

The Return of The Bank Run

How the Financial Crisis of 2007-2008 was a Next-Generation Bank Run

Williams, Samuel M.

2/1/2013

Credit Expansion & the Return of the Bank Run: How the Financial Crisis of 2007-2008 was a Next-
Generation Bank Run

Beginning in 2007, the world underwent the greatest financial crisis since the Great Depression. Known as the Great Credit Crisis, the crash devastated markets around the world. The U.S. stock market plummeted nearly ten percent in just a few weeks, with similar declines in Asian and European stocks as well.¹ In fact, the Japanese stock market plunged more than five percent in a single day.² A whole host of respected financial firms on Wall Street were bought out, bailed out, or forced into bankruptcy. This disaster was all caused by a severe lockup of the credit market which brought the financial system to a crawl.³ And yet, uncertainty clouds the cause of this credit contraction. The answer lies in the oft-ignored fact that banks do not keep 100% reserves, leaving their deposits only fractionally-backed at any point in time. Investment banks, some of the key players in the financial crash, frequently overleveraged themselves at ratios exceeding thirty-to-one.⁴ Thus, financial institutions were sound only as long as they were trusted. As one brokerage industry analyst put it, "Banks and brokerages are a house of cards built on the confidence of clients, creditors, and counterparties. If you take chunks out of that confidence, things can go awry quickly... Once you have a run on the bank, you are in a death spiral and your assets become worthless".⁵ The systemic bank run, though believed to be a relic of the past, re-emerged as the driving force behind the financial crisis of 2007-2008.

Nontraditional banking, or non-commercial banking, is composed of firms which carry out traditional banking functions using innovative methods and instruments which fall outside the

¹ David M. Smick, *The World Is Curved: Hidden Dangers to the Global Economy*, (New York, NY: Portfolio, 2008), 13.

² *Ibid.*, 12.

³ William D. Cohan, *House of Cards: a Tale of Hubris and Wretched Excess on Wall Street*, (New York: Doubleday, 2009), 446.

⁴ *Ibid.*, 448.

⁵ *Ibid.*, 121.

regulatory apparatus for traditional, commercial banks.⁶ Actors in this system include investment banks, money-market mutual funds, and mortgage brokers, and they use complex financial instruments such as sale-and-repurchase agreements, collateralized debt obligations, and asset-backed securities.⁷ Taken all together, these form a parallel banking system which is commonly known as the shadow banking system.⁸ The shadow banking system draws its name from its relative lack of regulation compared to traditional banking and the absence of concrete knowledge as to its size and scope.⁹ However, despite these differences, the shadow banking system is still a banking system, complete with depositors, lenders, and withdraws.¹⁰

Non-commercial banks aiming to maximize profits have a great incentive to fractionally back their investments. Since banks are legally able to over-leverage themselves, banks can multiply their potential revenues by making many more loans than they would be able to with one-hundred percent reserves. In other words, the sum of the loans a bank issues out is many multiples of the sum of the deposits invested in the bank. Non-commercial banks also receive a competitive advantage in that commercial banks are limited by the more stringent Federal Reserve and are required to remain close to a ten to one ratio of total demand liabilities to total reserves.¹¹ Demand liabilities are liabilities, such as deposits and loans-issued, which must be redeemed instantaneously upon demand.¹² The Securities and Exchange Commission (SEC) regulates nontraditional banks, and it ruled in 2004 that these banks can

⁶ Gary Gorton, "Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007," *Federal Reserve Bank of Atlanta's 2009 Financial Markets Conference: Financial Innovation and Crisis* (May 9, 2009): 30, accessed October 19, 2011, <<http://www.frbatlanta.org/news/CONFEREN/09fmc/gorton.pdf>>.

⁷ Gary Gorton and Andrew Metrick, "Regulating the Shadow Banking System," *Brookings Papers On Economic Activity*, no. 2 (Fall 2010): 262, *Business Source Premier*, EBSCOhost, accessed October 17, 2011.

⁸ Gary Gorton, "E-coli, Repo Madness, and the Financial Crisis," *Business Economics* 45, no. 3 (July 2010): 168, *Business Source Premier*, EBSCOhost, accessed October 17, 2011.

⁹ Gorton and Metrick, "Regulating the Shadow," 269.

¹⁰ Gorton, "Slapped in the Face," 30.

¹¹ Cohan, *House of Cards*, 448.

¹² Murray N. Rothbard, *The Mystery of Banking*, 2nd ed., (Auburn, Ala.: Ludwig Von Mises Institute, 2008), 108-110.

leverage themselves up to forty times their equity.¹³ However, while the ability to loan money created out of nothing can be extremely lucrative, it also poses a significant risk to the noncommercial banks. At any given point, depositors have a right to withdraw their investment. Many of the claims to money that the banks have issued, which can be redeemed at any time, are balanced out only by expected returns from the loans issued out, which are not available until the loans are paid off. Thus, depending on the preferences of the depositors, a bank's liabilities could come due before its assets, making that bank insolvent. In fact, a bank making loans is always technically insolvent since its liabilities are instantaneous, while its assets are locked up in long-term investments.¹⁴ Thus, while a bank's assets at a given point in time do not equal its liabilities. The economist Murray Rothbard concludes it this way: "A bank is always inherently bankrupt, and would become so if its depositors all woke up to the fact that the money they believe to be available is actually not there."¹⁵ This leaves the banks vulnerable to the bank run.

The bank run begins when individuals no longer trust the bank and start to worry that, if the bank does not survive, their deposits will be lost.¹⁶ This fear is rational because the bank indeed does not have the current funds on hand to cover all of its liabilities. Acting on this impulse, depositors rush to the bank in order to immediately withdraw their accounts. As a few individuals rush to withdraw their deposits, the same fear is sparked in others, who become worried that the reserves might become exhausted before they can withdraw their own money. The bank run becomes a vicious cycle that feeds itself. If a bank's liabilities are not at or near one hundred percent backed by reserves, the reserves the bank does have will be exhausted and the bank will be insolvent. Rothbard considers the bank run to be

¹³ Cohan, *House of Cards*, 448.

¹⁴ Rothbard, *The Mystery of Banking*, 99.

¹⁵ *Ibid.*

¹⁶ *Ibid.*, 112.

“irresistible” because once it begins, it is impossible to end.¹⁷ Bank runs directly spawned financial panics numerous times including the Panics of 1837, 1857, 1873, 1893, and 1907.¹⁸ The bank run, as famously depicted in “It’s a Wonderful Life,” remained the terror of fractional-reserve commercial banks until the establishment of the Federal Deposit Insurance Commission (FDIC) in 1934, which ensures individual deposits with the commercial banks up to a specified amount.¹⁹ Non-traditional banks, however, forgo this government insurance and the numerous restrictions that come with it. They remain, therefore, completely exposed to the threat of the bank run.

Part of the reason that non-commercial banks do not face the same restraints and benefits as traditional banks is that their structure is different in several respects. The first major difference is that these banks operate in the sale and repurchase (repo) market. A sale and repurchase agreement is defined as the “sale of a security combined with an agreement to repurchase the same security at a specified price at the end of the contract”.²⁰ Practically speaking though, repo agreements function as short-term, often overnight, loans made against securities as collateral.²¹ The repo market is a major way Wall Street financial firms financed withdraws, loans, and purchases on a daily basis. Bear Stearns, before it nearly imploded, was borrowing around \$75 billion a day.²² Before the crash, the largest U.S. investment banks used repo markets to fund near fifty percent of their assets.²³ Lenders in this market consist of other businesses including other banks, large investors, insurance companies, and pension and hedge funds.²⁴ These firms are looking for a near-risk-free, interest earning, and short-term place to

¹⁷ Rothbard, *The Mystery of Banking*, 113.

¹⁸ Gorton, “Slapped in the Face,” 2.

¹⁹ Gorton, “Slapped in the Face,” 3.

²⁰ Gary Gorton and Andrew Metrick, “Haircuts,” *Review* 92, no. 6 (November 2010): 519, *Business Source Premier*, EBSCOhost, accessed October 17, 2011.

²¹ Ibid.

²² Cohan, *House of Cards*, 32.

²³ Gorton and Metrick, “Haircuts,” 510.

²⁴ Gorton, “Slapped in the Face,” 30.

store funds and since the deposit amount covered by FDIC is too small, they go to the repo market.²⁵ Thus, the repo market functions in many ways as a form of deposit banking.²⁶

Since sale and repurchase agreements are typically overnight and are rolled over on day-to-day, they give the lender flexibility to access its cash as needed.²⁷ The repo market is regarded as such a safe storage spot for money because it is backed by collateral. Securitized bonds are the generally accepted form of collateral because they are intended to be virtually riskless.²⁸ Their safety is empirically supported as the most senior securities have never defaulted.²⁹ Repo agreements are also bankruptcy-proof for the lender. If the borrower defaults, the lender has the right to void the arrangement and keep the collateral offered.³⁰ Interestingly, collateral issued to a lender may then be reused in another transaction, the reuse being termed rehypothecation.³¹ Just as single amounts of cash are allowed to create several demand deposits, so too can single bonds of collateral be used to back multiple repo arrangements.³² While an item cannot legally be listed as an asset or liability on a bank's balance sheet, it can be used in by multiple different banks as an off-balance sheet item.³³ While rehypothecation of assets is capped by the Securities Investor Protection Act (SIPA) for most transactions, the law did not apply to repos.³⁴ Because of this characteristic, repos were considered money by M3.³⁵ Just as monetary expansion from traditional banks is unstable, so too the quantity of repo agreements fluctuates with the

²⁵ Gorton and Metrick, "Haircuts," 509.

²⁶ Gorton, "Slapped in the Face," 30.

²⁷ Gorton and Metrick, "Regulating the Shadow," 276.

²⁸ Gorton, "Slapped in the Face," 7.

²⁹ Gorton, "Slapped in the Face," 9.

³⁰ Peter Van Dore, "Collapse of Shadow Banking," *Regulation* 34, no. 2 (Summer 2011): 53, *Business Source Premier*, EBSCOhost, accessed October 17, 2011.

³¹ Gorton and Metrick, "Haircuts," 510.

³² *Ibid.*

³³ James Aitken and Manmohan Singh, "The (sizable) Role of Rehypothecation in the Shadow Banking System," (July 2010):9, *IMF Working Paper*, accessed January 1, 2013, <<http://www.imf.org/external/pubs/ft/wp/2010/wp10172.pdf>>.

³⁴ *Ibid.*, 4.

³⁵ Gorton, "E-coli, Repo Madness," 172.

state of the economy and is prone to severe contractions in hard times.³⁶ There is no organized secondary market for repos, but rather, they are handled directly between the two parties involved.³⁷ Because of this, no official numbers exist regarding the overall size, but it is estimated between \$10-12 trillion.³⁸³⁹ This is just equal to or greater than the \$10 trillion total assets in the commercial U.S. banking system.⁴⁰

A significant process associated with the collateral used in the repo markets is securitization. This is where long term loans are turned into securities with different levels of risk.⁴¹ The transformation occurs when a bank takes a group of loans it has made, pools them together, and then sells the conglomeration to a Special Purpose Vehicle (SPV), a company which the bank creates specifically to carry securitization.⁴² The SPV then creates “tranches” or securities with different seniorities (levels of priority and risk) which are then sold to investors or used as collateral.⁴³ The securities allow for risk to be distributed and exposure limited.⁴⁴ Examples of securitized assets include mortgages, automobile loans, and student loans.⁴⁵

Securitized loans are seen as strong collateral because of the checks that are in place against the adverse selection problem. Adverse selection in this context is the danger that a loan originator who has more information about the loans could place the worst loans into the pool sent to the SPV.⁴⁶ The first

³⁶ Gorton, "E-coli, Repo Madness," 172.

³⁷ Gorton, "Slapped in the Face," 10.

³⁸ Ibid., 30.

³⁹ Gorton and Metrick, "Haircuts," 510.

⁴⁰ Ibid.

⁴¹ Gorton and Metrick, "Regulating the Shadow," 270.

⁴² Gorton and Metrick, "Haircuts," 519.

⁴³ Gorton, "Slapped in the Face," 8.

⁴⁴ Johan Norberg, *Financial Fiasco: How America's Infatuation with Homeownership and Easy Money Created the Economic Crisis*, (Washington, D.C.: Cato Institute, 2009), 47.

⁴⁵ Gorton, "Slapped in the Face," 9.

⁴⁶ Gorton and Metrick, "Regulating the Shadow," 274.

check against this risk is that the majority of the debt is “senior and investment-grade”.⁴⁷ A senior debt is a debt “that, in the event the issuer goes bankrupt, must be repaid before other creditors receive any payment”.⁴⁸ Investment grade describes a debt which has a low probability of default. Secondly, the eligibility for loans to enter the portfolio being sent to the SPV is limited. If the loan is found to have sufficient quality, it is selected at random from all the other eligible loans.⁴⁹ After the loans are securitized, the security is even more bias-free because it is backed by a portfolio and its complexity makes undertaking research on it prohibitively expensive.⁵⁰ Another goal of securities is to be crafted in such a way as to render speculation impractical. Firms want to avoid being required to do a significant and costly investigation every time a contract using a security as collateral is made.⁵¹ The collateral produced through securitization is used in derivative markets and payment/settlement arrangements along with repo markets.⁵²

The Great Credit Crunch was directly caused by a loss of confidence in financial institutions within the shadow banking system, which had its roots in the collapse of the subprime mortgage market. After reaching a pinnacle in 2006, subprime mortgage values began a precipitous descent.⁵³ The now-widely condemned boom in subprime mortgages had several causes above and beyond mere greed or market failure. The Community Reinvestment Act, passed in 1977 over banking industry objections, required that certain amount of bank revenue be allocated into low- and moderate- income areas.⁵⁴ Furthermore, usury laws, which had formerly priced low income individuals out of the mortgage market,

⁴⁷ Gorton, “Slapped in the Face,” 9.

⁴⁸ *Investopedia*, s.v. “Senior Security,” accessed January 9, 2013, <<http://www.investopedia.com/terms/s/seniorsecurity.asp>>.

⁴⁹ Gorton and Metrick, “Regulating the Shadow,” 274.

⁵⁰ Gorton, “Slapped in the Face,” 9.

⁵¹ *Ibid.*, 10.

⁵² Gorton, “Slapped in the Face,” 10.

⁵³ Justin Fox, *The Myth of the Rational Market: a History of Risk, Reward, and Delusion on Wall Street.*, (New York: Harper Business, 2009), 315.

⁵⁴ Edward M. Gramlich, *Subprime Mortgages: America's Latest Boom and Bust*, (Washington, D.C.: Urban Institute, 2007), 5.

were removed.⁵⁵ The two semi-private, semi-public mortgage giants, Fannie Mae and Freddy Mac, further escalated the boom by purchasing tens of billions of dollars' worth of subprime mortgage-backed securities from 2003-2007.⁵⁶ Aggressive Federal Reserve action to keep interest rates low by slashing its federal funds rate to one percent greatly increased incentive to enlarge loan-giving by making credit cheap and easy to access.⁵⁷ All these new incentives encouraged banks to make mortgages available to lower income groups who were a much higher risk of defaulting.⁵⁸ Trying to counter for this increased risk of default, banks used unique methods to charge higher interest rates while still making mortgages appear affordable to the low income borrowers through low down-payment requirements.⁵⁹ For a time, this strategy was successful in maintaining an acceptable profit to default ratio.⁶⁰

Starting in 2006, however, the foreclosure rate started rapidly rising,⁶¹ and this was at least partly due to unsustainably-high mortgage costs.⁶² By 2009, of those with adjustable rate mortgages, over 55% owed more on their mortgages than their house was worth.⁶³ Adjustable rate mortgages were created to help borrowers gain homes they might not otherwise have been able to afford by having a period at the start of the mortgage where borrowers only needed to make interest payments and by tying the interest rate on the mortgage to the market interest rate.⁶⁴ Adjustable rate mortgages were used significantly in the subprime mortgage market, and they devastated borrowers when interest rates began to rise. By 2008, the foreclosure rate for subprime mortgages had jumped to 17%, three times the

⁵⁵ Gramlich, *Subprime Mortgages*, 4.

⁵⁶ Fox, *The Myth of the Rational Market*, 313.

⁵⁷ Charles R. Morris, *The Two Trillion Dollar Meltdown: Easy Money, High Rollers, and the Great Credit Crash*, (New York: Public Affairs, 2008), 59.

⁵⁸ Fox, *The Myth of the Rational Market*, 313.

⁵⁹ Gramlich, *Subprime Mortgages*, 16, 18.

⁶⁰ *Ibid.*, 9.

⁶¹ Daniel Immergluck, *Foreclosed: High-risk Lending, Deregulation, and the Undermining of America's Mortgage Market*, (Ithaca: Cornell UP, 2009), 136.

⁶² Gramlich, *Subprime Mortgages*, 18.

⁶³ Thomas Sowell, *The Housing Boom And Bust*, (New York: Basic, 2009), 62.

⁶⁴ *Ibid.*

low point it reached in 2005.⁶⁵ The rate for prime mortgages, however, was at a healthy 2.4%.⁶⁶ In 2007, as the value of subprime mortgages continued to free-fall, the giant Swiss bank UBS was forced to write off \$13.7 billion in U.S. mortgages foreshadowing future corporate losses to come.⁶⁷ The mortgages made as a part of the Community Reinvestment Act were hit especially hard with the downturn. While these mortgages only comprised 7% of Bank of America's total mortgages, they accounted for 29% of the bank's mortgage-based losses in 2008.⁶⁸ And yet, as serious as the subprime mortgage failures were, the spike in defaults did not immediately beget the financial crash. While indices for subprime assets significantly declined all through 2007, it was only when problems in the interbank market emerged in August 2007 that the values of indices for other securitized assets, such as "credit card receivables, auto loans, and student loans," start to decline.⁶⁹

The financial panic did not truly begin with the steep drop in value of the subprime market. The \$1.2 trillion in total subprime assets for 2005 and 2006 is not large enough to cause a cascading, systemic failure across the \$20 trillion banking industry in the U.S.⁷⁰ In fact, of this \$1.2 trillion, 82% was rated AAA, the highest possible rating of creditworthiness, and that portion has not taken serious losses.⁷¹ Furthermore, bank-exposure to the subprime mortgages made up only around \$200 billion, as compared to overall regulated bank assets of \$10 trillion.⁷² The true problem was asymmetric information regarding who is exposed to the subprime mortgage losses and to what degree.⁷⁴ Because subprime mortgages were pooled with other loans, securitized, and then dealt to numerous financial

⁶⁵ Immergluck, *Foreclosed*, 136.

⁶⁶ Ibid.

⁶⁷ Cohan, *House of Cards*, 5.

⁶⁸ Sowell, *The Housing Boom*, 66.

⁶⁹ Gorton, "Slapped in the Face," 32.

⁷⁰ Ibid.

⁷¹ Gorton, "E-coli, Repo Madness," 167.

⁷² Gorton, "Slapped in the Face," 30.

⁷³ Smick, *The World Is Curved*, 11.

⁷⁴ Gorton, "Slapped in the Face," 32.

intermediaries around the world, uncertainty reigned as to which banks, if any, were safe.⁷⁵ This was furthered by the question of which firms the Fed was willing to save or let die.⁷⁶ While the government ultimately acted to bailout in one form or another Bear Stearns, AIG, Wachovia, and National City Bank, it let Lehman Brothers, Washington Mutual, and a host of other financial institutions go under.⁷⁷ An analogy to a systemic bank run is an E. coli outbreak. A small contamination found in a specific group of foods can lead individuals to avoid even similar groups.⁷⁸ This effect is amplified if it is unknown which specific food groups were contaminated. In a bank run, actors face a similar situation. While individuals know that many banks will survive, they do not know which ones will fail. Since all large financial banks engage in fractional reserve banking, there is always a risk to investors that the bank will be caught with inadequate reserves. If it is found to be insolvent, the investors stand to lose their deposits unless they are able to get their money out before it collapses. Therefore, just as consumers avoid food groups at-risk of E. coli contamination, investors will refrain from leaving deposits in banks in times of financial jeopardy because it is unknown which banks will default. Thus, all financial firms in the shadow banking system came under the same pressure of bank runs.⁷⁹

Noncommercial banks did indeed see clients flee as risks to the market increased. In many cases, this was all due to a simple shift in perception. Take for example the case of Northern Rock, the fifth largest British lender.⁸⁰ Despite the fact that the firm was still profitable, a report that it had gone to the Bank of England for emergency support was all it took for confidence to disappear.⁸¹ Online withdraws quickly crashed the server and a full scale bank run continued for days until the government

⁷⁵ Gorton and Metrick, "Haircuts," 511.

⁷⁶ Ibid., 12.

⁷⁷ Cohan, *House of Cards*, 446.

⁷⁸ Gorton and Metrick, "Haircuts," 511.

⁷⁹ Gorton and Metrick, "Haircuts," 512.

⁸⁰ Gillian Tett, *Fool's Gold: The Inside Story of J.P. Morgan and How Wall St. Greed Corrupted Its Bold Dream and Created a Financial Catastrophe*, (Free Press, 2010), 194.

⁸¹ Ibid., 195.

bailed out the bank.⁸² Thornburg Mortgage, a home mortgage lender, suffered a similar crisis of confidence. When the giant Swiss international bank UBS wrote off \$13.7 billion in losses on U.S. mortgages for the fourth quarter of 2007, it forced other firms to mark down the value of similar investments on their books as well.⁸³ Thornburg, despite having 99.56% of its mortgages performing well, was inundated with margin calls between December 31, 2007 and early-March 2008. Since the purchasing of a security is frequently financed via borrowed funds, a margin call is a demand by the lender for the borrower to place additional cash in a margin account, covering the shortfall between the asset and the initial loan.⁸⁴ Also known as a maintenance call, these occur when the value of the security has fallen enough to cause consternation regarding repayment of the loan, and they protect the lender from receiving assets worth less than the amount owed in the case of the borrower defaulting.⁸⁵ As the wave of margin calls intensified, Thornburg's available liquidity was exhausted and the stock price per share, more than \$28 a year ago, plunged to 61¢ by March 10, 2008.⁸⁶ Thornburg Mortgage ultimately filed for Chapter 11 bankruptcy April 1, 2009.⁸⁷ Then there is the illustration from Bear Stearns. According to the books the company had strong assets in 2007. In fact, in early 2008, the company had \$17.3 billion in liquidity and believed that it was going to post a first quarter profit of \$115 million.⁸⁸ The company, however, was overleveraged at 33:1 and heavily involved in the mortgage industry.⁸⁹ In March 2008, the market soured on Bear Stearns and confidence vanished. With investors being free to leave, there was little the bank could do but watch as the race to remove investments poured over the

⁸² Tett, *Fools Gold*, 196.

⁸³ Cohan, *House of Cards*, 6.

⁸⁴ *Investopedia*, s.v. "Margin Call," accessed January 9, 2013, <http://www.investopedia.com/terms/m/margincall.asp>.

⁸⁵ *Id.*

⁸⁶ Cohan, *House of Cards*, 6.

⁸⁷ "SEC Charges Three Mortgage Executives with Fraudulent Accounting Maneuvers in Midst of Financial Crisis," (March 13, 2012), *U.S. Securities and Exchange Commission*, Accessed January 9, 2013, <<http://www.sec.gov/news/press/2012/2012-42.htm>>.

⁸⁸ Cohan, *House of Cards*, 11.

⁸⁹ *Ibid.*, 14.

company. On March 17, 2008, narrowly avoiding imminent bankruptcy, Bear Stearns was purchased by JPMorgan Chase for \$2 a share.⁹⁰

In the system-wide bank run that struck the financial industry in 2007, however, new variations of the bank run also manifested. These mutations occurred because of the greater complexity of the shadow banking system. The first of these involved the repo market. The repo market, as mentioned before, was a form of overnight lending where nontraditional banks sold collateral with the promise that they would purchase it back the next day. For investment banks, which heavily funded themselves through this method, the repo market provided the only opportunity to access enough liquidity to meet the withdrawals. But liquidity is also tied directly to confidence in the fractionally backed system.⁹¹ The first option that the repo market lenders have as they grow concerned about the risks involved in lending to another firm is to charge a “haircut.” A haircut is the percentage that the value of the collateral asset is decreased compared to the amount of money being lent.⁹² These markdowns are undertaken when the lender is uncertain about the market value of the good and, if forced to sell it, whether the lender would be able to recoup the losses. So with a 10% haircut, a \$100,000 (value according to the market) asset will only cover as collateral a loan of \$90,000. This amounts to a withdrawal from the bank because it will no longer be able to attain the same level of funding from using its assets as collateral which it formerly had.⁹³ An example of the effect of a haircut on the system can be shown by looking at a model banking system before and after the implementation of a haircut. Assume that before the system has \$100 in assets financed by \$10 equity, \$40 long-term debt, and \$50 repo to bring up \$100 total assets and \$100 total liabilities.⁹⁴ If repo haircuts rise to 20% from zero the \$100 assets will be unaffected but the repo will drop by \$10 on the liabilities because the \$50 of

⁹⁰ Cohan, *House of Cards*, 110.

⁹¹ Smick, *The World Is Curved*, 22.

⁹² Gorton and Metrick, “Haircuts,” 518.

⁹³ Gorton, “Slapped in the Face,” 34.

⁹⁴ *Ibid.*, 35.

collateral will only back a \$40 repo agreement ($[(50-40)/50 = .20$ haircut). The system needs to find additional offsetting funds to finance its assets, but borrowing or equity injections were not options because they had dried up in the financial crisis.⁹⁵ Thus, the system will have to sell assets to make up for the loss of \$10. But as they put the assets on the market, the asset prices drop, wiping out the \$10 equity that had been the cushion between the value of the assets and the cost of the loans it took to finance them. This leaves the system with \$80 total assets, as some were sold and the value of the rest fell, and \$80 total liabilities, with long-term debt and repo both at \$40 and equity wiped out.⁹⁶ But because of the devaluation of assets, the system will not have enough collateral to back the \$40 repo because of the 20% haircut, causing more asset sales. Unfortunately, the “reality is that there is no private agent large enough to buy enough of the assets of the system to solve the problem,” leading to asset prices spiraling downward.⁹⁷

Since securities are used to back multiple repo arrangements through the process of rehypothecation, a decline in available collateral is acutely felt in the repo market. If an increased haircut on securities is put in place, the value of total repo agreements drops because the securities will now only be sufficient collateral to support a smaller total sum of loans. Also, a diminishing of securities’ value will cause the size of sale and repurchase agreements to fall. It is important to note, however, that because of rehypothecation a decline in collateral causes a many-times-greater decline in the repo market. For example, a \$10 million dollar decrease in the value of securities (or a similar decrease in available collateral due to higher haircuts) can undermine \$40 million worth of repo agreements if the \$10 million had been supporting four different repo contracts. Thus, the total supply of repos available is vulnerable to severe, market-based contractions. Faced with diminishing available credit, banks must sell assets, such as securities, in order to finance withdraws, causing the value of the assets to fall

⁹⁵ Ibid., 34.

⁹⁶ Ibid., 35.

⁹⁷ Ibid., 34.

farther.⁹⁸ This instability manifested in the financial crash. From November 2007 to December 2009 total collateral with permission to be rehypothecated received by the top seven U.S. broker-dealers plummeted from \$4.5 trillion to just over \$2 trillion.⁹⁹

A repo haircut run on the banks occurred as the average repo haircut on structured debt rose from 0% in 2007 to over 45% by the start of 2009 (See Appendix I).¹⁰⁰ The repo haircut charged to subprime assets reached 100% in the same period, effectively blocking it from use as collateral.¹⁰¹ The other method of lenders withdrawing their funds is that they simply do not roll over their repo agreements with the bank.¹⁰² In this situation, the lender would return the collateral bond and the bank would have to send back the money. Of course, the entire need for repo lending is because of the risk that partially backed reserves pose. If reserves were kept to match deposits, banks would not need the repo market to provide liquidity for withdrawals. The declines in the repo market during the financial crash contributed significantly to the credit crunch. It has been estimated that, after the collapse of Lehman, the U.S. dollar interbank borrowing market contracted \$423 billion.¹⁰³ Also, for the four largest broker-dealers, the decrease of rehypothecation totaled \$1.77 trillion.¹⁰⁴

The other form the bank run took was not the withdrawing of investments in the bank, but investors betting against it. This can take the form of shorting of its stock, or purchasing put options or credit default swaps.¹⁰⁵ This puts pressure on the company as well as damaging the perception of the company. As already established, public confidence is critical to a fractionally-reserved bank. The presence of actors actively betting on its decline is merely another blow to the precious perception it

⁹⁸ Gorton, "E-coli, Repo Madness," 172.

⁹⁹ Aitken and Singh, "The (sizable) Role of Rehypothecation," 6.

¹⁰⁰ Gorton, "Slapped in the Face," 33.

¹⁰¹ Gorton and Metrick, "Haircuts," 513.

¹⁰² Gorton, "Slapped in the Face," 30.

¹⁰³ Gorton, "Slapped in the Face," 36.

¹⁰⁴ *Ibid.*

¹⁰⁵ Cohan, *House of Cards*, 37.

must maintain. After all, a short on stock is a statement that the investor believes the stock is overvalued and will fall. Thus, short-selling the stock of a company can precipitate the flight of investment and become a self-fulfilling prophecy.¹⁰⁶ The power of short-selling to generate downward stock spirals was increased in 2007 when the SEC ended the “uptick rule”.¹⁰⁷ This regulation had slowed the free-fall of a stock by restraining the ability of short-sellers to swarm the stock with selling, thereby deterring potential buyers from buying in.¹⁰⁸ In the days leading up to the implosion of Bear Stearns, the market was flooded with extreme put options, the most common of which required a 52% decline in Bear Stearns’ stock over the next eight sessions in order to be profitable.¹⁰⁹ On March 10th, the cost of a credit default swap to insure Bear Stearns’ obligations against default skyrocketed “to \$700,000 to protect against \$10 million of debt for five years, an increase of fourteen times over the previous week”.¹¹⁰ Also, when large amounts of money are invested in betting against a company, it is possible the company now has significant interests actively working to bring it down. The analogy used is that of buying fire insurance on a neighbor’s house and then burning it down.¹¹¹ Gary Gensler, chairman of the Commodities Future Trading Commission, stated, “(Some observers) contend that, as buyers of credit default swaps had an incentive to see a company fail, they may have engaged in market activity to help undermine an underlying company’s prospects”.¹¹² For example, by March 12, 2008 billions of dollars had been invested in benefiting from the failure of Bear Stearns, and at that same time false rumors began to proliferate which further undermined trust in the company and paralyzed its operations.¹¹³

¹⁰⁶ Gary Gorton, "Are Naked CDS Too Revealing?," *Bank Loan Report* 25, no. 24 (June 14, 2010): 4, *Business Source Premier*, EBSCOhost, accessed October 17, 2011.

¹⁰⁷ Cohan, *House of Cards*, 448.

¹⁰⁸ *Ibid.*

¹⁰⁹ *Ibid.*, 20.

¹¹⁰ *Ibid.*, 21.

¹¹¹ Gorton, "Are Naked CDS," 4.

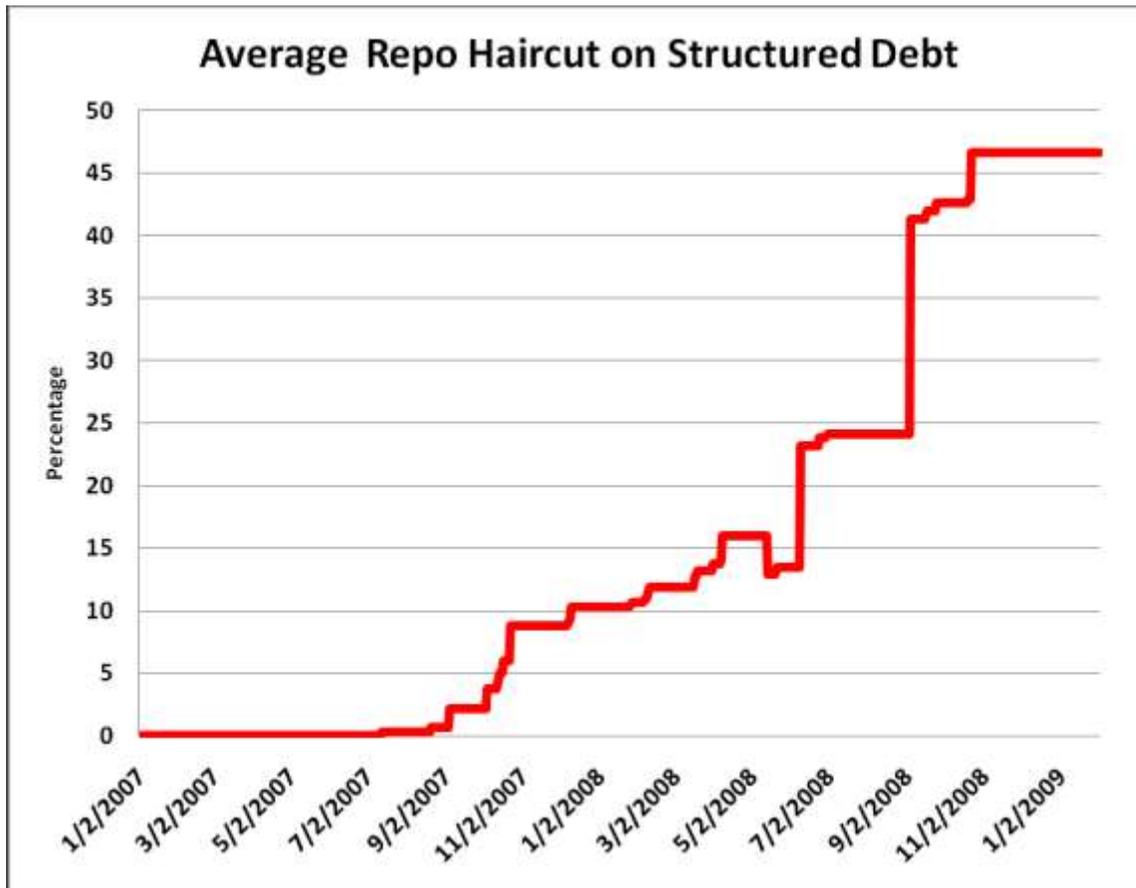
¹¹² *Ibid.*

¹¹³ Cohan, *House of Cards*, 22,37.

The financial crisis of 2007 -2008 was an unavoidable byproduct of the dangers of partially-backed reserves to the banking system. As long as the investments are profitable and credit is easy to obtain, banks can avoid the bank run. But perfect conditions cannot last forever. In fact, banking panics occur at the peak of the business cycle.¹¹⁴ Without the collectivized risk and associated regulations that a program like the Federal Deposit Insurance brings, individuals will always seek to preserve their wealth in times of distress by pulling it out of endangered financial intermediaries. Once the process begins, it is nearly impossible to stop. The individuals who begin the rush and are driven by the fear that the bank is going to collapse and take their investment with it, will stir the same fear in the other clients of the bank, prompting them to join the rush as well. Only a guarantee from an institution which the public considers large enough to be secure, such as the federal government, will be enough to alleviate these fears in a fractional reserve banking system. In fact, this collectivization of risk will only be sustainable until the pooled risk enlarges to the point that confidence in the institution itself is lost, resulting in a run on that entity. Public knowledge that the bank has one-hundred percent reserves to back up every dollar deposited is the only policy which can fully eliminate the bank run. While the collapse of the subprime housing market certainly provided an impetus, the emergence of the shadow banking system, and its repo market and securitization components, made the return of the bank run inevitable. As the financial market continues to develop and circumvent government-created restraints and regulations, banking runs will continue unless banks learn from the failures of the past and prioritize responsibility over recklessness and sustainability over spurious success.

¹¹⁴ Gorton, "Slapped in the Face," 18.

Appendix I



(Gorton, Gary. 2009. P. 33. *Slapped in the Face by the Invisible Hand Banking and the Panic of 2007*. S.I.: S.N.)

Works Cited

Aitken, James, and Manmohan Singh. "The (sizable) Role of Rehypothecation in the Shadow Banking System." (July 2010). *IMF Working Paper* (accessed January 1, 2013).

<http://www.imf.org/external/pubs/ft/wp/2010/wp10172.pdf>

Cohan, William D. *House of Cards: a Tale of Hubris and Wretched Excess on Wall Street*. New York: Doubleday, 2009.

Fox, Justin. *The Myth of the Rational Market: a History of Risk, Reward, and Delusion on Wall Street*. New York: Harper Business, 2009.

Gorton, Gary. "Are Naked CDS Too Revealing?" *Bank Loan Report* 25, no. 24 (June 14, 2010): 4-8. *Business Source Premier*, EBSCOhost (accessed October 17, 2011).

---. "E-coli, Repo Madness, and the Financial Crisis." *Business Economics* 45, no. 3 (July 2010): 164-173. *Business Source Premier*, EBSCOhost (accessed October 17, 2011).

---. "Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007." *Federal Reserve Bank of Atlanta's 2009 Financial Markets Conference: Financial Innovation and Crisis* (May 9, 2009): 1-52. *Yale and NBER* (accessed October 19, 2011).
<<http://www.frbatlanta.org/news/CONFEREN/09fmc/gorton.pdf>>

Gorton, Gary, and Andrew Metrick. "Haircuts." *Review* 92, no. 6 (November 2010): 507-519. *Business Source Premier*, EBSCOhost (accessed October 17, 2011).

---. "Regulating the Shadow Banking System." *Brookings Papers on Economic Activity*, no. 2 (Fall 2010): 261-312. *Business Source Premier*, EBSCOhost (accessed October 17, 2011).

Gramlich, Edward M. *Subprime Mortgages: America's Latest Boom and Bust*. Washington, D.C.: Urban Institute, 2007.

Immergluck, Daniel. *Foreclosed: High-risk Lending, Deregulation, and the Undermining of America's Mortgage Market*. Ithaca: Cornell UP, 2009.

Investopedia. Value Click, Inc. (accessed October 17, 2011). <<http://www.investopedia.com/>>

Morris, Charles R. *The Two Trillion Dollar Meltdown: Easy Money, High Rollers, and the Great Credit Crash*. New York: Public Affairs, 2008.

Norberg, Johan. *Financial Fiasco: How America's Infatuation with Homeownership and Easy Money Created the Economic Crisis*. Washington, D.C.: Cato Institute, 2009.

Rothbard, Murray N. *The Mystery of Banking*. 2nd ed. Auburn, Ala.: Ludwig Von Mises Institute, 2008.

"SEC Charges Three Mortgage Executives with Fraudulent Accounting Maneuvers in Midst of Financial Crisis." (March 13, 2012). *U.S. Securities and Exchange Commission*. (accessed January 9, 2013). <http://www.sec.gov/news/press/2012/2012-42.htm>.

Smick, David M. *The World Is Curved: Hidden Dangers to the Global Economy*. New York, NY: Portfolio, 2008.

Sowell, Thomas. *The Housing Boom and Bust*. New York: Basic, 2009.

Tett, Gillian. *Fool's Gold: The Inside Story of J.P. Morgan and How Wall St. Greed Corrupted Its Bold Dream and Created a Financial Catastrophe*. Free Press, 2010.

Van Dore, Peter. "Collapse of Shadow Banking." *Regulation* 34, no. 2 (Summer 2011): 53-54. *Business Source Premier*, EBSCOhost (accessed October 17, 2011).