EC247:

Financial Instruments and Capital Markets

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The problems affecting money markets in 2007-08 have been described as "a run on repo". Describe in detail how a bank run arises and explain how the phenomenon affected the money markets, taking care to explain the nature of the financial instruments and markets you discuss.

The financial crisis of 2007-2010 has been described by many to be the worst one to take place since the occurrence of the great depression, and there is much evidence that reiterates and backs up this claim. This essay will first start off by briefly explaining how the financial crisis originated, and also how the problems been experienced it the subprime mortgage market crossed over and had a detrimental effect on the money market. A bank run is a prominent feature of previous significant crisis that had occurred historically. How a bank run arises will be described and economic intuition will further be used to analyse it. Just like a traditional bank run, money markets can also experience a run. How the phenomenon of a run affected the money market will be explained in detail and then finally concluding.

Arnold (2012) defines money markets as a financial markets that provides lending and borrowing on a short-term basis and they are usually for less than a year to meet short-term liquidity transactions. For example, a bank might wish to invest money which their depositors may wish to withdraw at any moment. The participants in money markets are large parties such as governments, companies, financial institutions, corporations and banks who all need to borrow money for a period of time whether it be for a couple of days or weeks. Money markets brings together borrowers and investors and allows them to provide instruments that pays back a sum of money after the buyer pays an amount that allows him to own that right. There are various types of money markets such as; Treasury bill, Certificate of deposits and Bankers acceptance. However, the main financial instruments which this essay will focus on are Repo, Asset-backed Commercial Paper (ABCP) and also the Money market funds (MMF).

Fredric S. Mishkin (2013) defines ABCP as a short-term debt instruments that is issued by large business firms and financing. They are unsecured short-term mechanism of debts which are usually issued by large corporations such as governments and are only available to the most elite and respected organisations. Whereas MMFs works by collectively bringing the savings of many people and then investing them in the money markets in safe short term securities such as asset-back commercial paper, treasury bills or even repo agreements. Whilst a repurchase agreement (or a repo) is a financial contract used by market participants as a means of finance to enable them to meet short-term liquidity needs.

The global financial crisis that occurred starting in 2007 was said to have begun in the US housing markets. Before the crisis occurred, the housing market was thriving with prices rising in the boom period. The Bush Administration who were in power at that time had put in policies that were aimed at making it easier for low income families to borrow money and in turn obtain mortgages and own a home. Mortgage brokers saw the increase in house prices and the lessening of rules as an opportunity to benefit and make a profit. The fact that they are paid on a commission basis, further made them issue out loans without giving much consideration to the implications their actions could cause. This further created a problem of subprime lending which is a situation when loans are lent out to those who have a bad credit history and are not very likely to pay back. The problem in the subprime mortgage market crossed over and had a negative and detrimental effect on the money market. The subprime mortgages failure was a big reason why a run occurred on the ABCP market because the collateral and securities used, were mortgages which were experiencing a decline because of the negligence of the mortgage brokers. The run in the ABCP market and a fall in the price of other subprime related securities caused further problems for MMFs with a lot of them needing support from sponsors. Similarly, in the REPO market, haircuts rose over the year which caused severe liquidity problems and lead to the collapse of the markets.

Majority of the ideas from this paragraph have been derived from Gorton and Metrick (2012). From the start of the financial crisis in August, we saw several runs in various markets which before the crisis were considered as safe. The reason for this occurring was because a lot of the systems were now very vulnerable due to changes that had been occurring on the financial sector of the economy. The financial crisis was virtually a bank run but that which affected the money markets where financial institutions provided debt products which are bank-like to institutional investors. The financial institutions being discussed here were mostly shadow banks. According to Bernanke (2010), other than regulated depository institutions, shadow banks are financial bodies that transfer savings into investments as intermediaries. Before the crisis occurred, shadow banks played a big role in global finance, but in reflection shadow banking was also the source of key weaknesses that stemmed from the crisis. Just like with a traditional bank run where safety and liquidity is placed highly by depositors, lenders in the short-term money markets also value liquidity and safety highly. As stated by Bernanke (2010), once investors start to have even the slightest of doubts in regards to the safety of their investment, for them it is then much easier and safer to withdraw their funds than it is for them to invest time and resources to evaluate whether their investment is actually safe. By withdrawing their funds, it then creates a situation similar to that of a bank run but occurring in the money market which led to the disruption and damage to a range of institutions and financial markets.

BANK RUN

A Bank run is a key feature of the worst financial crisis' that have occurred previously and those that have had a prominent role and effect on the financial markets and institutions. This is why the financial crisis that began in 2007 was said to be the worst that occurred since the reign of Queen Victoria. According to Diamond and Dybvig (1983), a bank run is said to occur when depositors urgently all rush to withdraw their deposits from the bank because they have fears and expect the bank to fail. Diamond and Dybvig (1983) is a significant model of bank runs and liquidity transformation. The model shows how a bank liquid liability combined with their illiquid assets can lead to a self-fulfilling panic among its depositors which eventually leads to a bank run. The model assumes there is a bank which takes deposits (at time t=0) and then goes on to invest it in a project that will mature at time=2. It further assumes that they are two agents, one which enjoys consumption at t=1 and the other at t=2 and also that banks cannot distinguish between the two types of agents. Each agent that withdraws at t=1 will be paid a return of r1 for each unit that was deposited. Whereas in t=2, all the investments that are still yet to be withdrawn mature and for each unit that were invested, the return will be R. The bank is then liquidated and all the remaining depositors will be paid r2 for each of their unit deposited. Banks will therefore work well and smoothly as long as depositors only draw cash to meet liquidity needs.

During a banking panic, depositors all suddenly want to withdraw their money simultaneously and this could lead to the bank being forced to sell of many of its assets at a cost and could further lead to them being declared bankrupt. For a bank run to occur, confidence will have to be lost in the bank by depositors which will cause them to go in a sense of panic and demand their money back. In the diamond and Dybvig model, depositors will expect and forecast that all others will withdraw at t=1, so they all try to withdraw a t=1 and a bank run occurs. This is a self-fulfilling prophecy and panic by the depositors, they expect the bank to fail and so they rush to withdraw their money so it does fail. Taking the case that occurred with Northern Rock for example, it was when news broke out that the bank had gone into financial difficulties that initiated a sense of panic in the depositors and caused the run. Depositors in large numbers queued up outside branches of the bank up and down the country to take out their money. According to Hodson and Mabbett (2009) the bank run did not stop and confidence was not restored until the Chancellor of the Exchequer announced that to guarantee every deposit at Northern rock, he was willing to commit taxpayers'.

ASSET-BACKED COMMERCIAL PAPER

The run that occurred on the Asset-Back Commercial Paper (ABCP) in August 2007 was recognised as the first foremost event in the build up to the financial crisis. Commercial Paper (CP) has always been a very important security used by industrial firms as a source of finance for many decades as it is a method of raising capital at fairly low cost at short-term interest rates. ABCP are virtually promises made to the holder that a sum of money will be paid in a certain number of days and it usually has maturities which are between 1 to 4 days, and the average maturity of outstand paper can stretch out to about 30 days.

Just like in a bank, runs can also occur on the ABCP markets. A traditional bank run occurs when a large number of bank customers all simultaneously withdraw their deposits. Contrastingly, a run on ABCP occurs when lenders are unable to issue new paper to meet maturing requirements. As stated by Covitz, Liang and Suarez (2009), before the crisis had occurred, the largest U.S. short-term debt instruments were commercial paper and it had more than $1.97 trillion unsettled. A lot of the participants in the market place considered it to be safe because of the high credit rating and short maturity it had. However, as the crisis emerged, and events such as Lehman Brothers and Bear Stearns' filing for bankruptcy started to come about, perceptions were quickly changed. The value of commercial paper started to decline and as Kacperczyk and Schnabl (2009) estimated, it fell from $1.18 trillion in August 2007 to $745 billion August 2008. Furthermore, there was a dramatic increase in the number of runs that were occurring and as further assessed by Covitz, Liang and Suarez (2009) more than 120 programs which is nearly 40 percent of programs were experiencing a run. As the size of the market started to fall dramatically by the second half of 2007, and with a large number of programs declining and experiencing runs, most ABCP programs had to rely on support from sponsors or those that provide liquidity to cover their shortfalls. The run on ABCP also led to a rise in haircuts which had a detrimental effect on the REPO market. This will be analysed further in the next paragraph.

REPO

A lot of the ideas from this section have been derived from Gorton and Metrick (2011). During 2007-2008, there were various problems that were affecting the money markets. This has been described by many as a run on the repurchase and sales market (repo market). A repo agreement consists of two transactions which are sale and repurchase. The bank or borrower will sell specified securities to another investor on a short-term basis for cash. The bank or the borrower then guarantees to repurchase the securities on a stated future date at the original price, plus an additional amount which would have been agreed on. To further ensure that these deposits are safe, the depositors are provided with collateral. They are further entitled to terminate the agreement and keep or sell the collateral if the bank was to fail. The difference between the initial price and the repurchase price is known as "Haircut". For example if the deposit is £200 and the value of the collateral is £200, there is said to be no "haircut" on collateral in this instance.

Looking back at the early stages of 2007, majority of haircuts on collaterals were falling to levels very close to zero. When the runs on the ABCP market started occurring in august 2007, haircuts kept on increasing and increasing at a dramatic rate which led to the repo market being significantly weakened, as a substantial amount of liquidity had been withdrawn from the system. As a result of haircuts increasing, the US banking system was facing a situation which had not been experienced since the time of the Great Depression which was insolvency. Despite this, the repo markets still survived. After Lehman Brothers fail, some asset could not be traded at all because haircuts increased even further again and this meant that the repo market partially collapsed. It is also relevant to note that haircuts went up and prices fell for many assets which did not have a direct connection to subprime securities. The run on the repo market continued to have a detrimental effect and the market was becoming less and less liquid and eventually haircuts went 100 percent which meant that these assets were not acceptable as collateral in the repo market.

MONEY MARKET FUNDS

Just like with various other financial sectors, MMFs also experienced a crisis. MMFs are aimed at those investors who want to earn a return on their money whilst retaining their funds and keeping them liquid. Those who invest in MMFs are therefore very sensitive to delays in investments and do not want to risk not getting a full payment. MMFs were also popularly used because it allowed investors to withdraw their money from the fund at a short notice and in most cases investors can gain access to their funds within hours. Furthermore, money market mutual funds holds large amounts of ABCP and as already mentioned commercial paper programs were declining and experiencing runs by the second half of 2007. However, MMFs avoided going into a run as the shortfalls from ABCP were supported and covered by the sponsors of those programs. As the value of ABCP fell, MMFs experienced losses and they were again faced with a crisis after Lehman Brothers defaulted.

A MMF called Reserve Primary Fund invested a large amount of its funds into Lehman Brothers' short term debts and when Lehman's went bust the fund was unable to return back to investors the money they had put into it. This situation was known as "breaking the buck" which means the Net Asset Value (NAV) of the money market mutual fund fell below $1 and this was because the Lehman debt had to be written off. This then sparked a run on MMFs, and a market that was considered safe was now in considerable trouble. The market became illiquid rather quickly because they were having a hard time finding purchasers for the securities they had held and so they were failing to raise funds at a time when a high proportion of their investors demanded to withdraw cash. To prevent more MMFs from breaking the buck, the US Treasury acted in response by implementing a liquidity facility that allowed money funds to liquidate their ABCP holdings orderly. But at that point in time, major confidence was lost in the financial system and it simply led to banks hoarding the liquidity provided by the government.

In conclusion, we can see that financial crisis' are not just limited to having an effect on financial institutions alone. The runs that affected money markets were very detrimental and had a greater negative effect that extended not just on the money markets, but to other financial entities and the economy as a whole. We can see that a problem that started in the subprime mortgage market swiftly shifted to the ABCP as the collateral used to back up most of the loans made were now being defaulted. This then went on to affect the REPO market because haircut prices were rising. Also, because a large amount of ABCP was held by money market mutual funds and because commercial paper was declining, this further led to a run in the money market. Therefore, a problem that started in the housing market with the subprime mortgages had a domino effect and negatively flowed through the whole money market.

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