CONFIDENCE SHOCKS IN EMERGING MARKETS AND THEIR GLOBAL CONTAGION: INSIGHTS FROM G-CUBED SIMULATIONS

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Abstract

The global economy has begun to recover from the global financial crisis (GFC), which occurred around 10 years ago, according to recent economic statistics. However, investor confidence has declined in a number of significant emerging markets (EMEs) due to rising interest rates in the US and ongoing trade tensions between the US and China, potentially causing contagion effects worldwide. The worldwide impacts of the financial crisis in certain important EMEs, namely Argentina, Brazil, Turkey, and Russia (ABTR), as well as its widespread impact on raising global investment and consumption risk, are examined in this paper using the G-Cubed model for G-20 nations with six sectors. According to the findings, because three distinct shocks struck at the same time in ABTR countries—where the initial shock emerged—they experience the most negative short-term effects of the confidence crisis. The cost of capital rises as a result of the capital outflow from these nations, which causes firms to disinvest or reduce their capital stock. Households across all nations are also more likely to discount future income streams as a result of their increased risk assessment, which promotes more savings and lower spending. Additionally, both developed and non-shocked emerging countries grew as a result of increased capital inflows, but their trade balances worsened due to exchange rate appreciation, which made the production decline worse.

***Keywords**: Confidence, Contagion, Emerging Markets, G-Cubed, Risk*

INTRODUCTION

The globe has fully recovered from the global financial crisis (GFC), which occurred ten years ago, according to recent economic figures. The stock market has been steady at higher levels, the GDP growth rate has been starting to gather up steam, and major central banks have been getting ready to implement policies that have never been seen before in the post-crisis era. In actuality, many issues are hidden by this comparatively positive image. Due to the continued weakness of productivity growth, this time frame has been identified as the worst post-recession recovery. As a result of China's retaliatory hike in tariffs on US imports and a subsequent increase in US duties on certain Chinese goods, global growth has also remained limited. In light of these conditions, global economic growth was projected at 3.2 percent in 2019, with a modest increase to 3.5 percent in 2020—marking the weakest performance since the 2008–2009 financial crisis and falling short of earlier forecasts for both years (IMF, 2019a). Although the June G20 summit helped to prevent further escalation of trade tensions, significant risks remain. The potential imposition of US sanctions has disrupted confidence in global technology supply chains, ongoing uncertainty surrounding Brexit continues to weigh on markets, and rising geopolitical tensions have led to heightened volatility in energy prices (IMF, 2019b).

Moreover, the post-GFC period has been particularly challenging for emerging markets and developing economies (EMDEs). Since 2010, these countries have experienced persistently weak investment growth, following a similar pattern observed in advanced economies (AEs) during the immediate aftermath of the crisis (World Bank, 2017). Investment in EMDEs remains subdued—not only staying below the levels seen before the crisis, but also underperforming relative to historical averages during previous major global slowdowns (ibid). Recently, EMDEs have faced several external pressures, including rising oil prices, a stronger US dollar, geopolitical tensions, and escalating trade disputes. Some economies—such as Argentina, Turkey, Venezuela, and Iran—continue to endure acute economic distress, while many other large emerging markets, including Brazil, Mexico, Russia, and South Africa, are also experiencing sluggish growth (IMF, 2019a).

US-China trade tensions pose a serious threat to the world economy and have tangible implications for those in developing countries. Many investors have been selling off a lot of their assets in these economies as a result of their declining confidence. The result was a sharp decline in capital flows into these nations, which fell by over US$11 billion in only one month last year. This capital flight led to notable currency depreciations—most prominently in Turkey and Argentina—as investors shifted their portfolios toward US treasury bonds and other dollar-denominated assets, which have become more attractive due to rising US interest rates.

In addition to those two nations, Brazil experienced a distinct type of financial disaster in the years after the Great Financial disaster. The grounds for a severe downturn have been set up by the enormous rise in private sector debt, which is brought on by foreign demand for financial assets. The significant rise in interest rates has made it practically difficult for the Brazilian government to borrow more, resulting in a higher budget deficit and interest payments. In a somewhat different but similar situation, Russia's addiction to and reliance on natural resources—oil and gas—caused a financial catastrophe when oil prices plummeted (Gaddy & Ickes 2010). Taken together with the broader slowdown in growth, these developments have contributed to a broader decline in business confidence across key emerging markets. Loss of confidence in EMEs can harm international commerce and extend to other countries, affecting both emerging and advanced economies. Emerging markets are especially vulnerable to contagion because of their weaker financial systems and greater market volatility (Fang, Yang, & Lei, 2021; Brik, El Ouakdi, & Ftiti, 2024).

The influence of financial crises on developing markets has been the subject of an expanding body of research in recent years. Carriere-Swallow and Cespedes (2013) discovered, using a reduced-form vector autoregression, that EMEs are more susceptible to uncertainty shocks, have more severe effects on private consumption and investment, and recover from them much more slowly than developed nations. The transmission of such uncertainty shocks typically occurs through trade and financial channels. In the case of trade, the shock can negatively affect overall output and investment in the originating country (Eicher et al. 2008), while in the financial domain, it may disrupt exchange rates, trade balances, and current account positions. Investor uncertainty can spark crises in emerging markets, even without economic shifts, as fear and overreaction amplify risks. In crises, investors flee to safer assets, worsening contagion (Muzindutsi et al. 2022, Spanjers 2009, and Berger & Turtle 2011). Similarly, Ozkan and Unsal (2012), using a two-country DSGE model, highlight that the degree of trade openness and the magnitude of financial spillovers from the global to domestic

economy play a crucial role in determining how severely a country is affected by a financial crisis. In addition, McKibbin (2009) suggests that, in the case of confidence-driven shocks, allowing trade and capital to flow freely across borders may help to mitigate economic volatility in the longer term.

This study contributes to the broader understanding of the global impact of financial crises in several key emerging market economies. Here, a financial crisis refers to an abrupt loss of investors' confidence in holding financial assets within a given economy. Specifically, the paper explores the combined effects of rising investment and consumption risk, triggered by an initial increase in country risk premia in Argentina, Brazil, Turkey, and Russia (ABTR). Through contagion, this leads to a broader increase in global equity risk and a widespread erosion of household confidence. To analyze these dynamics, the study utilizes the G-Cubed Model version 149G, which facilitates a detailed assessment of the differential impacts across emerging and advanced economies, as well as intersectoral effects.

LITERATURE REVIEW

G-Cubed Model

The G-Cubed model builds upon the multi-country, multi-sector, intertemporal general equilibrium framework initially developed by McKibbin and Wilcoxen (1999). It integrates key strengths from three major fields: econometric general equilibrium modeling, international trade theory, and contemporary macroeconomics (ibid). Over time, the model has undergone multiple revisions and enhancements. This study employs version 149G—the most recent and comprehensive iteration—designed specifically to examine the economies of G20 nations and evaluate the wider impact of their policy initiatives. In this framework, the global economy is segmented into 24 separate regions: one for each G20 country and four representing clusters of Non-G20 nations (McKibbin & Triggs 2018). Each regional block is further broken down into six economic sectors: energy, mining, agriculture, durable goods manufacturing, non-durable goods manufacturing, and services. Compared to earlier versions, the G-Cubed (G20) model improves the representation of structural differences between economies and incorporates short-term rigidities observed empirically, making it well-suited for capturing the complex dynamics of capital outflows, investment contractions, and shifts in consumption behavior. These advantages strengthen the rationale for using this model in our study, allowing for a more comprehensive analysis of financial confidence shocks and their global implications.

The G-Cubed model operates within a framework in which rational expectations are central to decision-making. Both the demand and supply sides are disaggregated across all economies, with behavioral equations grounded in intertemporal optimization and modified by liquidity constraints to capture real-world rigidities (McKibbin & Wilcoxen, 1999). Similar to conventional computable general equilibrium (CGE) models, G-Cubed assumes that economic variables eventually converge to their long-run steady-state values. However, unlike standard CGE frameworks, G-Cubed explicitly allows for short-run deviations from optimal behavior during the adjustment path to the steady state. This feature is particularly important given the model's incorporation of financial sector dynamics and wage stickiness.

The model includes three representative agents: households, firms, and governments. Households engage in consumption and supply both labor and financial

capital through savings. Their actions are guided by the goal of maximizing utility over time, constrained by a lifetime budget that ensures the present value of consumption does not exceed the total lifetime wealth—consisting of after-tax labor earnings and initial assets. A key innovation of the model is its differentiation between two household types: forward-looking and backward-looking. Forward-looking agents form expectations about future economic conditions and adjust their decisions accordingly, while backward-looking agents rely on observed past trends to guide current behavior.

Firms in the G-Cubed model exhibit behavior analogous to that of households, in that they seek to maximize their objectives over time. Specifically, firms aim to maximize profits by optimally choosing inputs such as labor, capital, energy, and intermediate goods. Based on these production decisions, firms then determine their investment strategies to maximize the intertemporal market value of their equity, which is based on the discounted value of their expected future dividend payouts. Within the model, firms are assumed to be price takers in all markets.

Governments, on the other hand, generate revenue through various forms of taxation and import tariffs. Public expenditures include transfer payments to households, interest payments on outstanding debt, and direct consumption of goods and services. Fiscal deficits are financed through borrowing. Importantly, the model imposes a transversality condition, ensuring that governments cannot engage in perpetual borrowing; any present deficit must be offset by future surpluses, thereby maintaining intertemporal budget balance.

A notable strength of the G-Cubed model—particularly relevant to this study—is its nuanced treatment of capital markets. Unlike many traditional models, G-Cubed distinguishes between the relative rigidity of physical capital and the high mobility of financial capital. While financial assets are assumed to be arbitraged across sectors and countries to equalize risk-adjusted returns (in the absence of capital controls), physical capital is largely immobile in the short run due to adjustment costs. In labor markets, the model assumes that labor is immobile across countries but perfectly mobile within each national economy. Wages are subject to stickiness in the long run, influenced by expected inflation and the equilibrium between labor supply and demand. In contrast, real wages are assumed to be more flexible in the short to medium term, which allows temporary periods of unemployment to occur. Over time, the labor market is expected to adjust back to full employment in the model's long-run equilibrium.

Risk Premium in G-Cubed Model

This study investigates the effects of a sustained rise in country-specific risk on both national and global economic outcomes. To improve conceptual clarity, it is important to understand the difference between confidence crisis, financial crisis and risk shocks. The first term refers to the loss of investor and consumer confidence in key emerging markets, leading to capital outflows and reduced consumption. The second term is used in a broader sense to describe a systemic disruption in financial markets, including banking instability and liquidity shortages, while the last term denotes unexpected changes in perceived economic risks that influence investment and consumption decisions globally.

It is necessary to figure out how the nation risk is accounted for in the intertemporal model before using it for simulation. It is important to realize that risk shocks play a similar role to interest rates in the intertemporal model in that they cause output and consumption to move from the present to the future and vice versa. The risk

premium increases with household uncertainty, resulting in a much lower current value of future income. At least three distinct kinds of national risk are represented in this model: equity, country and household risk premium. Each of those three ideas—all of which are regarded as external variables—will be covered in this section.

The equity risk premium is where the risk premium is first found in the G-cubed. This is the difference in return that people need to hold stock instead of bonds, or arbitrage between other asset classes. Technically, it may be found in Tobin's Q equation in the model, which is written as Formula 1.

$$\lambda_{it} = \int_t^{\infty} \left((1-\tau_2) p_i^* \frac{dQ_i}{dk_i}\Big|_{\hat{J},\hat{k}} + (1-\tau_4) p^I \frac{\varphi_i}{2} \left(\frac{\hat{J}_i}{\hat{k}_i} \right)^2 \right) e^{-(R(s)+\delta+\mu(s))(s-t)} ds \quad (1)$$

This equation reflects an arbitrage relationship between bonds and physical capital, indicating that Tobin's Q in the initial period equals the present value of two components summed over time: the after-tax marginal product of capital and the change in returns due to adjustment costs. These components are discounted using the real interest rate, the depreciation rate, and the equity risk premium (μ). Therefore, an increase in the equity risk premium leads to a decrease in Tobin's Q. Since Tobin's Q influences investment decisions in the model, higher uncertainty faced by firms results in reduced investment activity. As previously noted, the equity risk premium functions similarly to the interest rate in this framework.

Given the perfect mobility of financial capital, any shock instantly causes adjustments in the returns on financial assets, depending on how quickly capital depreciates in those markets. Additionally, the arbitrage condition between the real economy and financial markets ensures that the marginal product of capital aligns with the real interest rate. Over the long term, the ratio of the marginal product of capital to the real interest rate converges to the value of Tobin's Q.

Another component of risk embedded in the model is the country risk premium, which represents the gap in returns between holding financial assets in one country versus another. For instance, when comparing government bonds from Germany to those from the United States (used as the reference or numeraire country), Japan's country risk premium reflects the additional yield its government must offer to make investors indifferent between investing in Japanese or U.S. bonds. This difference is not solely driven by expectations of future real exchange rates, but is also captured through the country risk premium itself, which typically features in the log-linear version of the interest rate parity condition.

$$r_t^i = r_t^i + \left({}_t e_{t+1} + 1 \right) + \mu_t \quad (2)$$

This condition implies that a country's interest rate is determined by the U.S. interest rate, adjusted for the expected depreciation of its exchange rate and the country-specific risk premium. In essence, it reflects the return investors require to hold assets in one country compared to equivalent assets in another. When reformulated, this relationship can be applied to various asset types, benchmarking them against similar assets in other countries. The adjusted version of this condition is expressed as Formula 3.

$$e_t = \sum_{s=t}^{T} \left(r_s^u - r_s^i + \mu_s \right) ds + e_{T+1} \quad (3)$$

Therefore, although it is initially framed as an interest parity condition, the equation ultimately determines the trajectory of exchange rate movements over time. According to this formulation, the greater the country risk, the more its currency is expected to depreciate. Additionally, the expected depreciation is influenced by e_{T+1}, representing the long-run equilibrium exchange rate—something that few models, other than G-Cubed, are capable of explicitly solving.

The final type of risk premium in the model appears as the household risk premium. As discussed earlier, when households make decisions related to human capital investment, they discount the expected future income streams to their present value using the interest rate augmented by a household-specific risk premium. This intertemporal decision-making process regarding human capital accumulation by households is captured through the following optimisation framework (Formula 4).

$$H_t = \int_t^{\infty} (1 - \tau_1)(W(L^G + L^C + L^I + \sum_{i=1}^{12} L^i) + TR)\, e^{-(R(s)+\mu(s)-n)(s-t)}\, ds \quad (4)$$

When households grow more concerned about the future—believing that the value of their human capital might decline due to a lower present value of future income—they tend to reduce their current consumption. As a result, given their existing income level, savings would increase. In essence, when the global environment is perceived as riskier, individuals are more inclined to save.

Monetary Policy in G-Cubed Model

Table 1. Parameters in the Henderson-McKibbin-Taylor Rule by Country

Country	β_1	β_2	β_3	β_4	β_5
United State	1	0	1.5	0	1.5
Japan	1	0	1.5	0	1.5
Germany	1	0	1.5	0	1.5
United Kingdom	1	0	1.5	0	1.5
France	1	-1000	1.5	0	1.5
Italy	1	-1000	1.5	0	1.5
Rest of EU	1	-1000	1.5	0	1.5
Canada	1	0	1.5	0	1.5
Australia	1	0	1.5	0	1.5
Rest AE	1	0	1.5	0	1.5
Korea	1	0	1.5	0	1.5
Turkey	1	0	1.5	0	1.5
China	1	-1	1.5	0	1.5
India	1	0	1.5	0	1.5
Indonesia	1	0	1.5	0	1.5
Other Asia	1	0	1.5	0	1.5
Mexico	1	0	1.5	0	1.5
Argentina	1	0	1.5	0	1.5
Brazil	1	0	1.5	0	1.5
Russia	1	0	1.5	0	1.5
Saudi Arabia	1	-1000	0	0	0
South Africa	1	0	1.5	0	1.5
ROW	1	0	1.5	0	1.5
OPC	1	0	1.5	0	1.5

Source: *G-Cubed* Model (version 149G)

Monetary policy often follows the Henderson-McKibbin-Taylor (HMT) rule (Henderson & McKibbin 1993; Taylor 1993). However, in G-Cubed, a modified version of the HMT rule is used, which was primarily designed after the global financial crisis (post-GFC). The modified equation for the interest rate is expressed as Formula 5.

$$i_t{}^d = i_{t-1} + \beta_1(\pi_t - \pi_t{}^T) + \beta_2\left(\Delta y_t - \Delta y_t{}^T\right) + \beta_3\left(\Delta e_t - \Delta e_t{}^T\right) + \beta_4(ny_t - n^T) + \beta_5(m_t - m_t{}^T) \quad (5)$$

The equation indicates that the desired nominal interest rate is the sum of the previous period's nominal interest rate, the difference between actual and target inflation, the gap between actual and target output changes, the discrepancy between actual and desired exchange rate adjustments, and the growth in nominal income and money supply relative to the target. While this equation is consistent across all countries, each central bank customizes it by adjusting the parameters, as outlined in Table 1.

Considering central banks confront a choice between minimizing output and inflation deviation from their planned rates, these factors place the weight on those variables that allow them to attain their desired interest rate.

RESEARCH METHOD

The main focus of this study is to unravel the various impacts of a loss of confidence in the global economy. Specifically, it seeks to examine the macroeconomic and sectoral reactions to a crisis in confidence, modeled through risk shocks. As discussed earlier, the G-Cubed model incorporates three primary forms of risk. The shock is initially assumed to result in an increase in country risk premiums in the ABTR economies, but due to its contagion effect, it also leads to a rise in equity risk premiums across sectors and household risk worldwide. The 5% increase in country risk premia and 4% sectoral risk increase were determined based on historical episodes of financial distress in emerging markets, particularly in ABTR. Historical cases, such as the 2014 Russian sanctions, the 2015-2016 Brazilian downturn, and the 2018 Turkish crisis, demonstrate substantial increases in risk perception, supporting the calibration of our shock scenario. Table 2 provides a more detailed presentation of the major shock scenario.

Table 2. Shock Scenario in 2016 Onwards

	Increase from Baseline (%)	Countries
Country risk premia	5	Argentina, Brazil, Turkey, Russia
Equity risk by sector:		
- Energy	4	All countries
- Mining	4	
- Agriculture	4	
- Durable manufacturing	4	
- Non-durable manufacturing	4	
- Services	4	
Household risk premia	4	All countries

The baseline year for this study is 2015, and all results will be shown as percentage changes from this baseline. The selection of 2015 as the baseline year in the G-Cubed model is primarily due to data availability and consistency. The model

requires comprehensive and harmonized economic data to accurately calibrate its parameters, and 2015 is the most recent year for which such detailed data sets are fully available across all included countries and sectors. The next part will go over the simulation findings, concentrating primarily on the nations from whence the risk shocks emanated. In the next part, it also attempts to give insight on the larger spillover impacts on other EMEs and advanced economies.

RESULTS AND DISCUSSION

Impact of Crisis of Confidence in ABTR Economies

ABTR economies, having faced three separate shocks, are expected to experience the most significant consequences from the crisis of confidence. This section focuses on the impact of the rising equity risk shock. A permanent increase in equity risk temporarily lowers Tobin's Q in these countries, but it eventually returns to its baseline in the long run, as shown in Figure 1. The higher equity risk causes a sharp sell-off in shares, driven by a significant increase in the required return on capital. Capital-intensive sectors are hit hardest by this shock, while labor-intensive industries benefit from the reduced capital stock, in line with the Rybczynski Theorem, assuming other factors remain unchanged. Table 3 shows the capital-output ratio and the sectoral contributions in ABTR economies.

In Argentina, the durable manufacturing sector, being the most capital-intensive, saw the sharpest drop in Tobin's Q immediately following the 2016 shock. In contrast, mining and non-durable manufacturing sectors, which are more labor-intensive, showed notable gains compared to the baseline. In Brazil, the mining sector, the most labor-intensive, was the only one to benefit from the confidence crisis, with Tobin's Q rising over 50% above the baseline in 2016.

Table 3. Capital-Output Ratio and Sectoral Contribution to Output in ABTR Economies

Country		Sector					
		1	2	3	4	5	6
Argentina	K-L Ratio	0.980	0.174	1.279	0.637	0.910	0.897
	% Output	4.08%	0.52%	28.56%	7.21%	20.51%	39.12%
Brazil	K-L Ratio	1.553	1.985	1.041	0.858	1.085	0.461
	% Output	3.18%	1.18%	30.32%	7.67%	23.30%	34.36%
Turkey	K-L Ratio	3.264	4.606	1.775	2.944	2.070	0.998
	% Output	2.30%	0.86%	24.29%	7.02%	35.38%	30.17%
Russia	K-L Ratio	4.068	1.559	1.269	1.031	0.792	3.013
	% Output	24.29%	1.38%	20.36%	3.93%	15.60%	34.44%

Source: Input-Output Table (version G2011)

However, this short-term gain was temporary, as the sector's Tobin's Q is expected to decline permanently in the long term. Russia and Turkey exhibited similar trends, with most sectors experiencing a temporary decrease in Tobin's Q, although Russia's energy sector was less impacted by the loss of confidence.

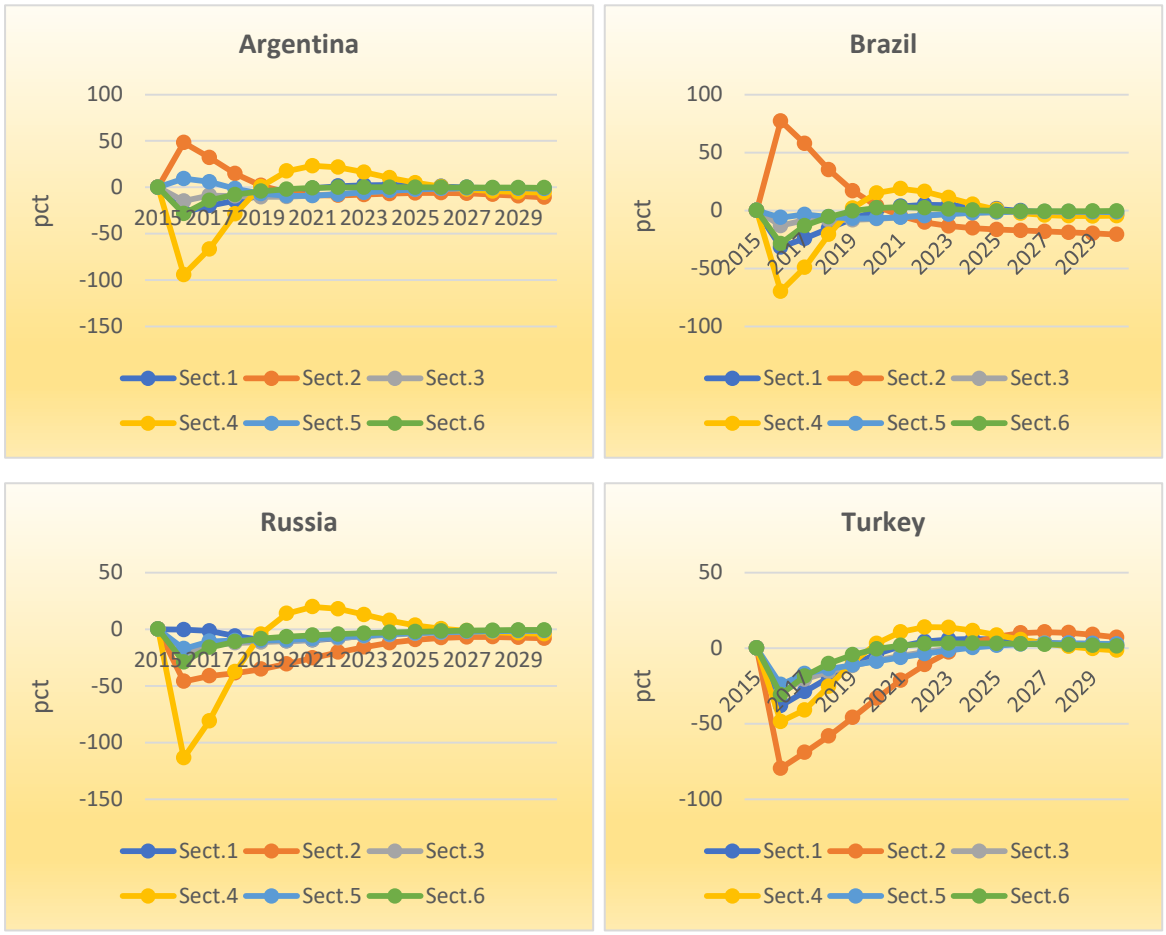

Figure 1. Impact on Tobin's Q in ABTR's capital market (TOB) 2015-2030

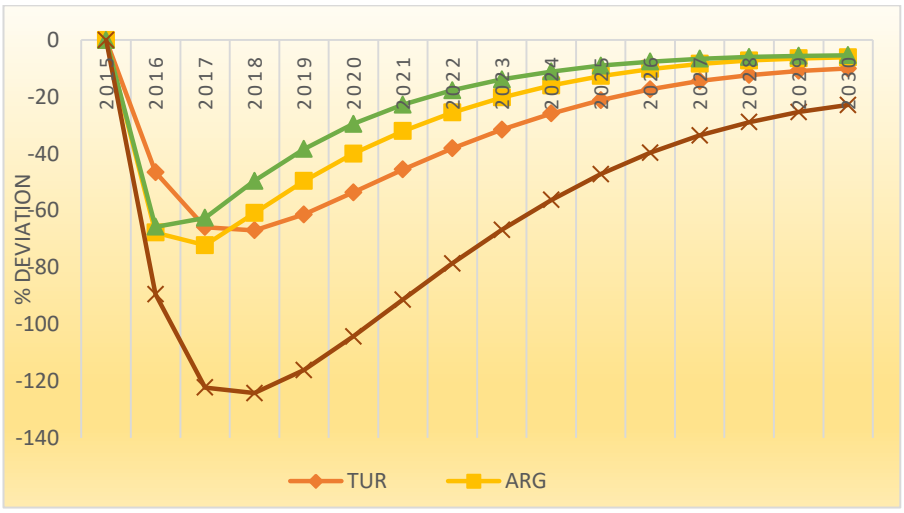

Figure 2. Impact on total capital goods demanded in ABTR (INVT) 2015-2030

Higher equity risk premia suggest that the existing capital stock exceeds what is necessary to meet the required marginal product of capital, which is likely to dampen investment. Additionally, the sharp rise in country risk premia is expected to trigger a sudden decline in investment, as capital flows out of these economies. Figure 2 shows

that all ABTR countries faced a significant reduction in capital stock between 2016 and 2017, resulting in overshooting investment. As these economies recover, adjustment costs cause capital stock to stabilize at a permanently lower level than the baseline. Among the affected countries, Russia saw the largest drop in investment, with capital demand falling by more than 120 percentage points below the baseline in 2017. In the long run, Russia is projected to experience the most substantial permanent decline compared to the other countries.

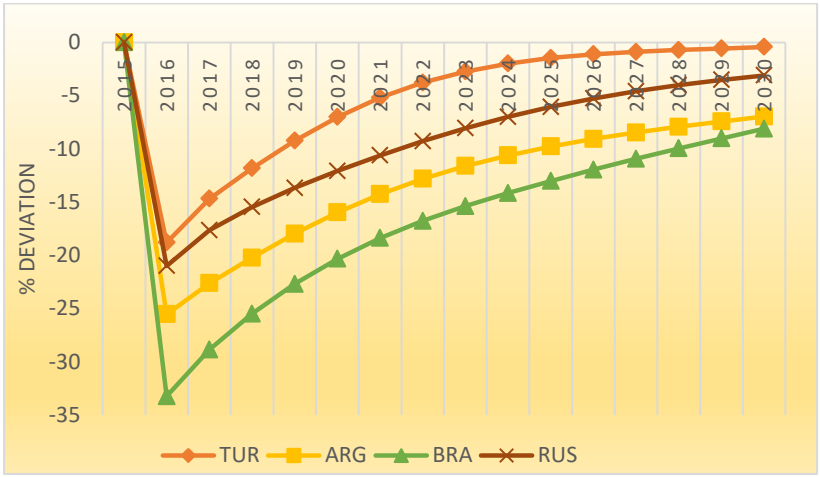

Figure 3. Impact on trade-weighted real exchange rate in ABTR (REER) 2015-2030

A rise in countries' risk premia drives a significant capital outflow as they move their money to safer assets. As demonstrated in Figure 3, this massive outflow of capital lowers the supply of foreign currency in ABTR nations while raising the demand for foreign-denominated assets, hence depreciating their local currencies immediately. In 2016, Brazil faces the sharpest depreciation at nearly 35%, followed by Argentina at 25%, and Russia and Turkey with about 20%. Among these countries, Turkey is the only one where the currency regains strength over time as confidence returns, while the others experience a sustained decline in their real exchange rates in the long run. This may be due to Turkey's aggresive monetary policy response, as well as improvement in its trade balance.

The loss of confidence in holding equities leads to an increase in bond prices, which in turn causes real interest rates to decrease in the countries where the confidence shocks originated. Figure 4 illustrates the dynamics of interest rates in ABTR countries, breaking down the desired nominal interest rate in the short run (INPN) from the policy interest rate (INTN) and the real risk-adjusted interest rate (INTR).

The graphs show that in the long run, real interest rates will remain higher across all countries as the marginal product of capital stays elevated while economies recover from the crisis in confidence. This situation is constrained by real economic conditions, where the central bank is unable to intervene. In contrast, the short-term real interest rate is mainly influenced by the central bank's implementation of the Taylor monetary rule, as indicated by the desired interest rate. Central banks can maintain nominal interest rates in the short term, so real interest rates are primarily driven by expectations about inflation. As will be shown later, GDP and inflation move in opposite directions, meaning central bank actions lead to a real interest rate that dampens fluctuations in actual rates.

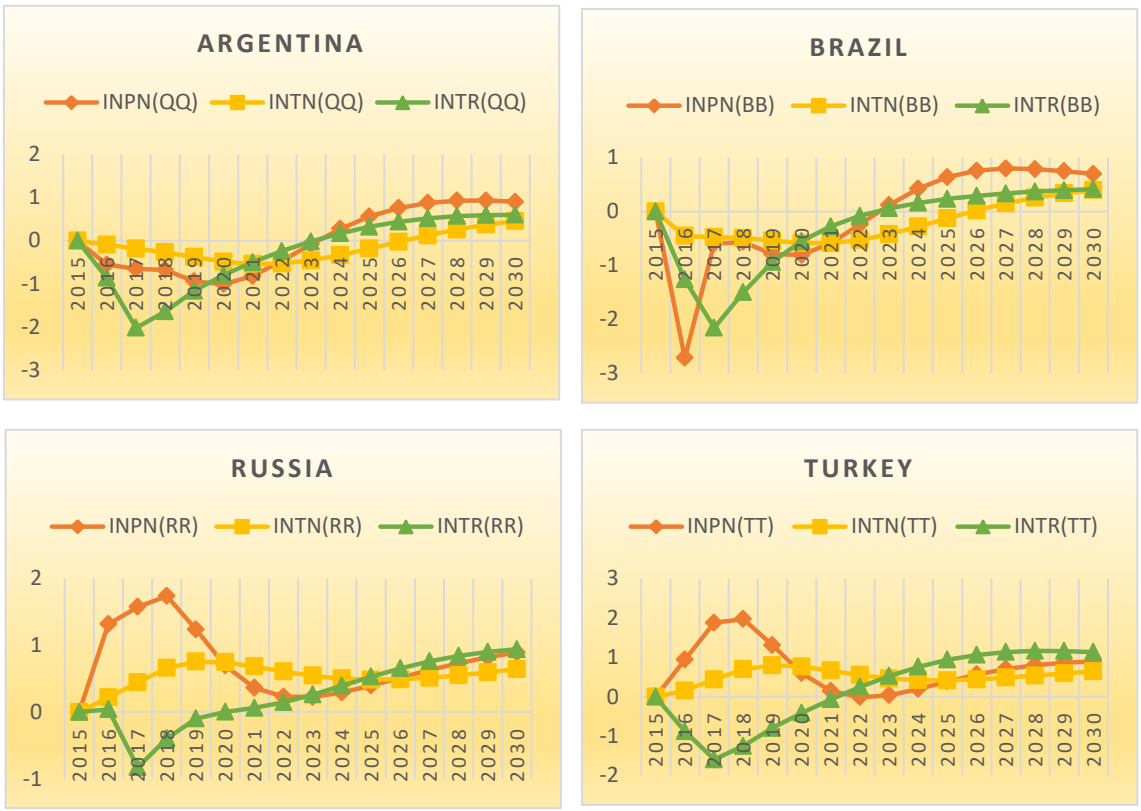

Figure 4. Impact on interest rate in ABTR (INTN, INPN, INTR) 2015-2030

Due to the reduction in capital stock caused by the rise in country risk premiums, ABTR countries face a significant contraction in real GDP, which remains lower in the long term (see Figure 5). Real GDP drops sharply by around 5% in Turkey and about 8% in other ABTR countries. Russia is expected to experience the steepest decline in real GDP by 2023, falling by approximately 18% below baseline levels, and it is projected to remain at the lowest point relative to the other countries.

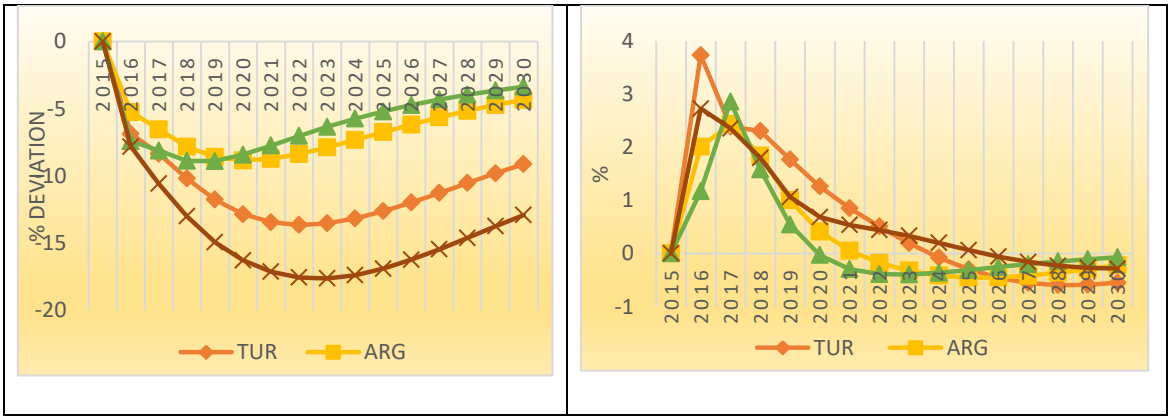

Figure 5. Impact on real GDP in ABTR (GDPR) 2015-2030

Figure 6. Impact on inflation rate in ABTR (INFL) 2015-2030

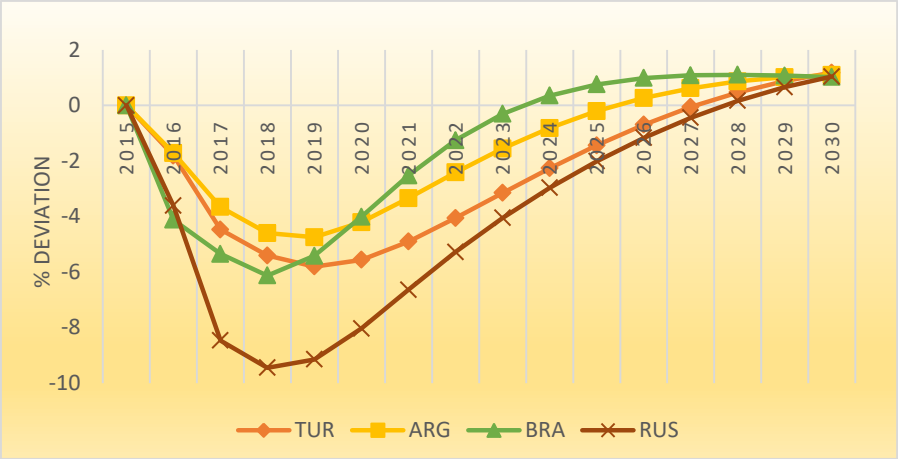

Figure 7. Impact on employment in ABTR (LABO) 2015-2030

The confidence crisis, in contrast, leads to a rise in inflation by more than 2 percent, primarily due to the depreciation of the real exchange rate (see Figure 6). The increase in inflation is largely driven by the higher cost of imports across all ABTR economies, as can be seen in Figure 8. Although inflation deviates from baseline levels for several periods following the shock, it eventually converges back to its original level in the long run. This convergence is the result of central banks' monetary policy actions, which adjust short-term real interest rates, as described earlier.

Additionally, employment in ABTR economies declines as a consequence of the reduced marginal product of capital (see Figure 7). Similar to the declines in output and investment, Russia experiences the most significant rise in unemployment. However, over time, the economy begins to recover as real wages decrease due to the reduced capital stock available for production. With less capital, labor productivity declines, leading to lower real wages, which eventually enables workers to regain employment in the long run.

Another significant shock faced by ABTR countries is the increase in household risk, which causes a decrease in consumption and an increase in savings, given current income (see Figure 9). The heightened household risk makes households more concerned about the future, leading to a reduction in the present value of future income. Russia is expected to experience the smallest drop in consumption, at about 20 percent below baseline levels by 2026. Turkey follows with a 17 percent reduction, Argentina at 10 percent, and Brazil with a 5 percent decrease during the same period.

Despite the negative macroeconomic conditions in ABTR countries, these nations experience a significant trade surplus, driven by substantial capital outflows that lead to a depreciation of the real exchange rate. Among them, Russia benefits the most, achieving a surplus approximately 18 percent higher than its GDP in 2016 (see Figure 10). However, this surplus is short-lived, and as business confidence gradually recovers, the trade balances of all countries are expected to converge back to their long-term equilibrium, a process that will take over 30 years.

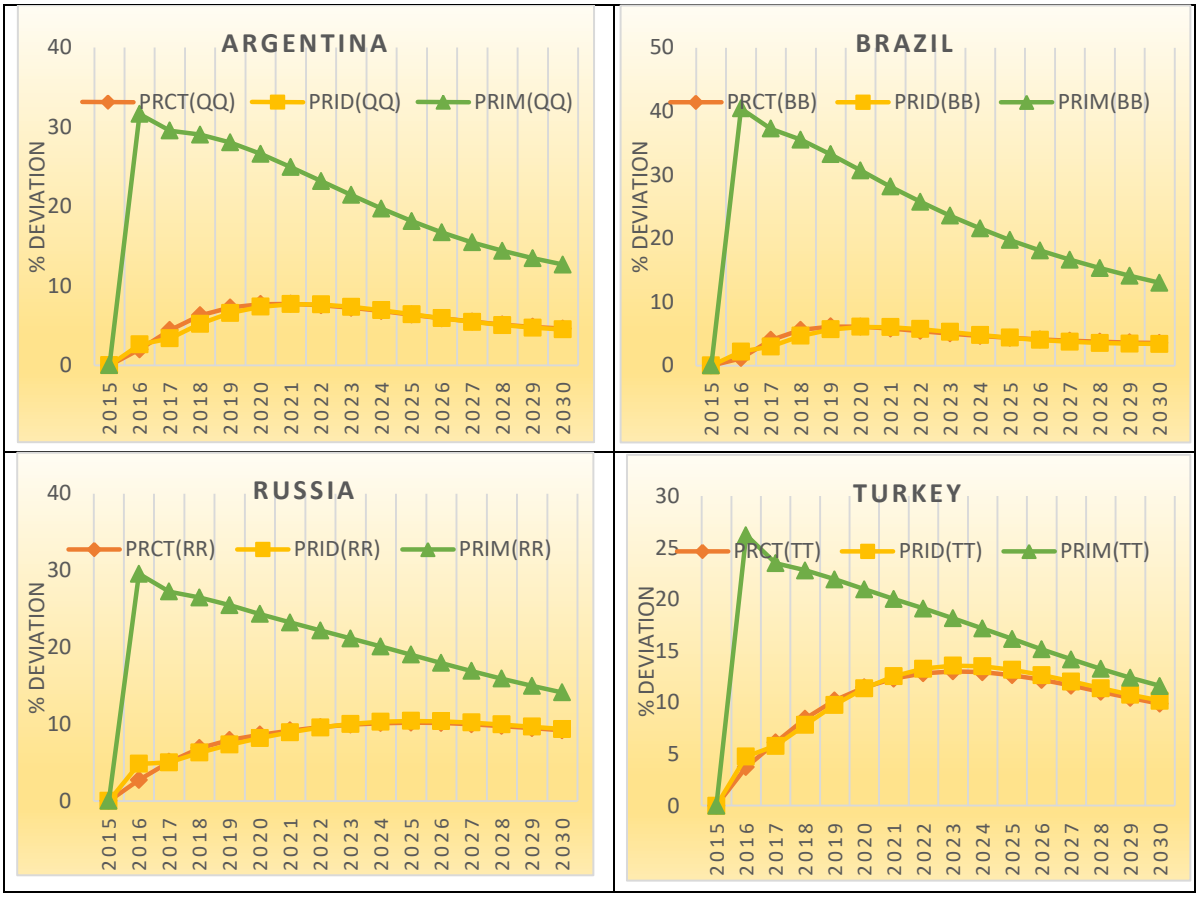

Figure 8. Impact on aggregate price of consumer goods, weighted price of domestic output and weighted price of imports in ABTR (PRCT, PRID, PRIM) 2015-2030

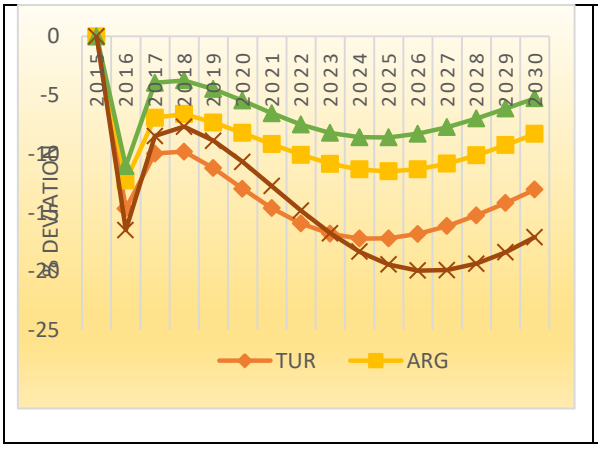

Figure 9. Impact on consumption in ABTR (CONP) 2015-2030

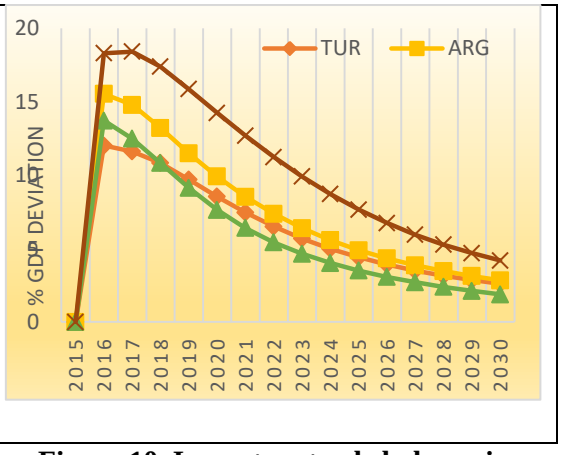

Figure 10. Impact on trade balance in ABTR (TBAL) 2015-2030

The Effects of Losing Confidence to The Rest of The World

Some other emerging economies faced a crisis of confidence as a result of contagion. Some significant developing nations, such as China and Saudi Arabia, cut their capital stock by little more than 4% from the baseline, which is considerably less than the drop in capital stock in ABTR countries (see Figure 11). several EMEs, such as Brazil, Indonesia, several Asian nations, and Mexico, are also experiencing increased

investment as a result of capital flows from ABTR. This aligns with previous studies, such as Forbes and Rigobon (2002), which suggest that capital reallocations during financial crises can create divergence among emerging markets, where some economies become destinations for risk-averse capital.

Moreover, it appears that the industrial performance is not much impacted by the increased risk of owning stock because the majority of industries in these nations are rather labor intensive. This is consistent with Calvo, Leiderman, and Reinhart (1996), who found that the structure of emerging market economies plays a crucial role in their resilience to financial shocks. On the other hand, declining investment has a negative impact on nearly all advanced countries, which raises the risk of owning stock in all industries (see Figure 12). Among them, Japan experiences the most severe decline in investment due to large capital outflows, which persist even in the long run. In developed countries, most economic sectors are capital-intensive, making them more vulnerable when investor confidence collapses at the onset of the shock. However, unlike the ABTR economies, which experience a permanent decline in capital stock, the reduction in investment in other parts of the world is only temporary. As business confidence begins to recover, these countries actually see an increase in investment relative to the baseline, with the exception of Japan and a few other nations in the rest of the world. This pattern supports the observations of Broner et al. (2013), who noted that global capital flows tend to revert as uncertainty diminishes, restoring investment in previously affected markets.

The increase in ABTR risk premia, which triggers capital outflows, causes the real exchange rate to appreciate in many emerging markets and some advanced economies as more capital flows out of ABTR (see Figures 14 and 15). Countries like Indonesia and Mexico, which serve as primary investment destinations, experience significant real exchange rate appreciation of about 5-6 percent above the baseline relative to the US. Conversely, Japan faces the most severe impact from the crisis, as a large portion of its capital stock flows out, leading to a sharp depreciation of the yen. In the long run, while the real exchange rate stabilizes in most countries, Japan's yen remains at a lower level compared to the baseline.

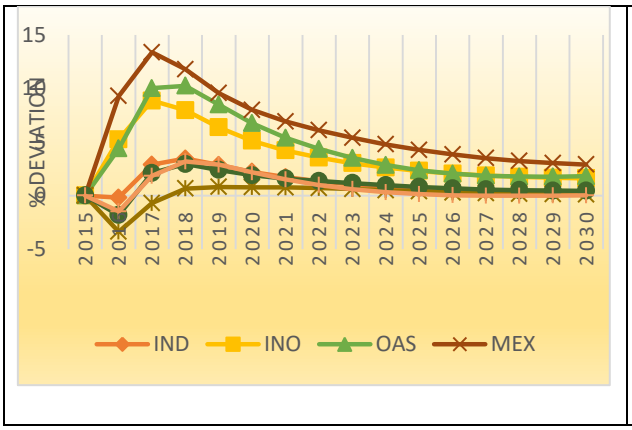

Figure 11. Spillover effect on total capital goods demanded in other EMEs (INVT) 2015-2030

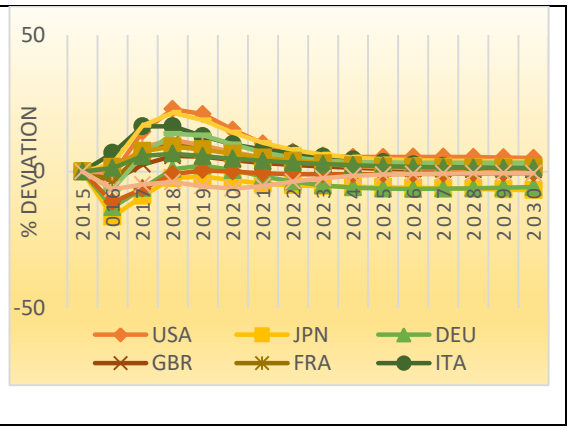

Figure 12. Spillover effect on investment in non-EMEs (INVT) 2015-2030

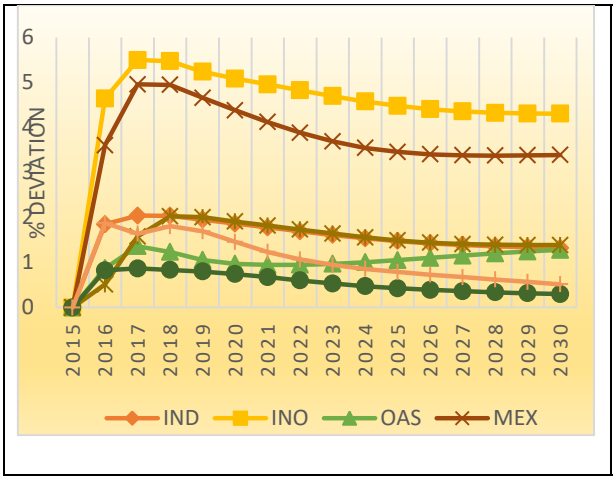

Figure 13. Spillover effect on trade-weighted real exhange rate in other EMEs (REER) 2015-2030

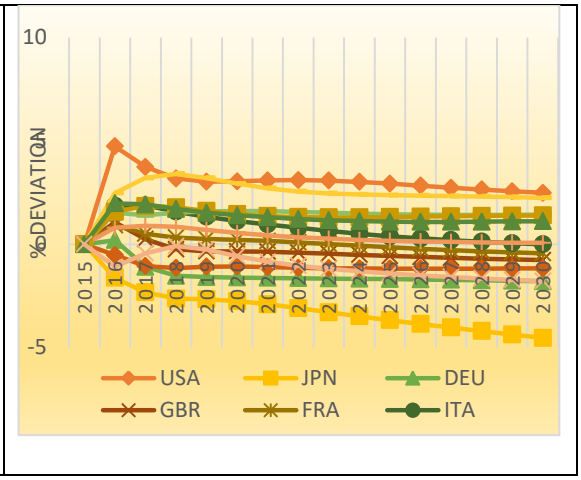

Figure 14. Spillover effect on trade-weighted real exchange rate in non-EMEs (REER) 2015-2030

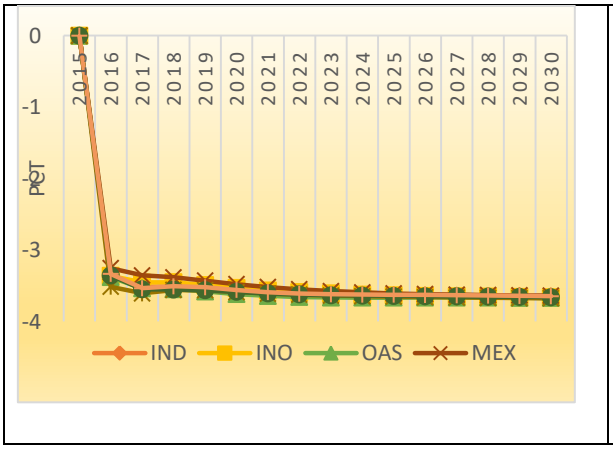

Figure 15. Spillover effect on real interest rate in other EMEs (RB10) 2015-2030

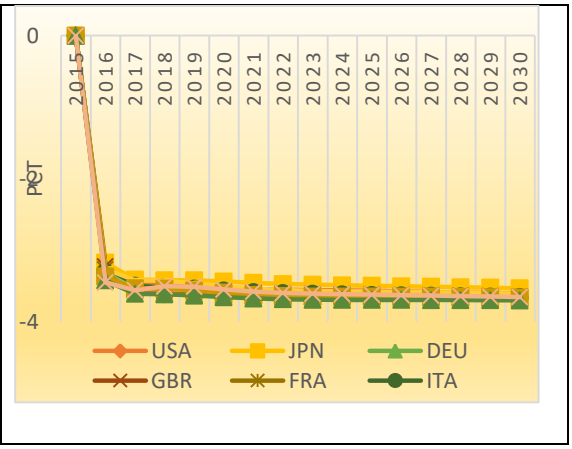

Figure 16. Spillover effect on real interest rate in non-EMEs (RB10) 2015-2030

The equity risk shocks lead to a shift in investments from equities to other domestic assets, such as government bonds, housing, and imported assets. This shift drives up the prices of government bonds, significantly lowering real interest rates. Both emerging market economies (EMEs) and advanced countries experience a permanent decline in real interest rates due to the equity risk shock (see Figures 15 and 16). As investment decreases, both groups of countries face short-term contractions in real GDP (see Figures 17 and 18). However, in the long run, as global confidence returns and investment picks up, emerging economies see an expansion in real GDP, which is significantly higher than most advanced economies. Inflation rates in the rest of the world initially drop but begin to converge back to baseline levels within five years after the shock (see Figures 19 and 20).

Similar to the ABTR countries, employment in both advanced and developing countries deteriorates due to a decrease in the marginal product of capital (see Figures 21 and 22). As real wages decline over time because of reduced capital stock available for production, the worsening employment situation is gradually corrected within two years following the shock. In contrast to ABTR economies, however, consumption only experiences a brief dip due to rising household risks in all countries (see Figures 23 and

24). After 2020, most emerging markets, particularly Mexico, Indonesia, and other Asian countries, see a notable increase in consumption, rising by 4 percent above baseline levels. Unfortunately, this trend does not extend to major advanced economies like the US, Japan, Germany, and OEC countries, where consumption remains permanently lower due to the increased emphasis on future value over the present, driven by heightened household risks.

Finally, the confidence crisis also spills over to affect the trade balance of other countries (see Figures 25 and 26). As most developing countries see their currencies strengthen relative to the US dollar, they experience trade deficits during the shock, although they gradually return to steady states in the long run. In advanced countries, the spillover effects on trade balances show mixed outcomes. Some countries, such as the US, Japan, and Germany, benefit from trade surpluses for several years, while others face trade deficits and end up with lower balances in the long term compared to baseline levels.

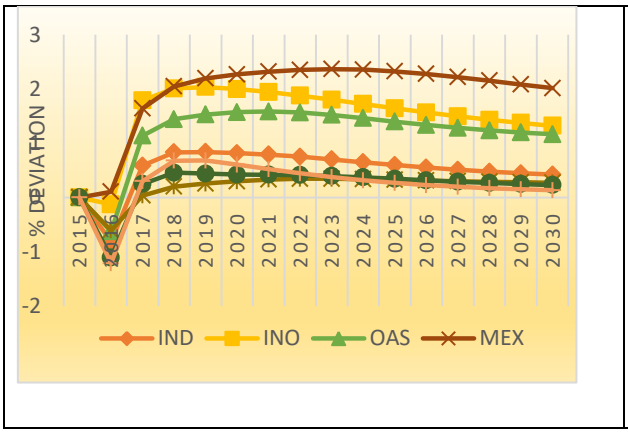

Figure 17. Spillover effect on real GDP in other EMEs (GDPR) 2015-2030

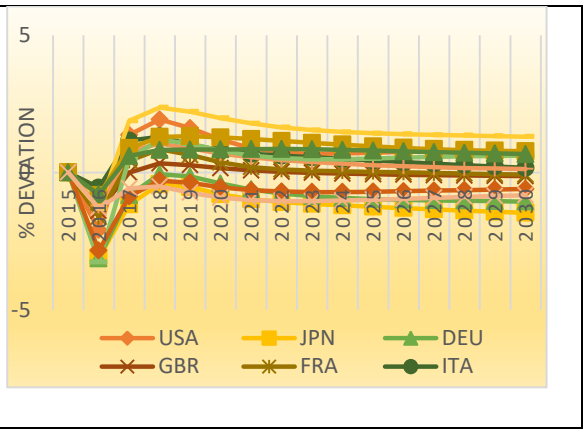

Figure 18. Spillover effect on real GDP in non-EMEs (GDPR) 2015-2030

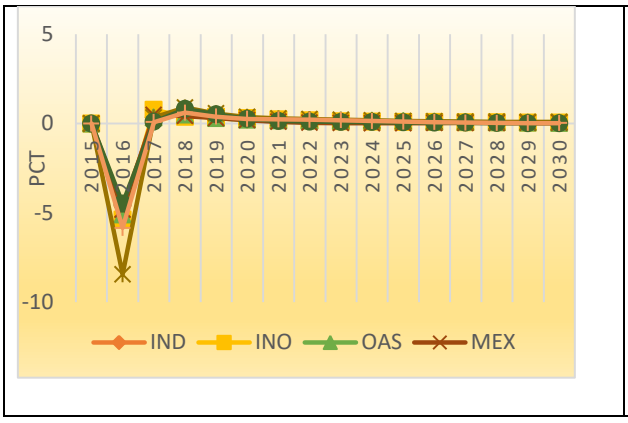

Figure 19. Spillover effect on inflation rate in other EMEs (INFL) 2015-2030

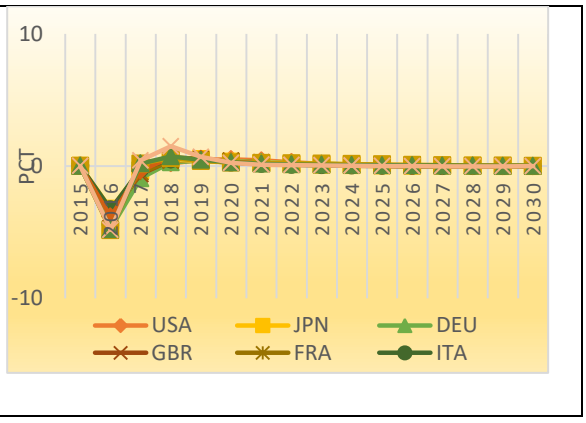

Figure 20. Spillover effect on inflation rate in non-EMEs (INFL) 2015-2030

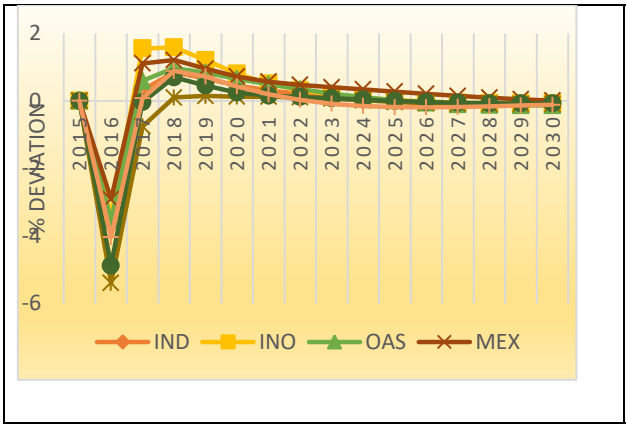

Figure 21. Spillover effect on employment in other EMEs (LABO) 2015-2030

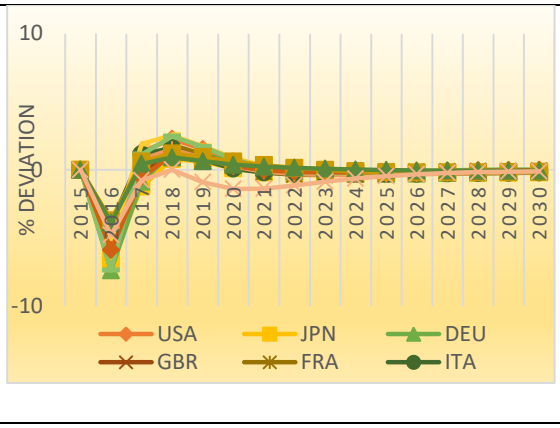

Figure 22. Spillover effect on employment in non-EMEs (LABO) 2015-2030

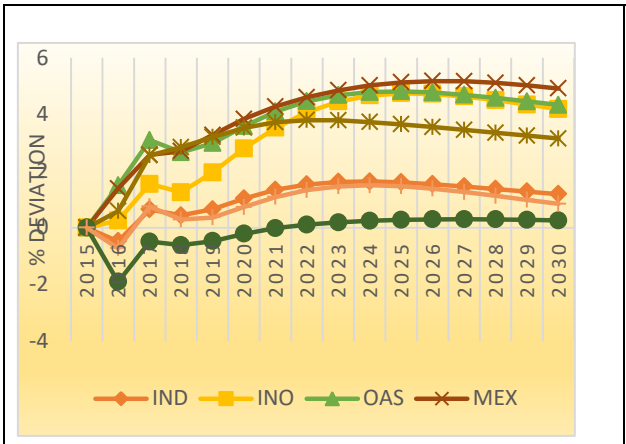

Figure 23. Spillover effect on consumption in other EMEs (CONP) 2015-2030

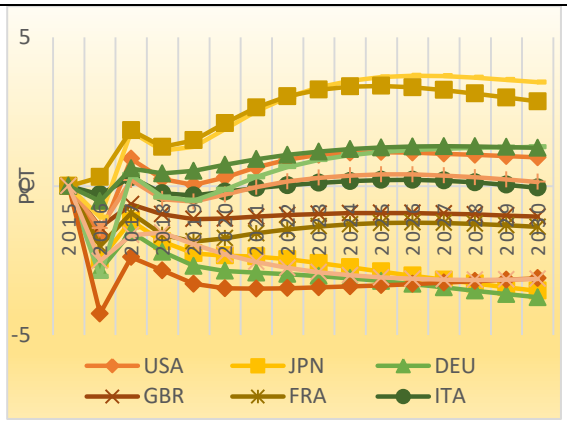

Figure 24. Spillover effect on consumption in non-EMEs (CONP) 2015-2030

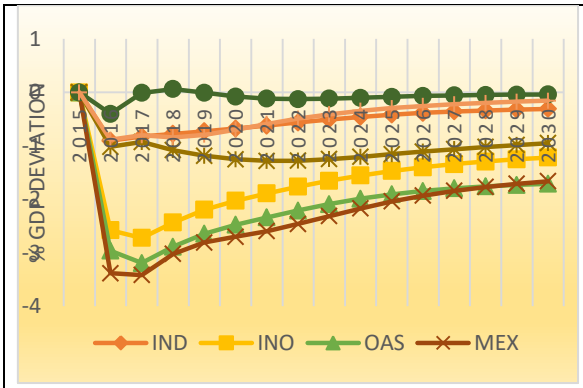

Figure 25. Spillover effect on trade balance in other EMEs (TBAL) 2015-2030

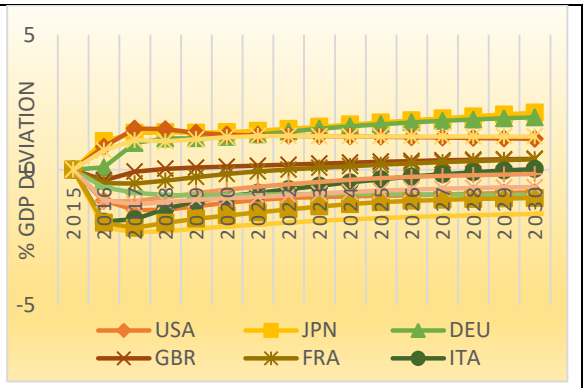

Figure 26. Spillover effect on trade balance in non-EMEs (TBAL) 2015-2030

CONCLUSION AND SUGGESTION

This paper explores the global impact of a confidence crisis in major emerging market economies (EMEs), particularly how rising investment and consumption risks

spread across countries. The simulation results highlight that a global reassessment of risk significantly affects both emerging and developed economies, with the most severe consequences in the countries where the crisis begins. Capital outflows from these markets drive up the cost of capital, leading to a reduction in investment and capital stock, a process that may last for years. At the same time, households, perceiving higher risks, adjust their expectations of future income, which boosts savings and reduces consumption, further intensifying the disinvestment cycle.

While developed and unaffected developing economies benefit from higher capital inflows, they face challenges like worsened trade balances and an appreciating exchange rate, which exacerbate output contractions. Ultimately, the results emphasize that trade openness and capital mobility are key to stabilizing economies. Policymakers should prioritize managing risk effectively instead of imposing capital controls, which could disrupt vital stabilizing mechanisms. Emerginig economies should focus on strengthening macroprudential policies, improving investor confidence through credible monetary and fiscal frameworks, and diversifying capital sources. Advanced economies, on the other hand, should enhance coordination in monetary policy responses and establish global safety nets to mitigate spillover effects.

While this study provides valuable insights into the contagion effects of confidence crises in emerging markets using the G-Cubed model, there are areas for further exploration. Future research could extensd the analysis by testing alternative shock intensities or exploring variations in key model assumptions to assess the sensitivity of results. Additionally, while the standard G-Cubed framework is well-established, incorporating alternative financial models could provide a comparative perspective on the dynamics of capital flows and investment responses. These extensions would further enhance the robustness and applicability of the findings.

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