



A Theory of Bank Liquidity Requirements

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Summary

- Bank regulation has been focused on minimum capital standards but banks could maintain their health by increasing their cash holdings
 - Many people believe that a major facet of the subprime crisis debt is “frozen debt markets”
 - Hence, having sufficient liquidity at the micro level would have reduced the system-wide frailty and its impact on the economy
 - We (myself, Boyson and Jindra (2012)) take issue with this characterization of the crisis
 - This paper examines the optimal set of bank regulations given that both illiquidity and insolvency could lead to bank runs and failures
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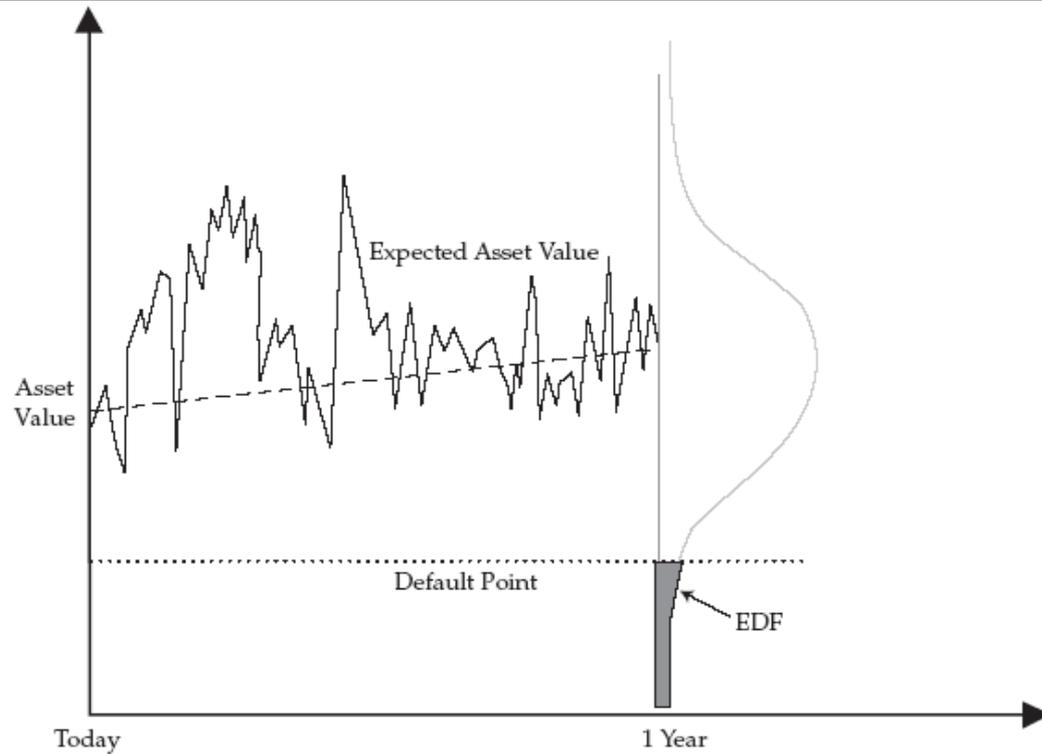
Summary

- Rationale for why cash and capital are substitutes comes from Merton (1974, 1977)
 - Credit risk is a function of asset volatility and leverage
 - Holding constant volatility, increasing equity (decreasing the face value of debt) reduces the probability of default
 - Holding constant leverage, increasing the amount of cash on the asset side of the balance sheet reduces the volatility of assets and thus the probability of default
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Merton 1974

Figure 1. Illustration: Frequency Distribution of Asset Value at Horizon and Probability of Default



Note: The distance from the expected asset value to default is three standard deviations.



Why cash?

- Anything that reduces asset volatility reduces the risk of a bank failure
 - Why focus on cash?
 - Could have a two asset portfolio with half cash and half CDOs or a two asset portfolio with half MBS and half investment grade bonds.
 - Hence the Basel Accord
 - Why not write “A Theory of the Appropriate Risk Weights in the Basel Framework”
 - Emphasis here is on verifiability of cash.
 - No role for regulator, rating agency or MBS
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Trade-offs in the model

- A banker has his own funds and can earn rents by making loans
 - He could earn higher rents if he had access to more funds so he could make more loans
 - Hence the desire to raise deposits
 - (depositors do not share in the rents)
 - But expanding the bank with deposits means there is a risk of a run
 - Runs cause inefficient liquidations
 - Bankers end up with nothing
 - Not about risk aversion but about expected payoffs
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Assumptions that drive results

- A banker has his own funds and they are limited. There is only one banker.
 - Thus, by assumption cannot bring more equity to the business once we get into a bad state.
 - Depositors cannot get as high a liquidation value on loans as the banker, so failure to work hard imposes a cost that he would prefer to avoid
 - Note risk management is really work
 - If some creditors had a low monitoring cost or a higher liquidation costs, results weaker
 - A run is really a Myers (1977) result – could walk
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Clearinghouses

- A clearinghouse could provide banks with insurance against idiosyncratic liquidity shocks
 - The clearinghouse obtains funds from other banks that have received the “spending” shocks
 - Liquidation costs are avoided by obtaining funds from the banks with inflows
 - For the clearinghouse to work, member banks must agree to hold a minimum amount of cash
 - Clearinghouse = JP Morgan at the turn of the century = The Federal Reserve?
 - Does anyone care about idiosyncratic shocks?
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Conclusion

- It seems impossible to come up with a realistic reason why liquidity is the driving force in a crisis
 - Could always raise more equity (no farmers in finance)
 - Could renegotiate with debtholders to avoid costly liquidation or sell some assets that are not so costly to liquidate. (Boyson, Jindra and Helwege (2012))
 - It is somewhat disturbing that Basel III might be based on such a model.
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