

## **How debt markets have malfunctioned in the crisis**

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### **Introduction**

Trades in debt markets are predominantly done by financial institutions. When such trades are made, money must first be raised either through borrowing or the sale of an existing financial asset. If funds cannot be raised quickly or easily, the fundamental values of the asset can diverge widely from the market prices. This is what happened during the financial crisis, which was essentially a crisis pertaining to the debt markets.

Debt instruments can be of two types: loans and securities. A loan is typically held to maturity and is an investment that the institution has made. A security is an asset backed by a pool of loans originated by another institution that is subsequently sold by the originating institution and is now being held by another entity.

### **Three considerations**

Every time a trader purchases a debt instrument, there are at least three considerations:

- Risk capital
- Haircuts
- Counterparty risk.

A financial institution can raise capital in two ways: debt or equity. Risk capital refers to the equity component. The amount of risk capital influences trading decisions. For example, when risk capital goes down, a bank may be less willing to buy mortgage backed securities and even if it does so, it may be prepared to buy these securities only at a low enough price. During the financial crisis, many banks took big losses in their risk capital. As that happened, risk aversion rose and asset values began to fall, causing risk capital to fall further and so on.

Most financial institutions raise the cash they need to trade in the debt markets through repo instruments. A repo agreement is a loan that is collateralized by financial securities. Haircuts for prime mortgage backed securities in early 2007 were 2.5% of the value. (This means cash was received for 97.5% of the value of the securities and 2.5% had to come from the borrower's existing equity capital.) Lenders typically set the repo rate reasonably high so that they do not have to worry about the quality of the underlying collateral. It just takes a phone call to arrange a repo loan.

The speed of transactions in the repo market plays an important role in supporting the trading and liquidity in debt markets. On the repo lending side, the typical cash investor is a money market mutual fund that is looking for a relatively safe place to invest a large amount of cash for a short period. In normal times, debt instruments are not volatile and the repo tends to be over-collateralised.

When repo lenders determine haircuts, they consider two factors: the probability of default and the recovery given default. Haircuts tend to rise during a financial crisis. For relatively less liquid securities, the repo goes up even more. In the fall of 2008, for some of the lower rated tranches of securitisation, the repo haircuts reached 100%. Effectively, this meant the repo market had shut down. Rising haircuts during the crises were accompanied by a shrinkage of the repo market. This caused liquidity to fall further, haircuts to rise and so on.

Counterparty risk plays a big role in the functioning of the debt market. When counterparty risk rises, financial institutions reduce their reliance on the repo and shift to other financing arrangements which are relatively slow. This affects trading, prices and liquidity.

Following the failure of Bear Stearns and Lehman, counterparty risk perceptions became strong and the credit default swap rates rose. In October 2008, the rates came down after the US Treasury purchased equity capital in financial institutions, thereby reducing the probability of bankruptcy.

Declining liquidity means that the institutions that provide the secondary market in debt instruments reduce their purchasing volumes. It also means there will be a preference for more liquid assets.

In general, shorter term securities are more liquid than longer term ones. On the run Treasury bonds are more liquid than off the run Treasury bonds. T Bill is the most liquid instrument. During a crisis, there is a retreat to safety and a lot of money flows into T Bills.

### **The limits of arbitrage and government intervention**

When there is lack of liquidity and not enough purchasers in the debt markets, arbitrage will fail to perform well. This is known as the "limits of arbitrage". When normal arbitrage forces do not operate, prices can become distorted. Not surprisingly, asset prices deviated significantly from fundamental values during the financial crisis. The government launched many initiatives to deal with this "limits of arbitrage" problem.

Under the Troubled Asset Relief Program (TARP), in fall 2008, the government took an equity stake in over 600 commercial banks.

The Fed also changed its discount window practices in two ways. The Fed extended the facility to primary bond dealers like Goldman, Morgan Stanley and other non-commercial banks. This gave dealers a way to circumvent the crisis in the repo market. The Fed also broadened the class of instruments that were acceptable as collateral. For some of the tranches of subprime mortgage securities, the private haircuts were 100% while the Fed haircuts were around 20%.

The Fed launched the Term Asset Backed Lending Facility (TALF), which offered repo loans of maturity of up to 3 years against the collateral of newly issued asset backed securities. For many of these securities, the private repo market had either shut down or only offered overnight loans. TALF attempted to offset the maturity shortening of the private repo market and, in the process, expand the market's capacity for absorbing new asset backed securitization.

The Fed and government sponsored enterprises also began to purchase mortgage backed securities towards the end of 2008. This initiative aimed at purchasing assets that were trading at prices below the fundamental value.

### **Concluding notes**

A given firm will see a lower benefit from raising risk capital, compared to the financial sector as whole. So there is a case for the government injecting capital into banks.

The case for government intervention in banks is also strong because any impairment in the financial sector can also affect the corporate sector. The financial sector may not internalize these effects and as a result may undervalue risk capital. However, the government can internalize these externalities in its decisions.

The government is also never hard pressed for liquidity. It can always issue T-bills! The private sector on the other hand has a strong need for liquidity. Repo haircuts can be high and maturities short when private lenders become averse to being illiquid. The government can step in, offer lower haircuts and longer maturity repo loans, as it does not have any liquidity problems.

During normal periods, banks will have too little risk capital and too much debt, leaving the economy more prone to crises. Moreover, if the private sector is confident that the government will intervene actively during a crisis, there is a moral hazard problem.

Going forward, regulation must create structures that are less prone to crises. The US government can provide liquidity during a crisis. But if the national debt increases rapidly, its own creditworthiness may come down, meaning that it could run into liquidity problems.