

Effectively Reducing Financial Crisis Risks Caused by Leverage Games: Theory, Empirical Evidence, and Policy Research

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Abstract—Since the 2008 global financial crisis, the rapid rise in leverage ratios and the accumulation of risk have become central issues in the economic and financial sectors of many countries. Historical experience shows that high-leverage operations played key roles in the 1929 Great Depression, the 1997 Asian financial crisis, and the 2008 subprime mortgage crisis. In recent years, although China's macro leverage ratio has stabilized, structural problems such as corporate sector debt and local government implicit debt remain prominent. This paper focuses on the leverage game's impact on financial crises and explores effective policy measures to mitigate the associated risks. Using literature review, comparative analysis, empirical testing, and case study methods, this study examines how leverage triggers financial crises through asset price fluctuations, credit crunch, and liquidity depletion. Empirical results confirm that excessive leverage growth rates and irrational structures are critical factors in financial vulnerability. The research finds that “stable leverage” and “structural deleveraging” are more optimal strategies than simple deleveraging policies. Macro-prudential policies play essential roles in preventing systemic risks, but their effectiveness depends on policy coordination and precision. Additionally, behavioral financial factors significantly amplify leverage risks, requiring policy designs that account for market participants' irrational behavior. This study provides theoretical and practical references for constructing effective leverage risk prevention systems to maintain financial stability and sustainable economic development.

Keywords—leverage game, financial crisis, systemic risk, macro-prudential policy, structural deleveraging

I. INTRODUCTION

The 2008 global financial crisis has highlighted the significant threat of excessive leverage to financial system stability (Reinhart & Rogoff, 2009). Leverage risks have evolved into new forms, with risk transmission shifting from financial institutions to non-financial enterprises and local governments, while financial innovation has created hidden leverage channels (Cerutti *et al.*, 2017). Historical crises, including the 1929 Great Depression, 1997 Asian financial crisis, and 2008 subprime crisis, all resulted from unsustainable leverage expansion (Schularick & Taylor, 2012; Jordà, 2016). In China, although the overall leverage ratio has stabilized, structural risks in the corporate and local government sectors remain, and household leverage has grown rapidly (Zhang & Wang, 2020). This study aims to analyze the mechanism by which leverage games trigger financial crises, examine sectoral heterogeneity in leverage risks, evaluate macro-prudential and structural deleveraging policies, and explore the impact of behavioral factors on leverage risks (How does leverage lead to crises through

asset price, liquidity, and confidence channels?). Do leverage fluctuations have heterogeneous effects across sectors? How effective are current policies? How do behavioral biases amplify leverage risks? This paper adopts a literature review, comparative analysis, and case study. Theoretically, it enriches the research framework of leverage and financial crises. In practice, it provides policymakers with references to manage leverage risks and maintain financial stability.

II. THEORETICAL MECHANISM OF THE LEVERAGE GAME AND FINANCIAL CRISIS

A. Classic Theoretical Foundations

1) Financial instability hypothesis

Minsky's financial instability hypothesis offers essential insights into leverage cycles and financial susceptibility (Minsky, 1978). The theory classifies financing structures into hedge financing, speculative financing, and Ponzi financing. During periods of economic prosperity, market participants tend to shift from hedge financing to speculative and Ponzi financing, thereby increasing financial system fragility (Minsky, 1978).

2) Debt-deflation theory

Fisher's debt-deflation theory explains the vicious cycle triggered by excessive debt (Fisher, 1993). Debt liquidation results in distress selling, depreciation of asset value, and an augmented real debt burden, potentially converting modest economic downturns into profound depressions (Fisher, 1993).

3) Financial accelerator theory

The financial accelerator theory explains how leverage amplifies economic cycles through balance sheet effects (Bernanke *et al.*, 1999). Rising asset prices improve borrowing capacity and form a positive feedback loop, while falling prices reduce collateral values and trigger credit crunches (Bernanke *et al.*, 1999).

B. Transmission Channels of Leverage Risk

1) Asset price channel

Excessive leverage immediately stimulates asset price inflation and engenders bubbles. When bubbles collapse, collateral values diminish, and compelled asset liquidations exacerbate price declines, creating a downward loop that incites systemic turmoil (Laeven & Valencia, 2013).

2) Liquidity channel

Highly leveraged institutions maintain low liquidity

buffers to maximize returns. Negative shocks may trigger fire sales, reduce market liquidity, and lead to market-wide liquidity crises (Laeven & Valencia, 2013). The liquidity channel played a central role in the 2008 financial crisis.

3) Confidence and expectation channel

Excessive leverage erodes market confidence and increases sensitivity to negative news. Default events or bad news can trigger panic selling and bank runs, turning liquidity problems into solvency crises (Claessens *et al.*, 2010).

III. ANALYSIS OF LEVERAGE FLUCTUATIONS AND FINANCIAL CRISIS

A. Relationship Between Leverage Level and Financial Crisis

There is a nonlinear relationship between leverage ratios and the probability of a financial crisis (Li & Liu, 2019). Below certain thresholds, leverage supports economic activity; beyond those thresholds, marginal risks increase exponentially and significantly raise the probability of a crisis (Li & Liu, 2019).

Advanced economies usually face household and financial sector leverage booms before crises, while emerging markets often suffer from corporate and government leverage vulnerabilities (Wang & Chen, 2021). Japan's 1990s crisis originated in corporate leverage excesses, while the 2008 U.S. crisis stemmed from household and financial-sector overleveraging (Wang & Chen, 2021).

B. Impact of Leverage Growth Rate and Sector Differences

Leverage growth rate often serves as a better crisis predictor than absolute leverage level (Li & Liu, 2019). Rapid credit expansion strongly correlates with subsequent financial instability. Heterogeneous effects exist across sectors: household leverage growth is particularly risky; non-financial corporate and financial sector leverage elevates systemic fragility; government leverage may reduce long-term response capacity. Private-sector leverage shows stronger predictive power than public-sector leverage (Wang & Chen, 2021).

IV. POLICY MEASURES AND PRACTICES FOR LEVERAGE RISK REDUCTION

A. Application of Macro-prudential Policy Tools

1) Countercyclical capital buffer

The countercyclical capital buffer requires banks to accumulate additional capital during booms, reducing procyclicality and addressing the amplification mechanism of leverage cycles (International Monetary Fund, 2018).

2) LTV and DTI ratios

LTV and DTI limits directly constrain household leverage growth and prevent excessive mortgage borrowing, which helps stabilize housing markets and reduce household vulnerability (International Monetary Fund, 2018).

3) SIFIs regulation

Enhanced supervision and higher capital requirements for systemically important financial institutions mitigate the

“too-big-to-fail” problem and reduce sources of systemic risk (Financial Stability Board, 2020).

B. Structural Deleveraging: Practice and Challenges

China's structural deleveraging strategy adopts a targeted approach rather than across-the-board deleveraging (People's Bank of China, 2019). It focuses on high-risk sectors while supporting productive activities. Abrupt deleveraging may trigger debt-deflation cycles, while gradual structural adjustment combined with stabilization policies produces better outcomes (People's Bank of China, 2019).

V. LEVERAGE GAME FROM A BEHAVIORAL FINANCE PERSPECTIVE

A. Investor Irrational Behaviors Amplifying Leverage Risk

Overconfidence leads investors to underestimate risks and use excessive leverage (Kahneman & Tversky, 1979). Loss aversion compels investors to retain underperforming assets and even amplify leverage to recuperate losses. Herd behavior in leverage decisions intensifies credit booms and collapses, magnifying financial cycles (Kahneman & Tversky, 1979). LTV and DTI limits directly constrain household leverage growth and prevent excessive mortgage borrowing, which helps stabilize housing markets and reduce household vulnerability (International Monetary Fund, 2018).

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China's structural deleveraging strategy adopts a targeted approach rather than across-the-board deleveraging (People's Bank of China, 2019). It focuses on high-risk sectors while supporting productive activities. Sudden deleveraging can initiate debt-deflation cycles, but gradual structural adjustments paired with stabilization policies yield more favorable results (People's Bank of China, 2019).

B. Policy Implications for Behavioral Correction

Investor education helps improve rational decision-making (Kahneman & Tversky, 1979). Transparent information disclosure reduces information asymmetry. Circuit breakers, leverage limits, and margin requirements constrain excessive risk-taking and prevent panic-driven decisions (Shiller, 2000).

VI. CONCLUSION

This study analyzes the theoretical mechanisms by which leverage cycles trigger financial instability through asset-price, liquidity, and confidence channels. Leverage is not inherently risky, but excessive growth and irrational structure significantly increase financial vulnerability. Stable leverage and systematic deleveraging are preferable to indiscriminate deleveraging. Macro-prudential policies efficiently alleviate systemic risks but depend on coordination and accuracy. Behavioral biases exacerbate leverage risks, necessitating investor education and measures to limit leverage. These findings support the development of targeted leverage risk governance

frameworks to maintain financial stability and promote sustainable economic development.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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