KMAN PUBLISHING INSTITUTE

**Article history:**
**Received 20 January 2026**
**Revised 07 April 2026**
**Accepted 14 April 2026**
**Initial Publication 15 April 2026**
**Final Publication 01 December 2026**

**Journal of Resource Management and Decision Engineering**

**Volume 5, Issue 6, pp 1-19**


# Modeling the Mechanisms and Consequences of Credit Shocks, Including Shocks to Deposit Profit Rates and Bank Loan and Credit Interest Rates, and Financial Shocks, Including Asset Price Shocks, Using a Dynamic Stochastic General Equilibrium Model

Mohammad. Ranjbari[1], Hossein. Izadi[2*], Hossein. Jahangirnia[3], Majid. Zanjirdar[4]

[1] Department of Industrial Management, Qo.C., Islamic Azad University, Qom, Iran
[2] Department of Accounting and Management, ISI.C., Islamic Azad University, Tehran, Iran
[3] Department of Accounting, Qo.C., Islamic Azad University, Qom, Iran
[4] Department of Finance, Ar.C., Islamic Azad University, Arak, Iran

*** Corresponding author email address**: Izadi@iiau.ac.ir

A r t i c l e  I n f o

**Article type:**
*Original Research*

**How to cite this article:**
Ranjbari, M., Izadi, H., Jahangirnia, H., & Zanjirdar, M. (2026). Modeling the Mechanisms and Consequences of Credit Shocks, Including Shocks to Deposit Profit Rates and Bank Loan and Credit Interest Rates, and Financial Shocks, Including Asset Price Shocks, Using a Dynamic Stochastic General Equilibrium Model. *Journal of Resource Management and Decision Engineering*, 5(6), 1-19.
https://doi.org/10.61838/kman.jrmde.281



A B S T R A C T

The objective of this study is to investigate the transmission mechanisms and macroeconomic effects of credit shocks (including deposit and lending rate shocks) and financial shocks (including asset price shocks) on key macroeconomic variables in Iran within a dynamic stochastic general equilibrium framework. This study employs a quantitative and analytical approach based on a dynamic stochastic general equilibrium (DSGE) model tailored to the structural characteristics of the Iranian economy. The model incorporates key sectors including households, firms, the banking system, government, and the external sector, allowing for the integration of financial frictions, credit markets, and asset price dynamics. Empirical support is provided through descriptive-comparative analysis across selected countries and time-series analysis for Iran over the study period. Key variables include financial development indicators (such as trading value to GDP, number of listed firms, turnover ratio, bank deposits, private sector credit, and market capitalization), macroeconomic indicators (real GDP, inflation, consumption, investment), and nominal variables (interest rates, exchange rates, liquidity). Bivariate regressions and correlation analyses are used to examine relationships between financial variables and macroeconomic performance. The findings indicate that higher levels of financial development are positively associated with real per capita income and negatively associated with inflation across countries. In Iran, financial market expansion and increased liquidity are positively correlated with consumption, investment, and GDP, while also showing a positive but weaker relationship with inflation. Banking sector development and private sector credit exhibit a positive relationship with real economic performance and an inverse relationship with inflation. Asset price shocks and financial market growth significantly influence macroeconomic variables through wealth, expectations, and financing channels. Additionally, liquidity growth and exchange rate fluctuations are found to be strongly associated with financial market dynamics, indicating the presence of intertwined nominal and real transmission mechanisms. The study concludes that credit and financial shocks play a fundamental role in shaping macroeconomic dynamics in Iran, with both banking and capital market channels jointly influencing economic performance.

***Keywords:*** *Credit Shocks, Financial Shocks, DSGE Model, Monetary Policy, Financial Development, Inflation, Economic Growth, Iran*

## 1. Introduction

Understanding how credit and financial shocks propagate through the macroeconomy has become one of the central concerns of modern monetary and financial economics. The experience of recurrent banking stress, asset-price misalignment, inflationary episodes, exchange-rate volatility, and abrupt shifts in the stance of monetary policy has made clear that macroeconomic fluctuations cannot be adequately explained without explicit attention to the financial system and its interaction with the real economy. In this context, shocks to deposit rates, lending rates, and asset prices are not isolated financial events; rather, they are mechanisms that alter intertemporal choices, firms' financing costs, household portfolio allocation, bank balance-sheet behavior, and the overall strength of aggregate demand. Recent studies increasingly show that monetary tightening, credit-supply disturbances, and episodes of financial stress reshape output, employment, inflation, and investment through both traditional interest-rate channels and broader balance-sheet, expectations, and risk-taking channels (Batool et al., 2022; Djatche, 2025; Olajide & Temidayo, 2022; Pezeshki et al., 2025). This broad analytical shift has encouraged the use of integrated structural frameworks capable of jointly tracing real, nominal, and financial interactions under uncertainty.

The theoretical and empirical literature has gradually moved from viewing money and credit as passive intermediaries toward treating the financial system as an active transmitter and amplifier of shocks. Earlier macro-financial work often focused on the bank lending channel and its effect on borrowing conditions, especially for firms and households that depend heavily on external finance. More recent research, however, shows that the transmission process is richer and includes financial frictions, credit spreads, heterogeneous balance-sheet conditions, asset-price expectations, risk premia, and nonlinearities across business-cycle states. Evidence on the real effects of the bank lending channel demonstrates that lending shocks can materially influence production, investment, and employment (Gutiérrez et al., 2021; Jiménez et al., 2020). Studies on quantitative easing and unconventional policy also reveal that shifts in monetary stance modify lending behavior and credit allocation, thereby affecting aggregate activity through banking and portfolio-rebalancing channels (Rodnyansky & Darmouni, 2017). Similarly, work on firm credit during large downturns shows that financial shocks can constrain borrowing capacity, suppress investment, and magnify recessions, especially when firms rely on fragile funding structures (Caballero et al., 2019; Mehrotra & Sergeyev, 2021). These findings underscore that credit shocks are not merely monetary disturbances; they are structural forces that alter the path of real activity by reconfiguring financing conditions.

A related strand of literature emphasizes the role of financial conditions as a multidimensional state variable summarizing the stance of credit markets, risk appetite, asset valuations, and policy transmission. Financial conditions indices and stress indices have gained prominence because they capture the interaction of interest rates, spreads, liquidity, equity prices, exchange rates, and funding constraints in a way that single indicators cannot. This is particularly relevant in economies where different channels may offset or reinforce one another over time. The construction of such indices has improved the identification of macro-financial shocks and the forecasting of business-cycle turning points (Kapetanios et al., 2018; Yousfani et al., 2025). At the same time, the contrast between business cycles and financial cycles has highlighted that financial booms and busts often operate on different frequencies and magnitudes than standard output fluctuations, implying that credit expansion and asset-price surges can accumulate vulnerabilities long before they appear in conventional macro indicators (Hiebert et al., 2018). This distinction matters for policy design because shocks to deposit and lending rates, or to asset prices, may have delayed but powerful effects through leverage, maturity transformation, and risk accumulation.

The growing recognition of financial amplification has also strengthened interest in frameworks that explicitly integrate nominal rigidities, intertemporal optimization, and stochastic disturbances. Dynamic stochastic general equilibrium models have emerged as a leading tool for this purpose because they connect household decisions, firm behavior, policy rules, and external constraints within a coherent structural system. Once augmented with banking frictions, asset-market imperfections, and open-economy features, DSGE models become particularly useful for studying how monetary and financial shocks jointly affect inflation, output, investment, exchange rates, and welfare. Research on news shocks under financial frictions, for instance, demonstrates that expectations about future fundamentals can be transformed into present macroeconomic fluctuations when credit constraints and financing frictions are binding (Görtz et al., 2022). Likewise, the literature on microeconomic heterogeneity shows that

aggregate responses to shocks depend strongly on the financial position, liquidity, and intertemporal sensitivity of different agents, implying that a representative-agent approach may understate the distributional and aggregate consequences of monetary and credit disturbances (Kaplan & Violante, 2018). These developments reinforce the value of a structural modeling strategy that can incorporate both optimization-based behavior and macro-financial feedbacks.

The importance of this issue is even greater in emerging and middle-income economies, where shallow financial markets, banking-sector dominance, exchange-rate exposure, external debt sensitivity, and fiscal dependence can intensify the transmission of shocks. Empirical evidence from emerging economies suggests that monetary policy disturbances have economy-wide effects that extend beyond inflation to production, investment, and financial-sector behavior (Batool et al., 2022; Olajide & Temidayo, 2022). Credit spreads and corporate borrowing costs in such economies are particularly sensitive to global and domestic shocks, often causing pronounced effects on economic activity when access to finance deteriorates (Caballero et al., 2019). Regional evidence also indicates that economies differ substantially in their capacity to adjust to shocks depending on institutional depth, financial integration, and policy credibility (Furceri et al., 2022). These features are crucial in countries where macroeconomic stability is repeatedly challenged by commodity-price volatility, exchange-rate realignment, inflation persistence, and credit-market segmentation. Under these circumstances, the interplay between deposit rates, lending rates, and asset prices can determine whether monetary policy stabilizes the economy or instead reinforces existing fragilities.

Another dimension that has attracted substantial attention is the effect of policy uncertainty and financial instability on macroeconomic performance. In environments where agents face uncertainty over the future path of monetary policy, exchange rates, or bank regulation, their consumption, saving, borrowing, and pricing decisions may change in ways that intensify volatility. Recent evidence from Iran points precisely to the destabilizing role of uncertainty surrounding monetary and exchange-rate policies, especially for financial stability and economic activity (Pezeshki et al., 2025; Saeedi et al., 2025; Sotoudehnia Karani & Shafi'zad Abkenar, 2025). These studies suggest that policy shocks do not operate only through observed rate changes; they also affect expectations, risk premia, and precautionary behavior. This is particularly relevant in economies where households and firms actively reallocate portfolios among deposits, credit, foreign exchange, and real or financial assets in response to perceived instability. Monetary contractions may alter bank risk-taking, lending standards, and funding composition, thereby changing the direction and strength of the transmission mechanism itself (Djatche, 2025; Hashemi Dizaj & Nazemfar, 2025). The consequence is that a full understanding of macro-financial dynamics requires attention not only to realized shocks but also to how they reshape the incentives and expectations of financial intermediaries and borrowers.

The asset-price dimension of financial shocks deserves equal emphasis. Asset markets affect the macroeconomy through wealth effects, collateral values, signaling, expectations, and the relative attractiveness of alternative forms of saving. Equity-price movements, commodity-sector herding, and shifts in risk appetite can all alter the behavior of investors, firms, and banks, especially when market-based finance interacts with traditional bank lending (Haque & Imam, 2025; Moizz & Akhtar, 2024). Asset-price shocks may stimulate activity by raising collateral values and easing financing constraints, but they may also increase fragility when valuations become disconnected from fundamentals. The relevance of this channel is well established in studies of financial stress and market dynamics, particularly in economies where local fragilities interact with global shocks (Yousfani et al., 2025). In such settings, monetary and asset-market dynamics are tightly linked, making it difficult to separate pure policy shocks from broader financial disturbances. A structural model that embeds asset-price movements alongside deposit and lending rates is therefore necessary for capturing the full range of transmission mechanisms.

In oil-exporting and sanction-prone economies, these issues are further complicated by the interaction between financial shocks and external-sector disturbances. Oil-price volatility, exchange-rate fluctuations, and shifts in foreign funding conditions can affect domestic employment, inflation, and credit allocation, thereby reinforcing the need for an open-economy macro-financial perspective (Pourhashemi & Yousefi, 2024). When external earnings, fiscal resources, and reserve accumulation are closely tied to commodity exports, changes in domestic interest rates or credit conditions may have amplified effects through exchange-rate expectations, import prices, and the balance of payments. At the same time, credit conditions influence firms' ability to adjust production and employment when external shocks occur. Evidence from middle-income settings suggests that credit-supply shocks significantly

affect labor-market outcomes, confirming that financial conditions are tightly connected to the broader real economy (Gutiérrez et al., 2021). These linkages are especially important for Iran, where oil revenues, exchange-rate management, banking intermediation, and inflation dynamics are deeply intertwined and where the macroeconomic effects of financial shocks are likely to be nonlinear and persistent.

The Iranian economy provides a particularly relevant setting for examining these questions. It is characterized by a bank-centered financial system, periodic inflationary surges, exchange-rate realignments, monetary instability, and episodes of financial repression alongside expanding financial-market activity. Domestic research has increasingly stressed that monetary and banking factors play a decisive role in shaping macroeconomic outcomes in Iran, yet there remains insufficient structural modeling of how specific credit and financial shocks work through the economy (Moradlu, 2024; Saeedi et al., 2025; Sotoudehnia Karani & Shafi'zad Abkenar, 2025). Existing studies have explored monetary uncertainty, bank risk-taking, and the consequences of financial instability, but the simultaneous modeling of deposit-rate shocks, lending-rate shocks, and asset-price shocks within a unified DSGE structure remains limited (Hashemi Dizaj & Nazemfar, 2025; Pezeshki et al., 2025). This gap is important because the Iranian economy is influenced by both traditional credit frictions and broader financial-market movements, and the relative importance of these channels may shift over time. A model that ignores either banking conditions or asset prices would therefore offer an incomplete account of macroeconomic transmission.

Moreover, while the literature has shown that financial development and policy incentives matter for performance in different institutional contexts, the channels are not identical across sectors or countries. For example, studies of finance and innovation show that policy interventions can alter the link between credit availability and productive transformation, suggesting that financial shocks may have long-run as well as short-run consequences (Irfan et al., 2022). Even works outside core macro-finance, such as research on monetary incentives in financial institutions, illustrate that rate structures and reward mechanisms influence behavior in ways that can aggregate upward into wider economic effects (Rincey & Sunita, 2024). These insights reinforce the importance of examining the mechanisms, not just the outcomes, of monetary and financial shocks. In the Iranian context, where financial repression, directed credit, administered rates, and fluctuating asset valuations coexist, a mechanism-based structural analysis is essential for distinguishing temporary disturbances from persistent macroeconomic consequences.

Against this background, the need for a coherent analytical framework is clear. The central challenge is not merely to document whether monetary tightening reduces inflation or whether asset-price booms coincide with higher output, but to explain how shocks to deposit profit rates, bank lending and facility rates, and asset prices are transmitted across households, firms, banks, government, and the external sector. A DSGE approach is well suited to this task because it allows the modeler to specify optimizing agents, production technology, nominal rigidities, capital accumulation, policy behavior, and external-sector constraints in a single system. Such a framework can identify how changes in deposit rates influence saving and liquidity preference, how lending-rate shocks alter firm financing and investment, and how asset-price movements reshape wealth, collateral, and expectations. It can also accommodate fiscal-monetary interactions, oil-sector dynamics, and exchange-rate effects that are especially relevant in the Iranian economy. In this sense, the analysis contributes to the broader literature on monetary policy shocks, financial frictions, and macroeconomic instability while responding to the specific institutional characteristics of an emerging, bank-dominated, oil-exporting economy (Furceri et al., 2022; Görtz et al., 2022; Jiménez et al., 2020; Mehrotra & Sergeyev, 2021; Rodnyansky & Darmouni, 2017).

The aim of this study is to model the mechanisms and macroeconomic consequences of credit shocks, including shocks to deposit profit rates and bank loan and facility interest rates, and financial shocks, including asset-price shocks, by using a dynamic stochastic general equilibrium framework tailored to the structural features of the Iranian economy.

## 2. Methods and Materials

This study was designed as a quantitative, structural, model-based macroeconomic investigation grounded in the dynamic stochastic general equilibrium framework. The research does not rely on human participants in the survey or experimental sense; rather, the “participants” of the model are the representative economic agents and institutional sectors whose optimizing behavior generates equilibrium outcomes. The economy is specified as an open-economy New Keynesian DSGE system with nominal rigidities,

intertemporal optimization, and stochastic disturbances. The main agents embedded in the model are households, intermediate-goods firms, final-goods firms, the central bank, the government, and the foreign sector. Households maximize expected lifetime utility subject to intertemporal budget and capital accumulation constraints. Intermediate producers hire labor and rent capital under perfect competition in factor markets, while operating under monopolistic competition in goods markets and facing price adjustment costs. Final-goods producers combine domestic and imported intermediates through a constant-elasticity aggregation technology. The central bank supplies money and domestic bonds and manages foreign reserves, while the government finances expenditure through oil revenues and transfers associated with the central bank. The external sector enters through export demand, imports, foreign bonds, foreign prices, foreign output, and exchange-rate dynamics.

The structural design of the model follows the standard logic of DSGE analysis in which preferences, technologies, institutional constraints, and policy relations are explicitly derived from microfoundations. The purpose of this design is to trace the transmission of shocks to deposit rates, lending rates, and asset prices through the real, monetary, fiscal, and external sectors of the economy. In this framework, long-run equilibrium and short-run adjustment are analyzed within one internally consistent system. The model is therefore appropriate for studying the mechanisms through which credit disturbances influence consumption, investment, labor supply, prices, external balances, and aggregate output. Because the model is intended to reflect the institutional and structural realities of the Iranian economy, several assumptions were adopted accordingly, including the role of oil revenues, the importance of central bank foreign assets, exogenous export and import prices in international markets, and the presence of foreign borrowing with a risk premium.

The empirical foundation of the study consists of macroeconomic time-series data used to calibrate, estimate, or discipline the structural parameters and steady-state ratios of the DSGE model. The data required for the model include real output, non-oil output, household consumption, gross investment, government expenditure, domestic price indices, imported-goods prices, export prices, nominal wages, the nominal exchange rate, real money balances, domestic interest rates, deposit profit rates, lending and banking facility rates, foreign interest rates, domestic and foreign bond positions, oil revenues, foreign reserves, and trade balance components. Since the model explicitly incorporates both real and nominal sectors, data series must be transformed into forms consistent with equilibrium conditions, including real ratios, growth rates, inflation rates, log deviations from steady state, or seasonally adjusted levels where appropriate.

The model equations themselves serve as the primary analytical instrument, while the observed macroeconomic series function as the empirical counterpart for parameterization and validation. In applied DSGE work, simple functional forms are typically chosen for preferences and technologies, and the present study follows that convention by employing separable utility, Cobb–Douglas production, constant-elasticity aggregators, and quadratic adjustment costs. The theoretical block of the model is supported by national accounts data, banking-sector rate series, monetary aggregates, fiscal indicators, and balance-of-payments variables. The practical data-processing tools in this type of study generally include filtering, log-linearization around the deterministic steady state, parameter calibration from institutional and empirical evidence, and numerical solution of the rational expectations system. Thus, the "tools" of data collection and preparation are not questionnaires or field instruments, but official macroeconomic datasets, national monetary and fiscal statistics, external-sector statistics, and the formal equilibrium conditions derived from the model.

The endogenous and exogenous variables of the model are organized across the production, household, policy, and external blocks. In the production sector, the main variables include domestic intermediate output $y_{Ht}(i)$, export intermediate output $y_{xt}(i)$, aggregate non-oil production $Z_t$, final output $Y_t$, capital $K_t$, labor $L_t$, real rental rate of capital $r_t$, nominal wage $W_t$, domestic intermediate-goods price $P_{Ht}(i)$, export price $P_{xt}(i)$, imported-goods price $P_{Ft}$, and the consumer price index $P_t$. In the household block, the core variables are consumption $C_t$, real money balances $M_t/P_t$, domestic bonds $B_t$, foreign bonds $B_t^*$, investment $I_t$, transfers $T_t$, and the stochastic discount factor. In the policy block, the central variables include the stock of money $M_t$, domestic public bonds, foreign reserves $q_t$, government expenditure $G_t$, oil revenues $O_t$, and the quasi-fiscal transfer $QF_t$. In the external block, the essential variables are the nominal exchange rate $s_t$, foreign price level $P_t^*$, foreign output $Y_t^*$, foreign interest rate $i_t^*$, exports, imports, net exports $NX_t$, current account $CA_t$, and the balance-of-payments identity. The shock processes include technology shocks, preference shocks, oil revenue shocks, government expenditure shocks, deposit-rate shocks, loan-rate shocks,

and asset-price shocks, each modeled as autoregressive stochastic processes.

The representative intermediate-goods firm maximizes the expected present value of profits. In compact form, the intertemporal objective can be written as

$$\max E_t \sum_{n=0}^{\infty} p_{t,t+n}\ \omega_{H,t+n}(i),$$

where $p_{t,t+n}$is the stochastic discount factor and $\omega_{Ht}(i)$denotes period profit. Current profit is defined as revenue from domestic and export sales net of factor costs and price adjustment costs:

$$\omega_{Ht}(i) = P_{Ht}(i)y_{Ht}(i) + s_t P_{xt}(i)y_{xt}(i) - r_t K_t - W_t L_t - AC_{Ht}(i).$$

To capture nominal rigidity, the Rotemberg price adjustment cost is introduced as a quadratic cost:

$$AC_{Ht}(i) = \frac{\psi_p}{2}\left(\frac{P_{Ht}(i)}{P_{H,t-1}(i)} - 1\right)^2 Y_t,$$

where $\psi_p$measures the intensity of price stickiness. The discount factor used by firms is linked to household marginal utility:

$$p_{t,t+n} = \beta^n \frac{U_{C,t+n}}{U_{C,t}},$$

with $\beta$denoting the subjective discount factor and $U_{C,t}$the marginal utility of consumption.

Production technology in the intermediate sector is represented by a Cobb–Douglas function:

$$Z_t = A_t K_t^{\alpha} L_t^{1-\alpha},$$

where $A_t$is total factor productivity, $\alpha$is the output elasticity of capital, and $1-\alpha$is the output elasticity of labor. Technology follows a first-order autoregressive process:

$$\ln A_t = (1-\rho_A)\ln \bar{A} + \rho_A \ln A_{t-1} + \varepsilon_t^A.$$

The equality of factor prices and marginal products implies the standard optimality conditions:

$$r_t = \alpha \frac{Z_t}{K_t}, \frac{W_t}{P_t} = (1-\alpha)\frac{Z_t}{L_t},$$

which together determine the equilibrium capital–labor ratio. Price setting under nominal rigidity yields a New Keynesian Phillips-type relation linking domestic inflation to expected future inflation and real marginal cost.

Final-goods production combines domestic and imported intermediate goods through a CES aggregator:

$$Y_t = \left[\theta^{\frac{1}{\mu}} Y_{Ht}^{\frac{\mu-1}{\mu}} + (1-\theta)^{\frac{1}{\mu}} Y_{Ft}^{\frac{\mu-1}{\mu}}\right]^{\frac{\mu}{\mu-1}},$$

where $\theta$represents the share of domestic goods and $\mu$is the elasticity of substitution between domestic and imported goods. Cost minimization generates the demand schedules

$$Y_{Ht} = \theta\left(\frac{P_{Ht}}{P_t}\right)^{-\mu} Y_t, Y_{Ft} = (1-\theta)\left(\frac{P_{Ft}}{P_t}\right)^{-\mu} Y_t,$$

and the consumer price index is obtained as

$$P_t = \left[\theta P_{Ht}^{1-\mu} + (1-\theta)P_{Ft}^{1-\mu}\right]^{\frac{1}{1-\mu}}.$$

The household sector maximizes expected lifetime utility obtained from consumption and real balances and disutility from labor:

$$E_t \sum_{t=0}^{\infty} \beta^t \left[\frac{C_t^{1-\sigma_1}}{1-\sigma_1} + \frac{(M_t/P_t)^{1-\sigma_2}}{1-\sigma_2} - \tau_t \frac{L_t^{1+\sigma_3}}{1+\sigma_3}\right].$$

Here, $\sigma_1$is the inverse intertemporal elasticity of substitution in consumption, $\sigma_2$is the inverse interest elasticity of money demand, $\sigma_3$is the inverse Frisch elasticity of labor supply, and $\tau_t$is a preference shock. The preference shock evolves as

$$\ln \tau_t = (1-\rho_\tau)\ln \bar{\tau} + \rho_\tau \ln \tau_{t-1} + \varepsilon_t^\tau.$$

The household budget constraint includes consumption, investment, bond accumulation, and money holding on the expenditure side, and labor income, capital income, firm profits, bond returns, and transfers on the income side. In real terms, a stylized form is

$$C_t + I_t + AC_{It} + \frac{M_t}{P_t} + \frac{B_t}{P_t} + \frac{s_t B_t^*}{P_t} = \frac{W_t}{P_t} L_t + r_t K_{t-1} + \Pi_t + \frac{(1+i_{t-1})B_{t-1}}{P_t} + \frac{s_t(1+i_{t-1}^*)B_{t-1}^*}{P_t} + T_t.$$

Capital accumulation follows

$$K_t = (1-\delta)K_{t-1} + I_t,$$

where $\delta$is the depreciation rate. Investment adjustment costs are modeled quadratically as

$$AC_{It} = \frac{\psi_I}{2}\left(\frac{I_t}{I_{t-1}} - 1\right)^2 I_t,$$

with $\psi_I$denoting the adjustment-cost coefficient. From household optimization, the Euler equation for consumption is obtained as

$$U_{C,t} = \beta E_t \left[ U_{C,t+1} \frac{P_t}{P_{t+1}} (1 + i_t) \right],$$

which, in log-linearized form, links current consumption to expected future consumption and the real interest rate. Money demand follows from the first-order condition for real balances and is negatively related to the nominal interest rate. Labor supply is pinned down by the intratemporal optimality condition equating the real wage to the marginal rate of substitution between leisure and consumption.

The international asset block is built around foreign bonds and interest parity. In its basic uncovered form, the condition may be written as

$$1 + i_t = (1 + i_t^*) E_t \left( \frac{S_{t+1}}{S_t} \right),$$

but to account for imperfect capital mobility and external borrowing costs, a risk premium is introduced:

$$1 + i_t = (1 + i_t^*) E_t \left( \frac{S_{t+1}}{S_t} \right) \Phi_t,$$

where the premium term depends on the foreign asset position:

$$\Phi_t = \exp \left( \psi_B \frac{B_t^*}{Y_t} \right).$$

This specification implies that external indebtedness affects domestic financing conditions and the exchange-rate channel. Because the study explicitly analyzes credit shocks, additional reduced-form financial shocks can be introduced into the domestic return structure, such as a deposit-rate shock $\varepsilon_t^d$, a lending-rate shock $\varepsilon_t^l$, and an asset-price shock $\varepsilon_t^a$, each following

$$x_t = \rho_x x_{t-1} + \varepsilon_t^x.$$

These shocks enter the model through the relevant pricing or return equations for deposits, loans, and asset valuation and then propagate through household decisions, firm financing conditions, and aggregate demand.

The central bank block is defined through its balance sheet and monetary operations. Money and domestic bonds are liabilities, while foreign reserves constitute the principal asset. The balance-sheet identity may be summarized as

$$M_t + B_t = s_t q_t,$$

under the simplifying assumption of zero net worth in steady state. The central bank can alter liquidity and domestic bond supply through changes in foreign reserves and associated balance-sheet operations. Government behavior is summarized by the budget relation

$$G_t + T_t = QF_t + O_t,$$

where $QF_t$represents transfers from the central bank and $O_t$denotes oil revenue. Both oil revenue and government spending evolve as autoregressive stochastic processes:

$$\ln O_t = (1 - \rho_O) \ln \bar{O} + \rho_O \ln O_{t-1} + \varepsilon_t^O,$$
$$\ln G_t = (1 - \rho_G) \ln \bar{G} + \rho_G \ln G_{t-1} + \varepsilon_t^G.$$

The trade balance is defined as the difference between export revenues and import expenditures:

$$NX_t = X_t + O_t - M_t^{imp},$$

where $X_t$denotes non-oil export revenue and $M_t^{imp}$denotes imports. Goods-market equilibrium requires that aggregate demand equals aggregate supply inclusive of adjustment costs:

$$Y_t = C_t + I_t + G_t + NX_t + AC_{It} + AC_{Ht}.$$

The balance of payments links the current account to external asset accumulation and reserve changes:

$$CA_t = \Delta B_t^* + \Delta q_t.$$

This condition ensures consistency between domestic absorption, external borrowing, reserve changes, and the trade balance. Collectively, these equations define the transmission channels through which deposit-rate shocks, lending-rate shocks, and asset-price shocks affect the macroeconomy.

The analytical procedure was based on the standard DSGE workflow. First, the structural equations of households, firms, the central bank, government, and the external sector were derived from optimization problems, accounting identities, and market-clearing conditions. Second, the deterministic steady state of the model was obtained by imposing the no-shock equilibrium conditions and solving for the long-run values of the endogenous variables. Third, the nonlinear equilibrium system was log-linearized around the steady state to produce a tractable linear rational expectations system with both forward-looking and backward-looking components. This transformation allowed the model to be expressed in state-

space form suitable for numerical solution. Structural parameters were then calibrated or estimated on the basis of theoretical restrictions, institutional characteristics of the economy, and observed macroeconomic moments. Shock processes were modeled as first-order autoregressive disturbances so that the persistence and volatility of technology, policy, fiscal, oil, credit, and asset-price shocks could be examined explicitly.

After solving the model, the main tools of analysis consisted of dynamic simulation, impulse response analysis, and equilibrium interpretation of the shock-transmission mechanisms. Impulse response functions were used to trace the time path of key macroeconomic variables following one-standard-deviation shocks to deposit profit rates, bank lending and facility rates, and asset prices. Special attention was given to the responses of consumption, investment, labor, output, inflation, money balances, exchange rate, trade balance, capital accumulation, and foreign asset positions. Where relevant, the model's equilibrium relationships were also examined under alternative calibrations to evaluate the sensitivity of the results to price rigidity, substitution elasticities, investment adjustment costs, risk-premium strength, and policy persistence. In this way, the data analysis stage did not merely describe historical correlations; rather, it identified the causal structural channels through which credit and financial shocks generate macroeconomic consequences in a theoretically disciplined general equilibrium setting.

## 3. Findings and Results

The findings indicate that the financial sector is meaningfully associated with macroeconomic performance through several complementary channels, including market liquidity, financial deepening, banking-sector expansion, market capitalization, monetary conditions, and the interaction between stock market dynamics and key aggregate variables. The comparative cross-country evidence suggests that economies with broader, deeper, and more active financial markets generally display higher real per capita income and lower inflation, while the time-series evidence for Iran shows that changes in market size, trading activity, liquidity conditions, monetary variables, inflation, exchange rates, and banking rates have moved closely with changes in the real and nominal economy. Taken together, the results support the view that different segments of the financial structure jointly matter for macroeconomic outcomes and that neither the banking sector nor the capital market can be treated as irrelevant to real-sector performance.

**Figure 1**

*Relationships Between Financial Indicators and Real Per Capita Income*

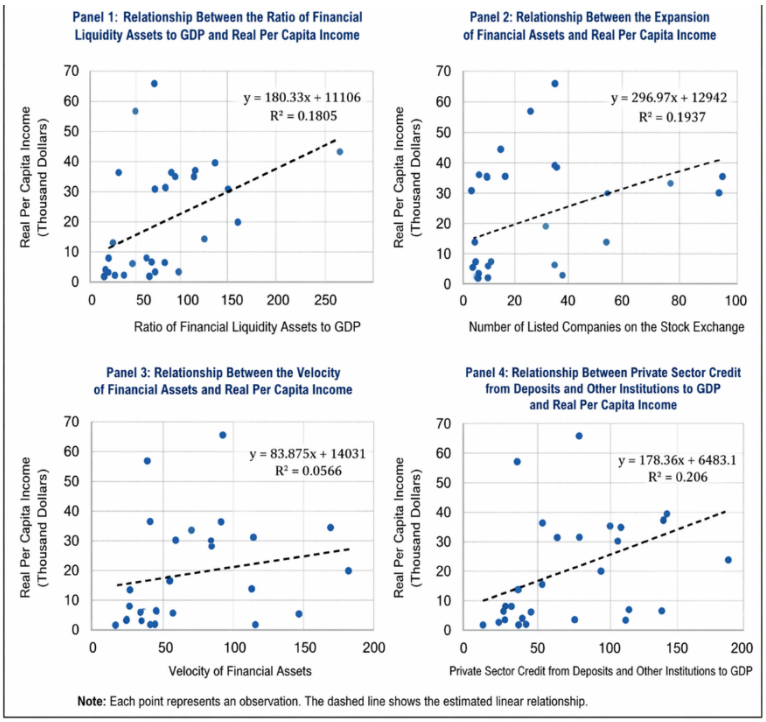

Figure 1 presents the cross-country relationships between major financial development indicators and real per capita income. The ratio of the total value of traded financial assets to GDP is one of the main indicators of liquidity, namely the ease with which financial assets can be bought and sold through electronic payment mechanisms. A larger value of this ratio implies a stronger position for financial assets in the national economy and reflects greater market liquidity. The evidence suggests that the value of transactions in Iran's real sector remains low relative to regional and global averages, implying that there is room for an increase in the liquidity ratio of the real sector so that it can exert a stronger macroeconomic effect. As shown in Figure 1, countries with higher average ratios of traded financial asset value to GDP tend, on average, to exhibit higher levels of real per capita income.

Figure 1 also shows that the number of listed companies is positively associated with real per capita income. The expansion of listed firms can be interpreted as a sign of the development of the real sector, since deregulation, the removal of restrictive rules, and the broader application of commercial law to firms tend to increase listing activity and improve accounting, auditing, transparency, and reporting standards. Once firms are listed, they can access different financing channels, including capital increases, bond issuance, and the attraction of new shareholders and partners, all of which enlarge market size, broaden ownership, and improve portfolio diversification and risk management. The comparative evidence therefore points to a direct relationship between the expansion of listed companies and real per capita income.

In addition, Figure 1 indicates that a higher turnover ratio, defined as the ratio of the value of traded shares to the average current market value, is positively correlated with real per capita income. This indicator captures the speed of circulation of financial assets in the market and the ease with which assets can be transformed into shares and vice versa. Across the study period, the mean (standard deviation) of this ratio was 177 (53) percent for the United States, 20 (7) percent for the world, 19 (9) percent for the Middle East, and 19 (8) percent for Iran. The same figure also shows that credit to the private sector from deposits and other institutions is positively related to real per capita income, indicating that banking and non-bank financial intermediation both remain important for real-sector performance.

**Figure 2**

*Relationships Between Financial Development Indicators, Inflation, and Real Per Capita Income*

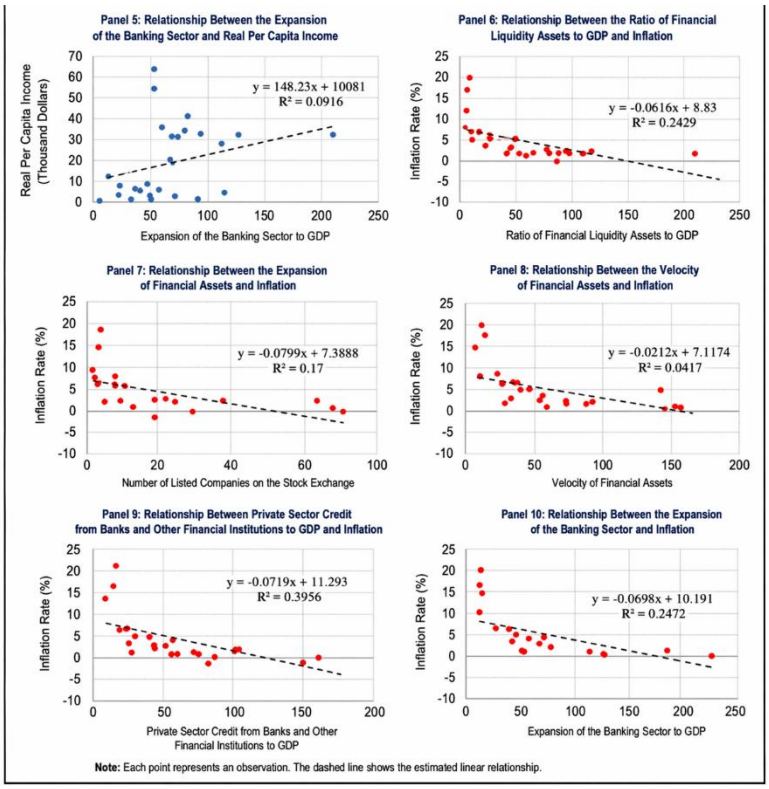

Figure 2 complements the previous evidence by showing that banking development is positively related to real per capita income and negatively related to inflation. The ratio of banking-sector expansion to GDP, which reflects the scale of deposits and banking intermediation, displays a direct association with real income levels across countries. At the same time, higher banking penetration is associated with lower average inflation rates. These findings suggest that a more developed banking system may support real activity while contributing to a more stable nominal environment.

The same figure also shows that the ratio of traded financial asset value to GDP is negatively associated with inflation. Likewise, the number of listed companies, which reflects the expansion of financial assets and the breadth of the market, exhibits an inverse relationship with inflation. A similar negative relationship is observed for the turnover ratio, meaning that economies with more active and liquid financial markets tend to experience lower inflation on average. In other words, greater dynamism in financial asset circulation appears to be associated not only with higher real income, as shown in Figure 1, but also with lower inflation.

Figure 2 further indicates that credit to the private sector from banks and other financial institutions has a negative relationship with inflation. Together with the positive association between private credit and real per capita income shown in Figure 1, this suggests that banking finance matters simultaneously for real expansion and nominal stability. More broadly, the results imply that all components of the financial system matter according to their own functional roles, and that it is not appropriate to suppress or artificially overemphasize one part of the financial structure at the expense of the others.

**Figure 3**

*Relationship Between the Market Value to GDP Ratio, Real Per Capita Income, and Inflation*

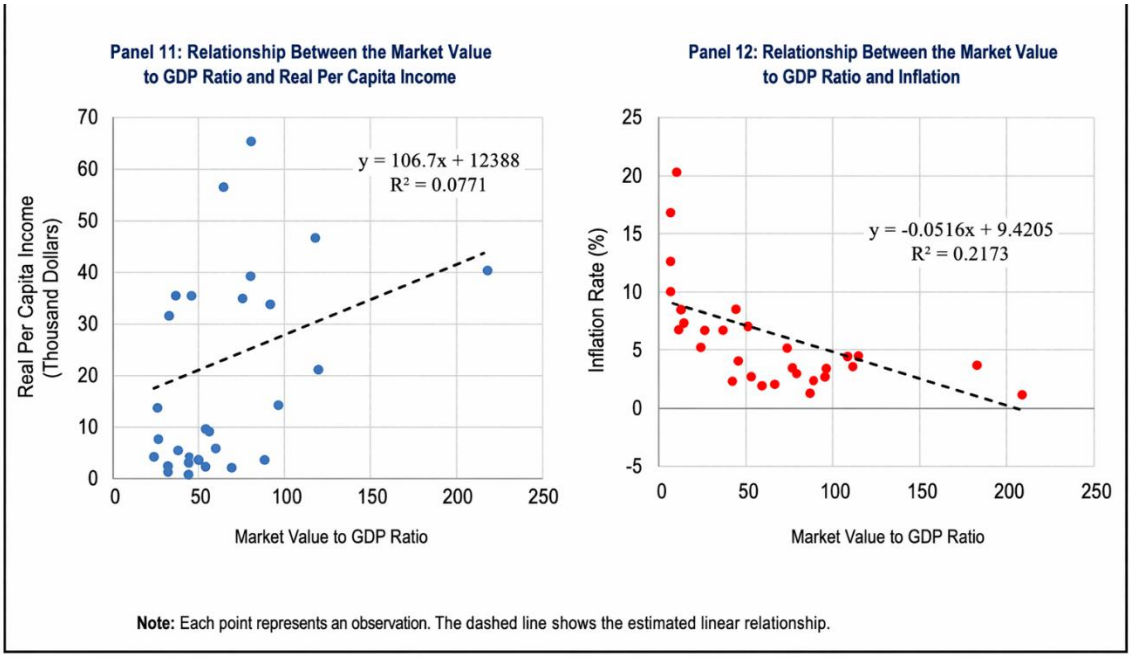


Figure 3 focuses on market capitalization as an indicator of the size of the real sector relative to the overall economy. Market value is one of the most important measures of the scale of the financial market, since it is obtained from the product of the number of traded securities and their current prices. For comparative purposes, the ratio of market value to GDP provides a useful benchmark for evaluating the standing of financial assets across countries and across different market structures.

The results in Figure 3 show a positive relationship between the average market value-to-GDP ratio and real per capita income, along with a negative relationship between the same ratio and inflation. These findings imply that as the size of financial assets expands relative to the national economy, macroeconomic performance tends to improve. In practical terms, larger and deeper markets appear to be associated with better real outcomes and a more favorable inflation environment.

**Figure 4**

*Financial Ratios to GDP*

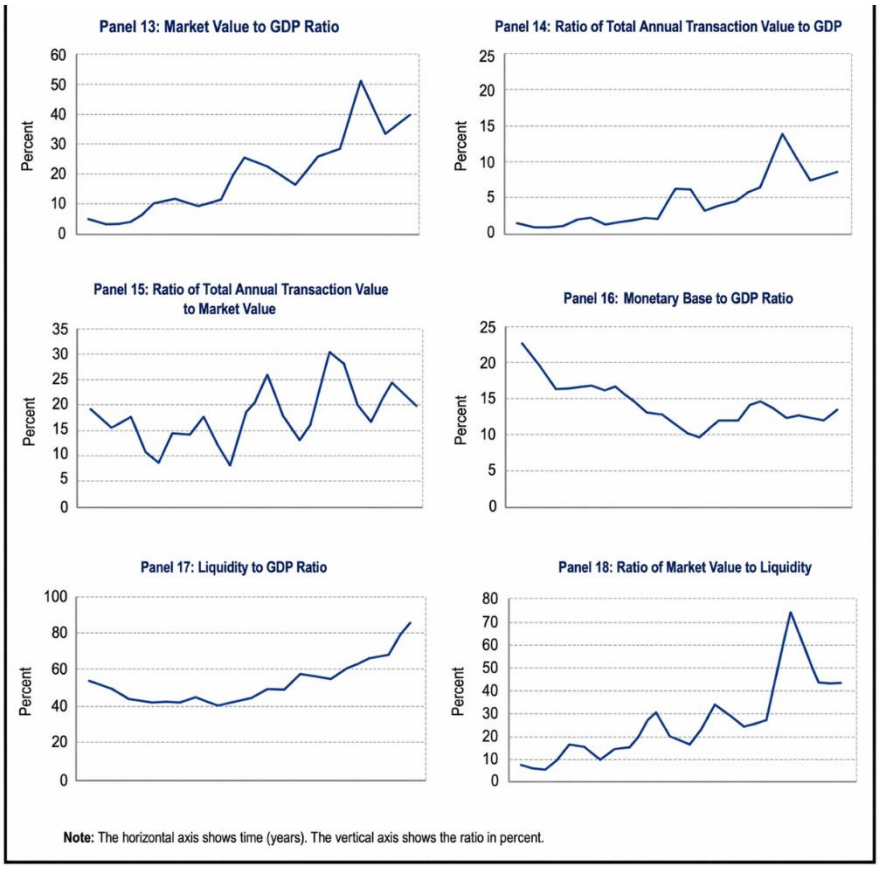


Figure 4 traces the position of financial assets and their links to monetary conditions in Iran over time. The market value-to-GDP ratio displayed an overall upward trend from 1991 to 2020, although with pronounced fluctuations. It fell from about 4.7 percent at the beginning of the period to 2.7 percent in 1993, then rose to about 11.5 percent by 1996 in the context of economic liberalization. As the consequences of adjustment policies became visible in subsequent years, including inflation rising to 49 percent and higher nominal exchange rates, uncertainty increased and investment security weakened, contributing to a decline in the ratio to around 7.5 percent by 1998. From 1998 to 2002 the ratio recovered gradually, and in 2003 it rose by more than 110 percent relative to the previous year to around 25 percent, remaining near that level through 2004. This improvement appears to have been linked to better macroeconomic conditions, including lower inflation and unemployment. From early 2005 to late 2008, however, the market value-to-GDP ratio lost more than half its value and fell to around 12 percent.

From 2009 to late 2018, a long expansion phase took place in financial assets, driven by several factors, some of which were mutually inconsistent with the broader economic and political environment. Over this period, the market value-to-GDP ratio rose from 12 percent to above 51 percent, with an average geometric annual growth rate of about 26.8 percent. Among the likely contributors were the launch of Iran Fara Bourse with simpler listing and trading mechanisms, the implementation of privatization policies under Article 44, energy price liberalization and targeted subsidy reform, rising domestic prices and exchange rates following international sanctions, increases in global oil and metal prices in some years, and episodes of speculative momentum combined with monetary and fiscal disorder. From the middle of 2018 onward, when severe stagflation emerged, output growth turned sharply negative, inflation exceeded 30 percent, global oil and metal prices fell substantially, and tighter monetary and fiscal policies were adopted, the ratio declined to around 34 percent in 2019. By 2020, with some reduction in inflation, stronger policy discipline, easing of international tensions, and better

prospects for oil production and foreign investment, the ratio increased again to roughly 40 percent.

Figure 4 also shows that the ratio of total annual transaction value to GDP followed an upward trend over the study period, with fluctuations broadly similar to those of the market value-to-GDP ratio. In years of financial market expansion, this indicator rose, meaning that the share of financial asset transactions in GDP increased; in years of market stagnation, the ratio fell. The ratio of total annual transaction value to market value, which reflects market activity and liquidity, was highly volatile. It fell below 10 percent by 1997, then rose to above 25 percent by 2005, dropped again to around 15 percent by 2007, climbed to a peak of about 30 percent in 2008, and then approached 20 percent by the end of the period. The minimum value of this ratio was 7.4 percent in 1997 and the maximum was 30.6 percent in 2008. Despite this instability, the long-run trend of market activity in Iran's real economy was positive.

The remaining panels of Figure 4 describe monetary depth and the position of financial assets relative to monetary aggregates. The monetary base-to-GDP ratio declined from about 23 percent in 1991 to 9.6 percent by 2004, then gradually increased to 15.5 percent by 2010 and fluctuated thereafter mostly within the 12 to 14 percent range. The liquidity-to-GDP ratio, which is another important indicator of monetary policy stance, fell from 54.6 percent at the beginning of the period to around 41 percent by 2002, then increased gradually through 2008 to 50.8 percent, and rose much faster after 2009, reaching 72.3 percent and 93 percent in 2019 and 2020, respectively. Finally, the ratio of current market value to liquidity, which measures the share of financial assets in society's liquidity stock, followed a strongly upward but highly volatile path. While liquidity-to-GDP was declining up to 2002, the ratio of financial asset value to liquidity increased and reached about 59 percent in 2003. It then fell to a little above 23 percent by 2008, rose again after 2009 to above 75 percent in 2018, and subsequently declined to about 44 percent by 2020.

**Figure 5**

*Key Macroeconomic and Financial Indicators Over Time*

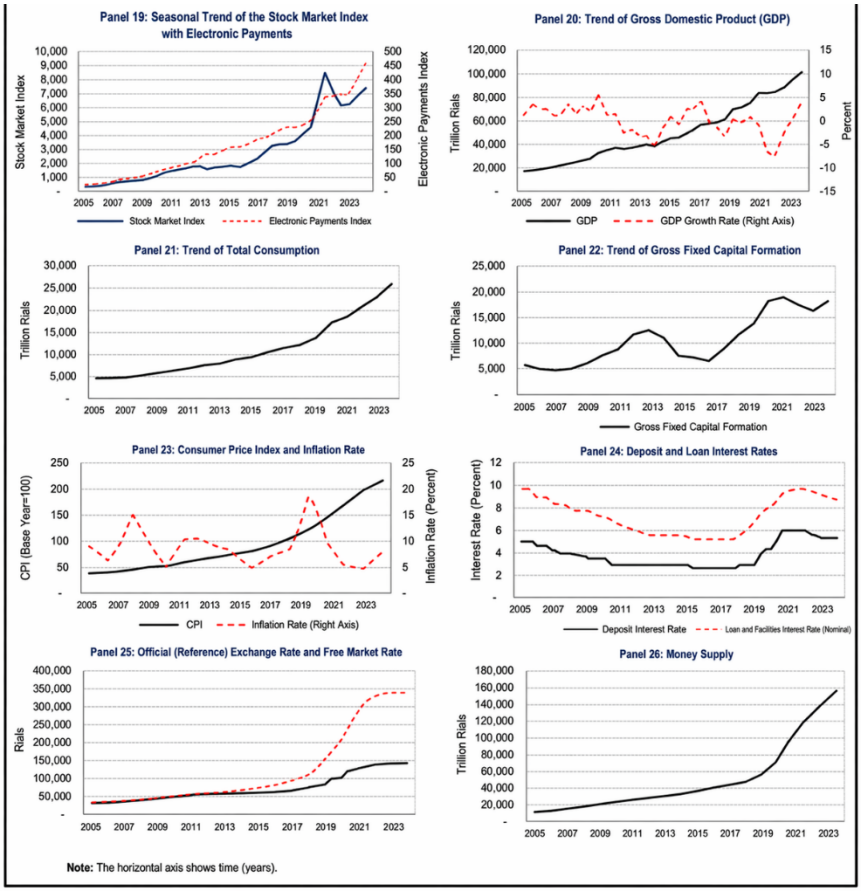

Figure 5 reports the seasonal movements of the stock market index, GDP, total consumption, gross fixed capital formation, the consumer price index, inflation, deposit and lending rates, exchange rates, and money supply. The stock market index, viewed as a summary measure of price changes and cash returns in listed firms, grew gradually from the beginning of the sample until the third quarter of 2004, then followed a mild downward trend until the third quarter of 2008. From late 2008 to the third quarter of 2018, the index rose sharply to around 90 thousand units, after which it entered a deep downturn and fell to roughly 61 thousand units by late 2020. This pattern highlights the importance of stock market indicators as forward-looking measures for investors and as signals of broader economic conditions.

Real GDP, shown in the same figure, had a negative time trend in quarterly growth rates over the sample, even though the geometric and arithmetic means of GDP growth were about 0.95 percent and 1.4 percent, respectively. The volatility range of GDP growth also narrowed in recent years. In contrast, the time trend of growth in the electronic-payments-based stock market indicator was positive, with a geometric mean quarterly growth rate of about 5.4 percent. Given the central role of oil in the economy and in public finance, and the continued dominance of banks in the financing system, it appears that the real sector has not yet been able to influence GDP growth to the degree expected. The evidence suggests that increasing the number of firms and making market-based finance more accessible to small and medium-sized firms could help strengthen output growth.

Figure 5 further shows that real total consumption was one of the most stable components of national expenditure. The geometric and arithmetic means of total consumption growth were approximately 1.19 percent and 1.32 percent, respectively, even though the time trend of quarterly growth was negative. Gross fixed capital formation displayed a positive time trend in growth, with geometric and arithmetic mean quarterly growth rates of about 0.85 percent and 1.8 percent. Meanwhile, capital accumulation in listed firms rose sharply over the sample, from roughly 447 billion tomans at the beginning of the period to about 120 thousand billion tomans by the end of 2020, with an average quarterly growth rate of around 7.7 percent. This suggests that investment expenditures by listed firms can make a meaningful contribution to national capital formation, especially when banks are unable to provide sufficient credit to productive sectors.

The inflation-related panels show that quarterly inflation in Iran was positive in almost all quarters except one late observation in 2005. Local peaks occurred around 1998, 1999, 2008, 2016, and 2018, and the inflation trend accelerated especially between 2014 and 2018. Likely drivers include energy price liberalization, exchange-rate depreciation, higher costs of imported inputs and intermediate goods, international sanctions, increases in global oil prices, the domestic conversion of oil revenues, and monetary expansion. The same figure suggests that the financial market experienced substantial nominal growth during part of this period, implying that a significant portion of the observed increase in the market may have reflected nominal profit and price effects rather than purely real expansion. After 2018, tighter monetary and fiscal discipline coincided with a more erosive and recessionary phase in the market. Quarterly deposit and lending rates averaged about 3.77 percent and 4.78 percent, corresponding to annual averages of roughly 15 percent and 19.1 percent, and the spread between them remained broadly stable, reflecting the fee-based income margin of banks. Official and free-market nominal exchange rates were relatively stable until early 2017, but the free-market rate roughly tripled within four quarters from the middle of 2017 to the third quarter of 2018 under the pressure of sanctions and reduced oil exports, before declining somewhat and then fluctuating around a short-run stable path. Finally, money supply grew exponentially over the period, reflecting limited central bank independence, fiscal reliance on foreign-exchange oil revenues, and the need to convert those revenues into domestic currency.

**Figure 6**

*Correlation Between Logarithms of Macroeconomic Variables and the Logarithm of the Financial Assets Index*

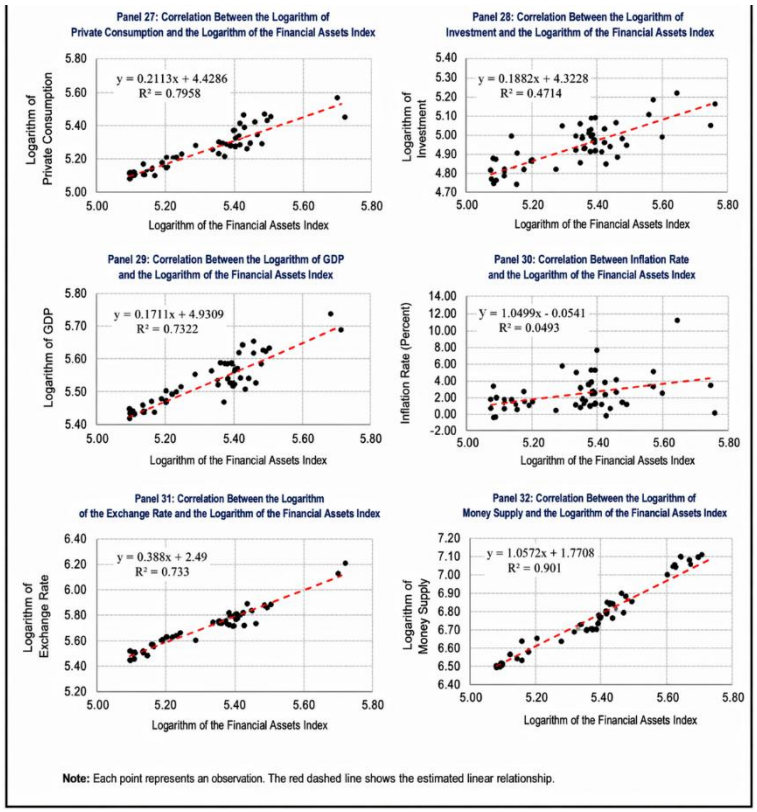


Figure 6 summarizes the bivariate empirical relationships between the financial assets index and key macroeconomic variables in Iran. One of the most visible features of the Iranian economy is the dominant role of banks in financing investment and the still limited weight of the capital market in the wider financial structure. Even so, the evidence from the scatterplots shows that the capital market is not irrelevant. Rather, the financial assets index behaves like a leading indicator that reflects changes in expectations, policy conditions, fundamentals, and unanticipated shocks, and therefore has the potential to influence the optimal decisions of economic agents.

The first three panels of Figure 6 show positive correlations between the logarithm of the financial assets index and the logarithms of private consumption, investment, and GDP. In particular, the estimated relationship indicates that a 1 percent change in the logarithm of the electronic-payments-based financial assets index is associated with a 0.21 percent change in the logarithm of private consumption, with an $R^2$ of about 0.79. Positive associations are also observed for investment and GDP, implying that stronger financial market performance is empirically linked to higher real activity in the Iranian economy.

The remaining panels of Figure 6 show the relationship of the financial assets index with inflation, the exchange rate, and money supply. The inflation panel indicates a positive but comparatively weak relationship, suggesting that inflation has co-moved with the index but with much less explanatory power than the real variables. By contrast, the logarithms of the exchange rate and money supply both show strong positive relationships with the logarithm of the financial assets index. These results are consistent with the broader time-series findings and suggest that the stock market in Iran has been influenced not only by real-sector developments but also by nominal and monetary forces. Overall, the scatterplot evidence reinforces the need for policymakers to pay closer attention to the role and effects of the financial market within Iran's macroeconomic system.

## 4. Discussion and Conclusion

The results of this study show that credit shocks and financial shocks are transmitted to the macroeconomy through several reinforcing channels and that these channels are jointly important for explaining changes in real activity, inflation, liquidity conditions, and the relative role of financial assets in the economy. The comparative evidence

indicated that stronger financial development, measured through higher trading value relative to GDP, a larger number of listed firms, greater turnover of financial assets, stronger private-sector credit provision, deeper banking expansion, and higher market capitalization relative to GDP, was generally associated with higher real per capita income and lower inflation. The time-series evidence for Iran complemented this result by showing that expansions in market size, trading activity, and the share of financial assets in liquidity were accompanied by major shifts in macroeconomic variables such as GDP, consumption, investment, inflation, interest rates, exchange rates, and money supply. In addition, the bivariate correlations suggested that the financial assets index was positively associated with private consumption, investment, GDP, exchange rates, and money supply, while its association with inflation was positive but weaker. Taken together, these findings imply that the financial system in Iran does not merely mirror macroeconomic conditions; it actively participates in the propagation and amplification of shocks across the real and nominal sectors.

One of the central findings was that higher financial liquidity and broader market activity were associated with higher real per capita income. This result suggests that when the value of traded financial assets rises relative to GDP and when turnover improves, the economy benefits from stronger allocative efficiency, better portfolio rebalancing, and lower transaction frictions. In practical terms, a more liquid financial market reduces the cost of entering and exiting positions, improves price discovery, facilitates financing, and enhances the transmission of information regarding expected future returns. These mechanisms help explain why the cross-country scatterplots showed a direct relationship between liquidity-related indicators and real income. This interpretation is consistent with research emphasizing that financial shocks affect firm credit, investment behavior, and aggregate demand through financing constraints and the cost of external funds (Caballero et al., 2019; Mehrotra & Sergeyev, 2021). It is also compatible with evidence that lending-channel effects extend beyond bank balance sheets and exert real effects on output and employment (Gutiérrez et al., 2021; Jiménez et al., 2020). In this study, the positive association between the financial assets index and both consumption and investment further supports the argument that stronger asset-market conditions can transmit to the real economy through wealth, expectations, and financing channels.

Another important finding was the inverse relationship between most financial development indicators and inflation in the comparative analysis. Higher trading value relative to GDP, more listed companies, greater turnover, larger banking deposits, stronger private-sector credit, and higher market capitalization were all associated with lower inflation across countries. This result can be interpreted in several ways. First, more developed financial systems may improve the allocation of savings and reduce the inflationary reliance on monetary expansion to finance activity. Second, deeper markets may strengthen policy transmission by providing broader channels for savings mobilization and investment financing. Third, financial development may reflect broader institutional quality, transparency, and macroeconomic discipline. These interpretations align with studies showing that monetary disturbances and financial stress affect the macroeconomy differently depending on the depth and resilience of the financial system (Hiebert et al., 2018; Kapetanios et al., 2018; Yousfani et al., 2025). They also correspond to evidence that uncertainty in monetary and exchange-rate policy can undermine stability and intensify real and nominal volatility, especially in economies with weaker financial intermediation structures (Pezeshki et al., 2025; Saeedi et al., 2025; Sotoudehnia Karani & Shafi'zad Abkenar, 2025). In this sense, the negative inflation-finance relationship observed in the cross-country evidence may partly capture the stabilizing role of deeper financial intermediation under credible macroeconomic policy.

The results also highlighted the importance of the banking sector as a distinct but interconnected component of the financial structure. Both banking expansion and private-sector credit from banks and other financial institutions were positively related to real per capita income and negatively related to inflation in the cross-country evidence. This confirms that bank-based finance remains essential for supporting economic activity, especially in economies where firms depend heavily on loans and working-capital financing. In the Iranian context, where banks continue to dominate financial intermediation, this result is particularly important because it suggests that the capital market and the banking system should be viewed as complements rather than substitutes. The DSGE framing of the study also supports this interpretation, since shocks to deposit rates and lending rates alter household saving behavior, firms' cost of borrowing, bank risk-taking, and the intertemporal allocation of spending. This reading is aligned with evidence that the monetary transmission mechanism in emerging economies often operates strongly through banking

variables and interest-rate conditions (Batool et al., 2022; Olajide & Temidayo, 2022). It is also consistent with work showing that quantitative easing, tightening, or monetary surprises can materially alter bank lending behavior and credit supply (Djatche, 2025; Rodnyansky & Darmouni, 2017). Therefore, the finding that banking expansion was positively linked to real income and negatively linked to inflation supports the view that better-functioning deposit and lending markets can strengthen both growth and stability.

A particularly revealing finding of the study concerns the role of asset prices and market capitalization. The positive relationship between the market value-to-GDP ratio and real per capita income, along with the negative relationship between the market value-to-GDP ratio and inflation, suggests that larger financial markets are associated with superior macroeconomic performance. This does not mean that rising asset prices are always desirable or that all asset-price increases reflect real productivity gains. Rather, it indicates that where market capitalization is larger relative to the economy, firms may enjoy better access to equity-based financing, households may hold broader portfolios, and market expectations may be incorporated into prices more efficiently. This interpretation is compatible with studies showing that macroeconomic shocks, policy shifts, and herding behavior in financial and commodity markets influence broader investment dynamics and risk perceptions (Haque & Imam, 2025; Moizz & Akhtar, 2024). It is also consistent with the broader literature on financial cycles, which emphasizes that asset markets can either stabilize or destabilize the economy depending on whether valuation changes are linked to fundamentals or to speculative and leverage-driven behavior (Hiebert et al., 2018). In the case of Iran, the observed long-run growth in market capitalization relative to GDP, punctuated by sharp fluctuations, indicates that asset-price shocks can be powerful carriers of macroeconomic change.

The time-series evidence for Iran showed that the development of the financial sector over the sample period was neither smooth nor neutral with respect to macroeconomic performance. The market value-to-GDP ratio, the ratio of annual transaction value to GDP, and the ratio of transaction value to market value all displayed significant upward movement over the long run but with pronounced cyclical fluctuations. These fluctuations reflect how sensitive the financial sector is to policy changes, inflationary conditions, exchange-rate movements, privatization episodes, and changes in investor sentiment. The observed increase in the ratio of market value to liquidity, especially during episodes of financial expansion, indicates that financial assets absorbed a growing share of society's liquidity stock. At the same time, the rise in liquidity-to-GDP and the exponential growth of money supply suggest that monetary expansion remained a central force in the system. This dual movement is important: it implies that financial market growth in Iran has likely been driven by a combination of real financing effects and nominal-monetary forces. This interpretation is supported by studies emphasizing that financial stability and macroeconomic activity are highly sensitive to monetary policy uncertainty and to the interaction of money growth, exchange-rate expectations, and financial behavior (Moradlu, 2024; Pezeshki et al., 2025; Saeedi et al., 2025). It also resonates with findings that financial and business cycles are not identical, and that financial variables can display more persistent and amplified dynamics than traditional real-sector indicators (Hiebert et al., 2018).

The relationship between the stock market index and macroeconomic variables in Iran further strengthens the interpretation that financial shocks play a substantive role in shaping the real economy. The positive correlation between the logarithm of the financial assets index and the logarithms of private consumption, investment, and GDP suggests that financial-market performance has real-sector implications. The strongest of these was the relationship with private consumption, where a 1 percent change in the financial assets index was associated with a 0.21 percent change in private consumption and a relatively high coefficient of determination. This result is economically intuitive because a rising financial market can increase household wealth, improve confidence, reduce perceived income uncertainty, and facilitate access to financing. It is also consistent with models stressing microeconomic heterogeneity and balance-sheet sensitivity in the transmission of macroeconomic shocks (Kaplan & Violante, 2018). Households that are more exposed to financial wealth, directly or indirectly, may respond to asset-price movements by adjusting consumption more strongly than would be predicted by representative-agent models. Likewise, firms experiencing higher asset valuations may face less restrictive collateral constraints and lower financing costs, allowing them to expand investment.

The investment results are especially important because they point to the role of market-based finance in complementing a bank-dominated system. The positive link between the financial assets index and total investment indicates that the capital market can help sustain fixed

capital formation, particularly in periods when banks are unable or unwilling to provide sufficient credit to productive activities. This finding aligns with evidence that firm credit conditions are central to the propagation of financial shocks and that credit supply disturbances affect real outcomes significantly (Gutiérrez et al., 2021; Mehrotra & Sergeyev, 2021). It also fits the broader view that financial development can shape productive transformation and the innovation environment by influencing the availability and allocation of capital (Irfan et al., 2022). In the Iranian case, where the banking system often bears the burden of financing production under conditions of inflation and external pressure, the growth of market-based channels may reduce concentration risk and improve financing diversity.

The inflation results require a more nuanced interpretation. In the cross-country evidence, stronger financial development tended to coincide with lower inflation, yet in the Iranian time-series and correlation evidence the stock market index displayed a positive, though weaker, relationship with inflation. This apparent contrast is not contradictory. Across countries, deeper financial systems may reflect institutional and policy quality that helps contain inflation. Within Iran, however, the stock market may rise during inflationary episodes because nominal profits, asset substitution, currency depreciation, and monetary expansion all push investors toward financial assets. Thus, inflation can support nominal stock market growth even if high inflation is detrimental to long-run real efficiency. This duality is consistent with research showing that macroeconomic shocks and monetary policy changes can reshape market behavior in ways that mix real and nominal drivers (Haque & Imam, 2025; Yousfani et al., 2025). It also corresponds to evidence that policy uncertainty and shifts in monetary conditions can alter financial stability and the direction of credit allocation (Hashemi Dizaj & Nazemfar, 2025; Sotoudehnia Karani & Shafi'zad Abkenar, 2025). Therefore, the positive inflation-stock market relationship in Iran likely reflects a combination of nominal hedging behavior, speculative adjustment, and monetary expansion rather than a purely productive mechanism.

The results on exchange rates and liquidity are similarly revealing. The strong positive relationship between the financial assets index and both the logarithm of the exchange rate and the logarithm of money supply indicates that nominal shocks are deeply embedded in the dynamics of the Iranian financial market. Exchange-rate depreciation can raise the domestic currency value of export-oriented firms' revenues, alter investor expectations, and increase the attractiveness of stocks as inflation hedges. Meanwhile, money-supply growth can increase liquidity available for portfolio reallocation into financial assets. In an oil-exporting economy subject to sanctions and external imbalances, these nominal and financial channels are likely to be especially powerful. This interpretation is consistent with evidence that oil-price volatility, monetary policy, and unemployment or macroeconomic adjustment are tightly linked in Middle Eastern and oil-exporting economies (Pourhashemi & Yousefi, 2024). It is also compatible with studies showing that shocks in financial and asset markets have stronger local effects when global disturbances interact with domestic fragilities (Yousfani et al., 2025). In this study, the exchange-rate and liquidity findings reinforce the view that financial shocks in Iran cannot be separated from monetary and external-sector conditions.

More broadly, the study's findings support the appropriateness of a DSGE framework for analyzing the mechanisms and consequences of credit and financial shocks in Iran. The empirical patterns observed in the descriptive figures and correlations are consistent with a structural view in which shocks to deposit rates, lending rates, and asset prices affect the economy through saving and portfolio choice, firm borrowing and investment, market valuation, inflation expectations, and external adjustment. This interpretation is strengthened by the wider literature showing that news shocks under financial frictions, monetary surprises, and policy shifts can all produce sizable real effects when the financial system is imperfect and agents are sensitive to funding conditions (Djatche, 2025; Görtz et al., 2022; Rodnyansky & Darmouni, 2017). The findings also suggest that neither purely real explanations nor purely nominal explanations are sufficient. Instead, Iran's macroeconomic performance appears to be shaped by the interaction of banking conditions, monetary expansion, exchange-rate dynamics, asset-price movements, and the depth and structure of the financial sector. In this respect, the results are also in line with studies highlighting how central bank actions and monetary uncertainty influence risk-taking, credit supply, and aggregate activity in complex and sometimes nonlinear ways (Hashemi Dizaj & Nazemfar, 2025; Pezeshki et al., 2025). Overall, the discussion indicates that credit and financial shocks are not peripheral disturbances but central mechanisms in the determination of macroeconomic outcomes.

This study had several limitations. First, some of the empirical evidence relied on descriptive cross-country comparisons and bivariate relationships, which are useful for

illustrating patterns but cannot by themselves establish full structural causality. Second, the Iranian time-series evidence reflects an economy subject to sanctions, exchange-rate regime shifts, inflationary episodes, and institutional changes, which may have introduced structural breaks not fully captured in a simplified discussion of results. Third, while the DSGE perspective provides a coherent framework, the discussion section necessarily abstracts from some sectoral heterogeneity, nonlinear threshold effects, and micro-level distributional responses. Finally, the quality and continuity of historical data for some financial variables may constrain the precision with which certain channels can be interpreted over long horizons.

Future research should extend this work by estimating the full structural model with alternative specifications of banking frictions, asset-price channels, and expectation formation. It would also be valuable to compare the transmission of deposit-rate shocks, lending-rate shocks, and asset-price shocks under different policy regimes, especially periods of high inflation, sanctions, or exchange-rate instability. Another important direction would be to incorporate heterogeneous households and firms, since balance-sheet conditions, firm size, and financial access likely influence the strength of transmission. Further studies could also distinguish between real and nominal stock market growth more explicitly, assess asymmetries between expansionary and contractionary shocks, and test whether the effects of shocks differ between bank-dominated and more market-oriented segments of the Iranian financial system.

From a practical standpoint, the findings suggest that policymakers should avoid viewing monetary policy, banking policy, and capital-market policy as separate domains. Stable macroeconomic performance requires coordinated attention to deposit and lending rates, private-sector credit conditions, liquidity growth, exchange-rate expectations, and the health of the capital market. Strengthening the transparency and depth of the stock market, expanding financing options for productive firms, improving policy credibility, and reducing abrupt monetary and exchange-rate uncertainty may enhance the positive role of financial development while limiting inflationary and speculative distortions. In addition, improving the balance between bank-based and market-based finance could reduce the overconcentration of risk in the banking system and provide firms with more resilient channels for investment financing.

## Authors' Contributions

Authors contributed equally to this article.

## Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

## Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

## Declaration of Interest

The authors report no conflict of interest.

## Funding

According to the authors, this article has no financial support.

## Ethics Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were considered.

## References

Batool, Z., Haroon, M., Shah, A. U., Adil, M., & Nisar, M. (2022). Economy-Wide Effects Of Monetary Policy Shocks: Evidence From Pakistan. *Harf-o-Sukhan*, *6*(2), 18-23.

Caballero, J., Fernández, A., & Park, J. (2019). On corporate borrowing, credit spreads and economic activity in emerging economies: An empirical investigation. *Journal of International Economics*, *118*, 160-178. https://doi.org/10.1016/j.jinteco.2018.11.010

Djatche, N. (2025). Unveiling the effects of monetary surprises: Risk-taking and credit supply. *Review of Economics and Statistics*, *101*(3), 500-515. https://doi.org/10.1016/j.iref.2025.104211

Furceri, D., Loungani, P., & Pizzuto, P. (2022). Moving closer? Comparing regional adjustments to shocks in EMU and the United States. *Journal of International Money and Finance*, *120*, 102282. https://doi.org/10.1016/j.jimonfin.2020.102282

Görtz, C., Tsoukalas, J. D., & Zanetti, F. (2022). News shocks under financial frictions. *American Economic Journal: Macroeconomics*, *14*(4), 210-243. https://doi.org/10.1257/mac.20170066

Gutiérrez, E., Jaume, D., & Tobal, M. (2021). *Do Credit Supply Shocks Affect Employment in Middle-Income Countries?*

Haque, M. E., & Imam, M. O. (2025). Following the crowd: Unveiling the impact of macroeconomic shocks and monetary policy shifts on herding dynamics in the commodity and metals sectors. *Economies*, *13*(11), 306.

Hashemi Dizaj, A., & Nazemfar, R. (2025). The Impact of the Central Bank's Contractionary Monetary Policy on Bank Risk-Taking Based on an Agent-Based Approach. https://ecoj.tabrizu.ac.ir/article_20218.html?lang=en

Hiebert, P., Jaccard, I., & Schüler, Y. (2018). Contrasting financial and business cycles: Stylized facts and candidate explanations. *Journal of Financial Stability*, *38*, 72-80. https://doi.org/10.1016/j.jfs.2018.06.002

Irfan, M., Razzaq, A., Sharif, A., & Yang, X. (2022). Influence mechanism between green finance and green innovation: exploring regional policy intervention effects in China. *Technological Forecasting and Social Change*, *182*, 121882. https://doi.org/10.1016/j.techfore.2022.121882

Jiménez, G., Mian, A., Peydró, J. L., & Saurina, J. (2020). The real effects of the bank lending channel. *Journal of Monetary Economics*, *115*, 162-179. https://doi.org/10.1016/j.jmoneco.2019.06.002

Kapetanios, G., Price, S., & Young, G. (2018). A UK financial conditions index using targeted data reduction: Forecasting and structural identification. *Econometrics and statistics*, *7*, 1-17. https://doi.org/10.1016/j.ecosta.2017.12.002

Kaplan, G., & Violante, G. L. (2018). Microeconomic heterogeneity and macroeconomic shocks. *Journal of Economic Perspectives*, *32*(3), 167-194. https://doi.org/10.1257/jep.32.3.167

Mehrotra, N., & Sergeyev, D. (2021). Financial shocks, firm credit and the Great Recession. *Journal of Monetary Economics*, *117*, 296-315. https://doi.org/10.1016/j.jmoneco.2020.01.008

Moizz, A., & Akhtar, S. (2024). Dynamic Linkages Between the Monetary Policy Variables and Stock Market in the Presence of Structural Breaks: Evidence From India. *Asian Journal of Economics and Banking*, *8*(3), 391-411. https://doi.org/10.1108/ajeb-01-2024-0005

Moradlu, M. (2024). Factors Influencing Monetary and Banking Economics in Iran. Tenth International Conference on Management Sciences and Accounting, Tehran.

Olajide, O. O., & Temidayo, A. (2022). Further insights on monetary transmission mechanism in Nigeria. *Journal of Economics and International Finance*, *14*(2), 11-22. https://doi.org/10.5897/JEIF2020.1037

Pezeshki, M. R., Damenkeshideh, M., & Esmailniaketabi, A. A. (2025). Financial Stability, Monetary Policy Uncertainty, and the Country's Economic Activities. *Quarterly Journal of Financial Economics*, *18*(69), 1-28.

Pourhashemi, A., & Yousefi, N. (2024). The Impact of Oil Price Volatility and Monetary Policies on Unemployment in Oil-Exporting Countries of the Middle East Region. *Journal of Economic Research and Middle East Development*, *13*(1), 99-113.

Rincey, B. A., & Sunita, K. (2024). The Role of Monetary Incentives for Enhancing Employee Performance With Special Reference to Selected Financial Institutions in the Bhilai Region. *International Journal for Multidisciplinary Research*, *6*(2). https://doi.org/10.36948/ijfmr.2024.v06i02.14693

Rodnyansky, A., & Darmouni, O. M. (2017). The effects of quantitative easing on bank lending behavior. *The Review of Financial Studies*, *30*(11), 3858-3887. https://doi.org/10.1093/rfs/hhx063

Saeedi, A., Fallahi, M., & Esmaeilpour Moghadam, H. (2025). The Impact of Uncertainty from Monetary and Exchange Rate Policies on Financial Stability: A Markov Regime-Switching Approach in Iran's Economy. *Monetary and Financial Economics*. https://doi.org/10.22067/mfe.2025.93017.1537

Sotoudehnia Karani, S., & Shafi'zad Abkenar, B. (2025). An Investigation of the Effect of Uncertainty on Economic Growth and Monetary Policies in Iran. *Economic Growth and Development Research*. https://doi.org/10.30473/egdr.2025.73885.6971

Yousfani, K., Iftikhar, H., Rodrigues, P. C., Armas, E. A. T., & López-Gonzales, J. L. (2025). Global Shocks and Local Fragilities: A Financial Stress Index Approach to Pakistan's Monetary and Asset Market Dynamics. *Economies*, *13*(8), 243. https://doi.org/10.3390/economies13080243