

Financial Intermediation and Shadow Banking: Information and Liquidity Functions

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ABSTRACT

Financial intermediaries—banks, insurance companies, money market funds, hedge funds, and other entities that stand between ultimate savers and ultimate borrowers—perform essential economic functions: maturity transformation (borrowing short and lending long), liquidity provision, credit screening and monitoring, and risk transformation. Diamond and Dybvig's (1983) foundational model in the *Journal of Political Economy* explained why demand deposits—contracts where banks promise full nominal repayment on demand—are simultaneously valuable (providing insurance against unpredictable liquidity needs) and inherently fragile (subject to self-fulfilling bank runs when depositors fear other depositors are withdrawing). Diamond's (1984) delegated monitoring model explained why banks exist as information-producing intermediaries: costly state verification of borrower repayment makes bank lending more efficient than direct capital market finance when borrower information is private. The 2007–2009 financial crisis revealed that 'shadow banking'—maturity transformation and credit intermediation outside the regulated banking system—had grown to create systemic vulnerabilities comparable to traditional bank fragility. This paper reviews financial intermediation theory, the shadow banking system's growth and vulnerabilities, and the post-crisis regulatory response.

Keywords: Financial Intermediation; Shadow Banking; Diamond Dybvig; Delegated Monitoring; Maturity Transformation; Bank Run; Systemic Risk.

1. INTRODUCTION

The economic functions of financial intermediaries—connecting savers with productive investment opportunities, providing payment services, creating liquidity, and managing risk—are essential for economic development and efficiency. Gurley and Shaw (1955) first systematically analyzed the role of financial intermediaries in the savings-investment process. The theoretical understanding of why intermediaries exist rather than direct capital market finance developed through Diamond and Dybvig (1983) and Diamond (1984): in the presence of information asymmetry and liquidity preference heterogeneity, banks and other intermediaries provide strictly superior contracts to direct market finance.

The shadow banking system—a term coined by Paul McCulley at PIMCO in 2007 to describe the web of money market funds, structured investment vehicles (SIVs), securities dealers, and mortgage securitization vehicles performing bank-like functions outside the regulated banking system—had grown to approximately the same size as the regulated banking system by 2007. The Financial Stability Board estimated the global shadow banking system at approximately \$70 trillion in 2012. The shadow banking system's maturity transformation (funding long-term mortgage securities with overnight repo) and credit transformation (converting risky mortgages into AAA-rated securities through structured finance) created fragilities exactly analogous to traditional bank fragility, without the deposit insurance and Fed backstop that limit bank run dynamics.

2. DIAMOND-DYBVIG MODEL

Diamond and Dybvig (1983) in the *Journal of Political Economy* 91(3): 401–419 model an economy with three time periods and consumers who discover at $t=1$ whether they need to consume early (type 1: 'impatient') or can wait until $t=2$ (type 2: 'patient'). The long-term investment technology is more productive but illiquid; liquidating early incurs a penalty. Without a bank, type 1 consumers inefficiently liquidate productive investments. A bank offers demand deposits—depositors can withdraw at par at $t=1$ or $t=2$ —which provides insurance against being type 1, enabling social optimum allocation. However, this efficient contract creates bank run equilibrium: if type 2 consumers expect others to withdraw at $t=1$, they rationally withdraw early themselves, triggering illiquid asset liquidation and bank failure. The model precisely characterizes the fragility inherent in maturity transformation.

3. SHADOW BANKING ARCHITECTURE

Table 1. Shadow banking entities, economic functions, and run vulnerabilities.

Shadow Banking Entity	Function	Run Vulnerability
Money market funds	Provide bank-like demand deposits backed by short-term securities	2008 Reserve Primary Fund ‘broke the buck’; redemption run; Treasury backstop required
Repo market	Short-term secured lending; finances long-term securities holdings	Gorton & Metrick (2012): repo haircuts rose sharply in 2008; equivalent to bank run
Structured investment vehicles	Issued commercial paper to fund long-term asset-backed securities	SIV run in 2007: CP market dried up; banks forced to consolidate on balance sheet
Securities broker-dealers	Maturity transformation through repo financing of security portfolios	Bear Stearns, Lehman: repo counterparties withdrew overnight; rapid failure

4. POST-CRISIS REGULATORY RESPONSE

The 2010 Dodd-Frank Act and international regulatory reforms addressed shadow banking vulnerabilities through several mechanisms: money market fund reform (2014 SEC rule) requiring institutional prime funds to price at floating NAV and allow redemption gates—addressing the demand deposit-like fragility; central clearing requirements for standardized derivatives—reducing bilateral counterparty risk networks that concentrated systemic exposures; enhanced disclosure requirements for repos and securities lending; and the Financial Stability Oversight Council’s systemic risk designation authority for non-bank financial institutions. The reform agenda has reduced but not eliminated shadow banking fragility: The March 2020 COVID-19 market stress episode revealed ongoing vulnerabilities in money market funds, repo markets, and corporate bond funds that required Federal Reserve intervention.

5. CONCLUSION

Financial intermediation theory—built on Diamond and Dybvig’s fragility model and Diamond’s delegated monitoring framework—explains both why financial intermediaries are economically essential and why they are inherently fragile. The shadow banking system’s pre-crisis growth extended maturity transformation and credit intermediation outside the regulatory perimeter designed to address bank fragility, creating systemic vulnerabilities that the 2008 crisis exposed. Post-crisis regulatory reforms have addressed the most acute shadow banking vulnerabilities but face the fundamental challenge that financial engineering continuously creates new forms of maturity transformation that replicate bank-like functions outside existing regulatory frameworks. Future research should examine how digital asset markets and stablecoin ecosystems create new shadow banking fragilities that replicate historical patterns in new technological forms.

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