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The 2007-2009 financial crisis was the worst recession in recent economic history. The crisis is also known as the subprime lending crisis, as much of the financial duress has been attributed to the purported relaxation in lending standards which led to a fallout in the greater financial markets. The financial crisis has been the subject of much academic scrutiny, and many authors have arrived at different conclusions concerning the cause of the crisis and the effects. One of the most interesting real estate investments occurred during the crisis: certain investors and organizations predicted the bursting of the housing bubble and shorted real-estate backed securities, yielding huge profit. This paper will explore the financial crisis as well as the concurrent short selling to gain better understanding of financial markets, economic bubbles and recessions, and real-estate backed securities.

Overview of the Crisis

The subprime mortgage lending crisis began as a bubble. One of the original drivers for the real estate bubble was the historically relaxed monetary policy which had created consistently low interest rates (Moosa, 2008). As interest rates fall, demand for housing increases alongside home loan origination (Brueggeman & Fisher, 2016, p. 184). With relatively low interest rates, many housing consumers opted to refinance their homes, purchase upgraded residences, become a first-time home buyer, or invest in real estate. Residential housing prices were on the rise between 1998 and 2006 (Coleman IV, LaCour-Littel, & Vandell, 2008). This rise in prices was the working of supply and demand. Demand had increased for housing because lending rates were so low, while the supply struggled to grow at the rate necessary to meet the demand (Silva, 2008). Housing began to appear as a stronger investment, and banks and other

institutional lenders met the demand for finances by relaxing loan standards, which allowed them to issue more subprime loans to unqualified buyers as they neglected to properly consider the long-term risk.

There is also evidence of aggressive subprime lending tactics, where institutions “marketed in a predatory or deceptive manner that targeted vulnerable populations, particularly low-income and minority communities” (Ross & Squires, 2011, pp. 142-143). The subprime market was concerned with making money off the fees associated with the mortgage, which was then quickly turned over to the secondary market (Ross & Squires, 2011). Thus, many subprime loan originators were not concerned with the longevity of the loans but merely the up-front profitability related to the closing costs of the loan, which is a reason why the loans were marketed to more susceptible populations. As gullible mortgagors took the bait, the concentration of subprime loans in the secondary market began to rise.

A misinformed level of risk also contributed to the financial crisis. Mortgage Backed Securities (MBSs) and Collateralized Debt Obligations (CDOs) received relatively safe risk ratings from Moody’s and Standard & Poor’s while the creditworthiness of the initial borrowers was not equivalent in risk (Moosa, 2008). Calem, Henderson, and Liles (2011) found evidence of banks and financial institutions knowingly “cherry-picking” securities, which is where the institution has a better understanding of the total risk involved in a security and sells it to market without fully disclosing the information to investors. The authors found that as risk increased, financial institutions were more likely to have sold off the security to another holder, who was likely not as informed concerning the inherent risk of the securities (Calem et al., 2011). Also, CDOs were a relatively new debt tool, which means the risk was harder to accurately gauge relative to conventional securities (Silva, 2008). The return on CDOs was relatively high

compared to the risk rating, which led to the rising popularity of this type of security. These effects set up a domino chain of CDOs, whose total value in the market in 1995 was around \$20 billion and had risen to over \$500 billion in 2005 (Silva, 2008).

Often, equal housing legislation is attributed to the cause of the financial crisis. However, in an empirical study of whether the equal housing legislation had a significant cause in the crisis, Ghent, Hernandez-Murill, and Owyang (2015) conclude that there was no statistical correlation between legislation and subprime loan volume, pricing, and performance. They identified many alt-A securities backed by loans with poor FICO scores and high loan-to-value (LTV) ratios, and B/C rated securities in the sample areas had very little and sometimes no required documentation before the loan was issued (Ghent et al., 2015). The alt-A securities were given an inaccurately high security class, denoting less risk with equivalent or greater potential return than the security warranted. Regardless, the risk associated with these securities was not sufficiently disclosed between institutions and investors, contributing to the shock to come.

Another factor that contributed to the shuddering market was the inevitable decline in housing prices (Moosa, 2008). As the demand in the housing market retreated due to undersupply, the U.S. subprime market was put into a tough situation since there was now a relatively high percentage of subprime securities compared to past real estate markets (Silva, 2008). Credit had been overextended, repeating the slump in the business cycle (Silva, 2008). The riskiest of securities began to go underwater and borrowers started to default on their subprime loans, either because they walked away from their property and ceased to make payments or their loan had an adjustable rate and they could no longer afford the payments (Moosa, 2008).

The initial falling domino of the financial crisis was the downgrade in the ratings of a number of MBSs by Moody's (Moosa, 2008). The effects of this downgrade were noticed immediately in the hedge funds that had invested in these securities. Financial institutions began to realize staggering losses in these downgraded hedge funds as the U.S. housing market announced a 6.6% year-on-year drop in house prices. Bad news met with bad news as one of the largest home builders, DR Horton, filed bankruptcy, and Merrill Lynch reported a massive \$2.3 billion quarterly loss due to the collapsing hedge funds (Moosa, 2008). All of these financial shocks occurred within the span of six months.

The shock to the housing and credit markets spread like a sickness, an effect known as contagion. This effect began to affect "all other financial markets, including the bond market, money market, share market, primary securities markets, foreign exchange market and interbank market" (Moosa, 2008, p. 31). Eventually, due to the globalization of national economies, the contagion effect spread to major international markets like Germany, France, the U.K., Taiwan, Australia, and Japan (Moosa, 2008). Longstaff concludes, using a vector autoregression (VAR) framework, that there is significant evidence for contagion in the most recent financial crisis (2010). The VAR measures statistical correlation between ABX returns, other market returns, market leverage, and other trading activities (Longstaff, 2010). ABX is an index for subprime asset-backed securities and was found in this study to forecast the general market trends as much as three weeks in advance (Longstaff, 2010). When Moody's and the S&P wrote down the value of the subprime market by billions of dollars, this market came under severe duress. The stress on this financial market spread to other markets as investors lost confidence, as risk premiums rose, and as liquidity evaporated (Longstaff, 2010). To combat the financial downturn, the United States government developed a stimulus bailout package that would inject much needed

liquidity into the drying financial institutions. While this effort has turned the economy around, it remains to be seen whether it is a long term fix.

Short Selling in the Crisis

In the midst of this financial downfall, a number of shrewd investors managed to predict the collapse of the market and profitably trade failing securities by selling short. Short selling is a security trading strategy that is designed to profit a trader when a trader believes the market will fall (McKenzie, 2012). There are a few types of short selling, naked short selling and covered short selling. In a naked short sale, the trader sells a security that he or she does not hold at the time of the sale, while in a covered short sale, the trader has borrowed the security in order to cover his or her settlement obligations (McKenzie, 2012). In essence, the trader acts as an intermediary who sells the rights to a security from one entity to another before the price drops. Then, after the market price has fallen, the trader purchases the security from the initial owner of the security at its current market value. The difference between the sale to the investor and the purchase from the institution is profit for the short seller.

For example, an institution holds a bundle of MBSs worth \$1,000,000. The trader either sells or borrows this bundle of securities to an investor at the market value of \$1,000,000. For whatever reason, the value begins to fall, and the bundle of securities is worth half as much in the market. The investor now holds \$500,000 worth of securities, and the trader has \$1,000,000 in cash, with which he or she buys the security from the institution. The trader sells a security that he or she does not own to the investor and delivers it after he or she purchases it from the original owner, the financial institution in this case, at a lower price. In this instance, the trader profited from correctly forecasting the collapse in the worth of the security.

Subprime securities were traded in this downfall and were part of a poorly appraised type of debt instrument. While mortgage trading has always been an integral part of markets, it began to take a different shape starting in the 1950s (Brueggeman & Fisher, 2016). Mortgages were bundled and sold to the secondary markets as collateral for Mortgage Backed Bonds (MBBs), within other MBSs, and as CDOs (Moosa, 2008). The strength of this type of security comes from the mortgagors' ability to repay their individual loan. It is not inherently weak, yet its performance is greatly weakened when the risk of the security is not adequately communicated. Risk and return need to be balanced for the cost-benefit analysis to prove valuable. Also, as borrowers default and prepay their mortgages, MBSs must account for the actual yield, making the security more complex to forecast (Brueggeman & Fisher, 2016). MBBs are a pool of mortgages that sit behind an issuance of bonds in the marketplace (Brueggeman & Fisher, 2016). The bonds are then traded in the secondary market like a regular bond.

Early in the financial crisis, traders had identified mortgage backed securities littered with subprime loans and were able to successfully short sell for profit, betting against the market. As other securities began to tank because of the contagion effect, traders also shorted other stocks and bonds from a variety of markets. Eventually, in tandem with the United Kingdom Financial Services Authority, the United States Securities and Exchange Commission ordered a halt on short selling on September 19, 2008 (U.S. SEC, 2008). The reasoning behind this halt was that the rampant short selling of all sorts of securities was weakening the investors trust in the market and creating a downward spiral for prices, which was merely fueling further short selling (U.S. SEC, 2008).

The primary reason the SEC claimed for placing this ban on short sales is because they believed such sales were undermining the investor confidence in the market as a whole. Under

normal conditions, short selling is beneficial to laissez-faire economics by contributing liquidity and establishing price efficiency (U.S. SEC, 2008). However, the conditions of the market in 2008 were deplorable. Prices were falling past accurate valuation and quick, decisive action needed to take place. Short sale after short sale could continue to victimize the ignorant investor as their securities would continue to decrease in value. Ultimately, the SEC believed the shock in the market would affect investor confidence, which would negatively affect the market and create a negative feedback loop that could collapse the entire market, and halting short sales was their strategy to combat this rapid decrease in value.

However, Iftexhar, Massoud, Saunders, and Song (2015) argue that by implementing the short sale ban, the governing body affected the equilibrium price by destabilizing the natural process of reducing the price of an overvalued security. In the natural course of economics, businesses and securities ought to be allowed to decline in value if they are not appropriately priced. They draw three important conclusions in their study by comparing financial institutions with high exposure to subprime securities and financial institutions that were not as exposed. The first is that short selling peaked in financial institutions around the time for filing SEC required reports (Iftexhar et al., 2015). They also concluded that the higher the spread between rates, the more a firm engaged in short selling its equity securities (Iftexhar et al., 2015). The final conclusion is that prior to the short sale ban in 2008, both groups of financial institutions traded approximately equivalent amounts of securities as short sales (Iftexhar et al., 2015). Their work contributes to the argument that banning short sales during times of market instability can be detrimental, especially to institutions that have liquidity tied into declining securities (Iftexhar et al., 2015). It would be more beneficial for those institutions if short selling were permitted and investors were educated about the risk of securities.

Successful short selling creates winners and losers. In the aforementioned example, the trader is the winner, potentially pocketing millions of dollars in a single trade. On the other hand, the recipient of the security, the investor, is the loser. The investor purchased the security expecting it to provide return; instead, its principle value decreased substantially. While losing 50% of the value of a security is likely an extreme example, it practically illustrates the effect of the short sale. Short selling is an effective way to bet against aspects of the market, and while it can potentially lead to a negative feedback market loop, it violates laissez-faire economics to prohibit short selling. Banning short sales affects institutions littered with degrading securities while offering a meager level of confidence to the investor. Whether up or down, the financial markets offer an immense opportunity to generate profit.

Conclusion

It is clearly evident that the great recession was an incredibly complex macroeconomic event set into motion by countless decisions made on the microeconomic level. History will likely repeat itself as lending standards slack again to accommodate elastic nature of supply and demand. Mortgage backed securities might not contribute to the bubble in the same way, but greed and imperfect judgement will provide economists with new crises to study. As future markets turn south, governing bodies and traders alike will look back upon this historic event for lessons on what to do and what not to do. Real estate will remain cyclical, and evolving markets will seek equilibrium in the globalizing marketplace. For sovereigns, appropriate monetary policy and ban decisions will likely be at the forefront. For investors and institutions, collapsing securities may smell like money down the avenue of a short sale.

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