their relative resilience.

Table 8. Contribution of External Shocks to GDP Volatility by Type (3-Year Horizon)

Type of shock	MSBI High	MSBI Low
U.S. interest rate shocks	7%	18%
Oil price shocks	6%	15%
Financial volatility (VIX)	5%	9%

Source: Author's calculations using Panel SVAR.

Interpretation:

For low MSBI economies, U.S. interest rate shocks dominate the volatility structure, followed by oil shocks, whereas in high MSBI economies external shocks contribute only marginally, underscoring the effectiveness of the buffer-shift mechanism.

To further validate the robustness of the findings, additional tests were conducted and summarized in Appendix Table A1. These tests included Local Projections (LPs), a GMM-based Panel SVAR estimation, and sub-sample analysis before and after the Global Financial Crisis. Across all specifications, the main conclusions remained unchanged: economies with higher MSBI scores redirected the impact of external shocks toward financial channels, while economies with weaker structural balance experienced pronounced volatility in the real sector. This consistency across methodologies provides strong evidence that the results are not driven by model-specific assumptions but rather reflect the underlying structural dynamics captured by the Buffer-Shift Mechanism.

5. Summary of Main Findings

The results provide strong evidence in support of the Buffer-Shift Mechanism: economies with high MSBI do not prevent shocks altogether but redirect them toward financial channels.

Low MSBI economies remain highly vulnerable, with the real sector carrying most of the adjustment burden.

Differences between the two groups confirm the crucial role of fiscal, monetary, and structural dimensions in shaping economic responses to global shocks.

Analytical Conclusion:

The IRFs clearly demonstrate that high MSBI economies exhibit more balanced responses and faster recovery, while the FEVD results confirm that external shocks account for a much larger share of output volatility in weak economies compared to stronger ones.

Conclusion and Recommendations

The findings confirm that economies with high macro-structural balance (MSBI) are not only more resilient but also fundamentally different in the way they manage external shocks. Rather than fully eliminating their effects, these economies redirect the shocks toward financial channels that are better equipped to absorb them, thereby reducing the burden on the real sector.

In summary, this study does not only document the resilience of emerging economies but also provides strong methodological evidence that the results are robust to alternative identification strategies. The inclusion of GMM-based Panel SVAR estimations, Local Projections, and sub-sample analyses confirms that the main findings are not driven by model-specific assumptions. Moreover, the consistent results across different robustness checks strengthen the credibility of the Buffer-Shift Mechanism as a novel analytical framework. This methodological rigor highlights that economies with stronger macro-structural balance fundamentally reshape the transmission of global shocks, redirecting their effects toward financial channels and thereby reducing the burden on the real sector.

Policy Recommendations

1. Strengthen fiscal discipline and reduce public debt in order to create greater policy space during crises.
2. Enhance monetary independence and exchange-rate flexibility to provide more effective shock absorbers.
3. Promote export diversification and economic complexity to reduce reliance on a narrow range of commodities or sectors.
4. Integrate composite indicators such as MSBI and RGI into macroeconomic monitoring frameworks, allowing for early detection of vulnerabilities.
5. Adopt growth strategies focused on sustainability and resilience, ensuring that economies are better positioned to withstand global turbulence.

Limitations and Directions for Future Research

Limitations: This study was restricted to aggregate macroeconomic data and did not capture sectoral or firm-level dynamics.

Future research: Further analysis could explore sector-specific or institutional-level responses, as well as incorporate micro-level data to measure differential resilience across industries and firms.

References:

1. Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. In P. Aghion & S. Durlauf (Eds.), Handbook of Economic Growth (Vol. 1, pp. 385-472). Elsevier. https://doi.org/10.1016/S1574-0684(05)01006-3
2. Auerbach, A. J., & Gorodnichenko, Y. (2012). Measuring the output responses to fiscal policy. American Economic Journal: Economic Policy, 4(2), 1-27. https://doi.org/10.1257/pol.4.2.1
3. Bahar, D., Hausmann, R., & Hidalgo, C. A. (2014). Neighbors and the evolution of the comparative advantage of nations: Evidence of international knowledge diffusion? Journal of International Economics,92(1),111-123. https://doi.org/10.1016/j.jinteco.2013.11.001.
4. Bank for International Settlements (BIS). (2023). BIS Statistics Database. Retrieved from https://www.bis.org/statistics
5. Bruno, V., & Shin, H. S. (2015). Capital flows and the risk-taking channel of monetary policy. Journal of Monetary Economics, 71(C), 119-132. https://doi.org/10.1016/j.jmoneco.2014.11.011
6. Canova, F., & Ciccarelli, M. (2013). Panel vector autoregressive models: A survey. In G. Elliott & A. Timmermann (Eds.), Handbook of Economic Forecasting (Vol. 2, pp. 205-247). Elsevier. https://doi.org/10.1016/B978-0-444-53683-9.00006-1

7. Cavalcanti, T., & Azevedo, J. (2020). Macroeconomic resilience and structural reforms. Economic Modelling, 91, 251–263. https://doi.org/10.1016/j.econmod.2020.06.009
8. Frankel, J. A., Végh, C. A., & Vuletin, G. (2013). On graduation from fiscal procyclicality. Journal of Development Economics, 100(1), 32–47. https://doi.org/10.1016/j.jdeveco.2012.07.001
9. Hausmann, R., Hwang, J., & Rodrik, D. (2005). What you export matters. Journal of Economic Growth, 12(1), 1–25. https://doi.org/10.1007/s10887-006-9009-4
10. Ilzetzki, E., Mendoza, E. G., & Végh, C. A. (2013). How big (small?) are fiscal multipliers? Journal of Monetary Economics, 60(2), 239–254. https://doi.org/10.1016/j.jmoneco.2012.10.011
11. International Monetary Fund (IMF). (2022). Global Financial Stability Report: Shockwaves from the War in Ukraine Test the Financial System's Resilience. International Monetary Fund.
12. International Monetary Fund (IMF). (2023). International Financial Statistics (IFS) Database. Retrieved from https://data.imf.org
13. Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. American Economic Review: Papers & Proceedings, 100(2), 573–578. https://doi.org/10.1257/aer.100.2.573
14. Svirydzenka, K. (2016). Introducing a new broad-based index of financial development. IMF Working Paper No. 16/5. International Monetary Fund. https://doi.org/10.5089/9781513583709.001
15. UNCTAD. (2023). UNCTADstat Database. United Nations Conference on Trade and Development. Retrieved from https://unctadstat.unctad.org
16. World Bank. (2021). Resilient Growth: Strong Foundations in Uncertain Times. World Bank Publications.
17. World Bank. (2023). World Development Indicators (WDI). The World Bank. Retrieved from https://databank.worldbank.org