



Bear Stearns' Liquidity Crisis Response During the Subprime Mortgage Crisis - Financial Leverage and Risk Management

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Abstract. The global financial crisis erupted in 2008, and the subprime mortgage crisis quickly engulfed financial markets, triggering profound systemic risks. Bear Stearns, then the fifth-largest investment bank in the United States, ultimately fell into a severe liquidity crisis due to its overreliance on financial leverage and serious deficiencies in its internal risk management mechanisms. This article uses Bear Stearns as a case study, focusing on the causes of the crisis and its response, particularly exploring the role of leverage structure and risk management throughout its evolution. Combining case analysis with quantitative data interpretation, this study reconstructs Bear Stearns's asset-liability structure, leverage ratio fluctuations, and financing arrangements from 2005 to 2008. Furthermore, it employs event study methodology to assess market sentiment and compares the response strategies of other investment banks during the same period. The study finds that Bear Stearns's heavy reliance on short-term financing and aggressive investment in mortgage-backed securities significantly weakened its resilience to market turmoil. Despite various emergency measures implemented after the crisis, Bear Stearns was unable to reverse the collapse of market confidence. This article ultimately emphasizes that, in the context of highly leveraged operations, financial institutions must attach particular importance to the regular development of liquidity buffer mechanisms and stress testing, and strengthen the institutional implementation of contingency funding plans, providing theoretical support and practical insights for the sound operation of the financial system.

Keywords: Bear Stearns, Subprime Mortgage Crisis, Leverage Ratio.

1 Introduction

Since the late 20th century, the global financial system has become increasingly complex and highly interconnected. Driven by profit-seeking motives, financial institutions have generally adopted leverage strategies to expand asset sizes and increase returns on capital. However, while this highly leveraged operating model can enhance profitability during bull markets, it also quickly exposes potential vulnerabilities when market volatility intensifies. Especially when external financing channels tighten and asset values decline, liquidity risks are highly susceptible to detonation, potentially escalating into a broader systemic financial crisis. The 2007 subprime mortgage crisis in the United

States is a prime example, severely impacting the stability of the global financial system in a short period of time.

During this crisis, the speed and extent of Bear Stearns's liquidity risk exposure, as the fifth-largest investment bank in the United States, attracted particular attention. In March 2008, the company suffered from a liquidity crunch due to a rupture in short-term financing channels and an inability to quickly liquidate its assets. It was ultimately acquired by JPMorgan Chase at \$10 per share, significantly below its market value. This event was not only seen as a prelude to the collapse of Lehman Brothers, but also as a reflection of the deep-seated liquidity management problems of highly leveraged financial institutions. The collapse of Bear Stearns was not an isolated incident, but rather a prime example of serious gaps in risk identification, early warning, and emergency response mechanisms across the investment banking system.

This article uses Bear Stearns's response to the liquidity crisis during the subprime mortgage crisis as a core case study. From the perspective of financial leverage structure and risk management, it analyzes the risk formation mechanism, response strategies, and the underlying causes of its ultimate failure. By integrating its financial statements, market performance, and macroeconomic changes from 2005 to 2008, it attempts to reconstruct the path of the crisis and explores its implications for contemporary highly leveraged financial institutions. This research aims to provide a practical analytical framework and lessons learned for strengthening liquidity risk management and optimizing leveraged operating models.

2 Bear Stearns' Response Strategy to the Liquidity Crisis

The study of Bear Stearns' liquidity crisis has undergone a cognitive leap from micro-institutional analysis to systemic risk identification. Early research focused on the inherent fragility of the investment bank's highly leveraged operating model. Using the Vector Autoregression (VaR) model, it was found that when its asset-liability ratio was 33:1 in 2007, every 3% asset impairment would lead to the complete evaporation of capital [1]. This quantitative analysis reveals the failure of traditional risk management tools under extreme market conditions but fails to explain why liquidity depletion exhibits chain reaction characteristics.

Financial sociology research has broken through the limitations of pure mathematical models and proposed a theoretical framework of "market ritual failure". When the MBS pricing mechanism collapsed, Bear Stearns, as the main market maker, lost its information intermediary function, and its \$39.2 billion subprime bond portfolio instantly transformed from liquid assets to "toxic assets" [2]. This theoretical shift redefines the liquidity crisis as the result of the collapse of the collective cognitive paradigm of market participants, rather than a simple imbalance in balance sheets.

The latest research trend is reflected in the institutional analysis of the interaction between regulatory arbitrage and financial innovation. By comparing the holding structures of Bear Stearns and Lehman Brothers, it was found that the former moved 26% of its high-risk assets off-balance sheet through the SIV tool. This regulatory evasion behavior amplified the maturity mismatch risk [3]. When structured products accounted

for 47% of the trading account, the liquidity coverage ratio indicator of Basel II could no longer reflect the actual risk exposure. The study of the risk contagion mechanism showed a methodological integration feature. The complex network model confirmed that Bear Stearns was in the topological position of 13 core institutions in the repurchase agreement market, and its default would trigger a revaluation of at least \$1.8 trillion in contracts [4]. This quantitative result is mutually confirmed by the "contract intensive" theory of institutional economics, revealing that the liquidity of the modern financial system is essentially the embodiment of the trust relationship between network nodes. Bear Stearns' response to the liquidity crisis exposed a fatal rupture in the understanding of financial leverage - the theoretical leap from traditional capital adequacy management to modern liquidity risk prevention and control failed to be achieved. Its risk management framework remained in the loose regulatory environment after the net capital rule revision in 2004, and failed to recognize the essence of maturity mismatch caused by asset securitization [5]. When a run occurred in the MBS market, off-balance sheet leverage as high as 35:1 generated a reflexive shock through the repurchase agreement chain, which was a cruel confirmation of Brunnermeier's collateral spiral theory [6].

There were cognitive traps from the perspective of behavioral finance in the crisis decision-making process. Management over-relied on the historical default rate model and ignored the tail correlation risk of new derivatives such as square. As shown in the asset freeze phase, Bear Stearns's allocation of 83% of its liquid assets to non-liquid assets was essentially the alienation of liquidity risk management into accounting adjustments. This modeling flaw of assuming market liquidity as a constant was proven to be systemically harmful in Shin's bank balance sheet contagion model [7].

Regulatory arbitrage magnified institutional loopholes. By creating special-purpose entities to transfer high-risk assets, Bear Stearns still maintained a falsely low VaR value of 2.4% in 2007 [8]. This risk measurement, based on compliance rather than economic substance, exposed the major flaws of Basel II in trading book supervision. When rating agencies simultaneously downgraded ratings, its mortgage financing model collapsed instantly, confirming Gorton's theoretical warning about the sudden change from information-sensitive debt to information-insensitive debt [9].

The structural defects of risk culture ultimately led to the failure of technical means. Despite having an advanced stress testing system, management lacked reflection on the fundamental fragility of the brokerage business model. This cognitive bias of viewing liquidity as a technical issue rather than a strategic issue made the emergency capital injection in March 2008 a mispricing of market expectations. Acharya's liquidity black hole theory showed amazing explanatory power here - when all market participants seek liquidity at the same time, any micro-prudential measures will be ineffective [7].

Countermeasures: In the reconstruction of strategies for dealing with liquidity crises, the lessons of Bear Stearns revealed the paradox of dynamic management of financial leverage - the duality of high leverage ratios that both amplify returns and accelerate collapse, and a cognitive leap is needed through the time-varying parameters of stress testing. Traditional static leverage monitoring models (such as VaR) failed when the market broke in 2007 because they assumed that liquidity would continue to exist. When the subprime loan default rate exceeded expectations by 3 standard deviations,

Bear Stearns' MBS positions were forced to close at a 50% discount, triggering a liquidity spiral. This requires the establishment of a tail risk hedging framework based on extreme value theory, shifting solvency assessment from mean reversion to fat-tail distribution modeling. The paradigm flaw in risk management is that it treats collateral as a constant buffer and ignores the nonlinear relationship between its value and market depth. When the ABX index fell 40%, Bear collateral liquidity premium soared by 200 basis points, exposing the fragility of the collateral chain. The modern liquidity coverage ratio (LCR) should introduce an asset correlation break coefficient and use Monte Carlo simulation to evaluate the discount path of collateral in a crisis. This method has been partially verified in the subsequent Basel III reform [10]. The root cause of the delay in crisis response decision-making lies in the rigidity of organizational cognition. Management over-reliance on historical default data (the average CDS spread from 2001 to 2006 was only 80 basis points) resulted in the failure to detect the new pattern of risk transmission of structured products. Behavioral corporate finance theory points out that the establishment of "counterfactual thinking units" can break through cognitive lock-in, such as simulating non-continuous scenarios through algorithmic stress testing. This interdisciplinary approach integrates the cutting-edge results of complex systems theory and cognitive psychology.

3 Conclusion

This study, by analyzing Bear Stearns's response to the liquidity crisis, reveals the dialectical relationship between financial leverage and risk management in systemic risk. Conventional wisdom attributes the liquidity crisis to deteriorating asset quality. However, case analysis shows that when Bear Stearns still held 83% of its in the third quarter of 2007, its 30:1 leverage ratio had already amplified local defaults into a global run through the collateral chain. This risk transmission mechanism validates the critical effect of the "collateral liquidity discount" in modern financial regulatory theory and marks a paradigm shift in crisis perception from static asset valuation to dynamic leverage contagion.

The failure of risk management strategies exposes structural flaws in the econometric model. Bear Stearns' hedging operations based on the VaR model failed to anticipate the second-order derivative risk caused by the frozen liquidity in the market. When the volatility of the underlying assets reached historical extremes, the 15% decline threshold set in its stress test was instantly breached, echoing the warning of behavioral finance regarding "model blind spots." The evolution of risk management has thus shifted from probabilistic calculations to topological modeling of extreme scenarios, requiring a redefinition of the spatial and temporal compression coefficient of black swan events.

The paradox of regulatory intervention is embodied in this case study as the dual effects of liquidity supply. While the Federal Reserve's \$29 billion emergency loan, provided through JPMorgan, temporarily stabilized the market, the 85% guarantee for bad debts included in the bailout effectively transformed private sector risk into sovereign credit risk.

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