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THE BIG CON – REASSESSING THE "GREAT" RECESSION AND ITS "FIX"

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ABSTRACT

Most economists differ, not on the causes of the Great Recession, but on their relative importance. They concur, though, on the basic problem, namely human, not market failure. This study applies the evidence, some new, some old, to re-try the usual suspects. It finds none guilty. Instead, it identifies broadly defined multiple equilibrium, mediated by opacity, false rumors, and panic, as the real culprit. There are many models of bank runs. But each can trigger firing runs – firing someone else's customers for fear that others are firing your customers. Firing runs, in turn, exacerbate bank runs, producing a vicious cycle. This cycle can be manipulated by those who benefit from economic distress (short sellers). If the banking system, not the banking players is the problem, the solution surely lies in fundamental banking reform. This paper concludes by pointing out that a reform that shifted to 100 percent, equity-financed mutual-fund banking with government-organized, real-time asset verification and disclosure could preclude financial runs and their ability to induce firing runs.

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Introduction

Ten years after the Great Recession (GR), economists still debate its causes and policymakers still wonder how to prevent the next financial crisis. MIT finance professor, Andrew Lo (2012), reviewed 21 books on the financial crisis by economists, bankers and journalists. He concluded that¹

... (there is) significant disagreement as to what the underlying causes of the crisis were and even less agreement as to what to do about it. But what may be more disconcerting for most economists is the fact that we can't even agree on all the facts.

This paper argues that the alleged causes of the GR are either a) unsupported by the facts, b) disconnected from economic theory or c) descriptions of GR outcomes, not GR causes. Next, it points out that the “Great” Recession was not particularly great, suggesting that its very title is part of the recession’s self-generated hysteria. This debunking of the “big con” – the standard narrative of the GR and the alleged Dodd-Frank fix -- is followed by an alternative and seemingly obvious view of what produced this latest in a long history of U.S. banking failures and economic downturns – *pure, misinformed panic* that flipped the economy’s equilibrium.

To be sure, my take is an outlier relative to the standard diagnosis of the problem and its cure. The standard view is that the housing market experienced a bubble, that regulators were asleep at the wheel, letting households and banks overleverage, that Wall Street manufactured and overvalued dangerous, complex derivatives, that conventional and shadow banks issued and then sold fraudulent subprime mortgages, that rating companies were routinely bribed, that financial traders traded too much, that shadow banks operated outside of regulatory scrutiny, that Congress forced Fannie Mae and Freddie Mac to encourage subprimes, and that there was too much risk taking.

The Financial Crisis Inquiry Commission’s Postmortem

The Financial Crisis Inquiry Commission’s (FCIC) was established in 2009 to investigate the causes of the 2007-2010 financial crisis. Its report, delivered in January 2011, includes this summary,

*There was an explosion in risky subprime lending and securitization, an unsustainable rise in housing prices, widespread reports of egregious and predatory lending practices, dramatic increases in household mortgage debt, and exponential growth in financial firms’ trading activities, unregulated derivatives, and short-term “repo” lending markets, among many other red flags. Yet there was pervasive permissiveness; little meaningful action was taken to quell the threats in a timely manner.*²

¹ Lo, Andrew W. "Reading about the financial crisis: A twenty-one-book review." *Journal of economic literature* 50, no. 1 (2012): 151-78.

² http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_full.pdf

The alliteration, “pervasive permissiveness,” has a nice ring to it. It also sums up in two words the standard assessment and lays the foundation for the chosen remedy. It implies that the problem lay with people, not with the intrinsic nature of the economy or the banking system. It also says that banking’s fix is to ensure that people, including bankers, raters, regulators, investors, politicians and borrowers, behave.

Liar Loans, No Doc Loans, NINJA Loans and Other Subprime Mortgages

Rashes are a symptom, not the cause of measles. No medical text book would mistake the two. Yet the causes of the great recession seem largely a description of what transpired, not an explanation for why events unfolded as they did. Often these descriptions are poorly disguised exaggerations.

Take subprime mortgages. To read the FCIC report, let alone watch the movie, *The Big Short*, one might conclude that a majority of outstanding mortgages prior to the GR were subprimes. Indeed, the FCIC report features the word “subprime” on 41.5 percent of its 662 pages. It mentions the word “mortgage” on 69.9 percent of its pages. Hence subprime-mortgage references represent almost 60 percent of all FCIC references to mortgages.

This dramatically overstates the importance of subprimes. In the run up to Lehman’s bankruptcy, subprimes never exceeded 14 percent of total outstanding mortgages and their share was below 12 percent on September 15, 2008 when Lehman shut its doors.³ Furthermore, not all subprimes were subprime when measured by foreclosure rates. At its peak, the subprime foreclosure rate was only 15 percent.⁴

Foreclosure rates on prime mortgages peaked at about 3.5 percent.⁵ Since at most, 14 percent of outstanding mortgages in 2009 were subprime, at most, 2.1 (.15 x .14) percent of all mortgages at the height of the Great Recession represented foreclosed subprime mortgages. This seems like a very small number given the tremendous attention paid to subprimes.

At the recession’s peak, roughly 4.8 percent of all mortgages were in foreclosure. Subprimes constituted almost half of these foreclosures. This oversized share of subprimes in total foreclosures suggests they ignited the recession or at least made helped make it “great.” But subprimes constituted over 60 of all foreclosures in 2004 when the economy was doing just fine.

³ <https://www.frbsf.org/education/publications/doctor-econ/2009/december/subprime-mortgage-statistics/> Note, the FCIC report suggest that subprimes represented half of all outstanding mortgages in 2008. That’s a huge difference between the figure cited here, which was calculated by the Federal Reserve Bank of San Francisco based on data obtain from the Mortgage Bankers Association.

⁴ .15 x .14 divided by .05 x .86 equals .488.

https://www.google.com/search?tbm=isch&q=mba+chart+subprime+series+delinquency+chart&chips=q:mba+chart+subprime+series+delinquency+chart,online_chips:delinquency+rates,online_chips:subprime+mortgages&sa=X&ved=0ahUKEwi_yb-XzMTdAhXOmuAKHfb7BkwQ4IYIKigB&biw=1261&bih=710&dpr=2#imgrc=jmEmu25vcPO3RM:5

https://www.google.com/search?q=prime+mortgage+mba+delinquency+rates+chart&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiZ46SmzcTdAhUqmuAKHYLZDnYQ_AUIDygC&biw=1261&bih=710#imgrc=HFZyDsi6Gmu9iM:

Subprimes were and are built to be risky. No one was shocked about their high foreclosure rate in 2004 and it certainly didn't spark a recession.

Furthermore, one can't claim subprime defaults caused the GR by considering defaults during the GR. When the Great Recession began, the default (mortgage delinquencies plus foreclosures) rate on all mortgages was only 3.7 percent.⁶ It rose to 11.5 percent over the next two years as close to 9 million workers lost their jobs.⁷ I.e., the GR caused defaults, not the other way around.

In 2007, before the GR, the subprime foreclosure rate was 5 percent. It rose by a factor of roughly 3 during the GR. But the 2007 foreclosure rate for prime mortgages was 1 percent and rose by a factor of more than 4. Hence, one can argue that if bad mortgages caused the GR, it was prime more than subprime mortgages that were at fault. Yes, there was an increase by 2 percent points in subprime foreclosure rates in the immediate run up to the GR. But that meant that only 0.3 percent more mortgages were in foreclosure.

Another piece of evidence on the actual as opposed to alleged problems with subprime securities comes from the Fed's purchase from JP Morgan (JPM) of \$29 billion worth of Bear's subprime securities as part of its bribing JPM to buy Bear Stearns for next to nothing. These assets were placed in a fund called Maiden Lane. The obscure name for this fund references what lays at the rear end of the NY Federal Reserve, namely Maiden Lane. Was this name an inside-the-Fed joke suggesting that the Maiden Lane assets were financial excretion? Certainly, JPM had that view. It refused to purchase Bear Stearns at even \$2 per share without the Fed first buying Bear's supposedly most toxic subprimes.

In the event, Maiden Lane's collection of sub subprime mortgages didn't lose a penny. Indeed, the Fed's \$29 billion investment repaid \$31.5 billion over the following decade for a \$2.5 billion gain.⁸ The fact that this figure is positive is remarkable given the GR-induced rise in subprime foreclosures. Moreover, the Fed clearly overpaid for these assets. Certainly, JP Morgan didn't want to get anywhere near them. If they were really worth the \$29 billion investment, JPM would have readily acquired and resold them. Suppose that these assets were worth only \$15 billion at the time of their purchase. I.e., suppose that the Fed paid JPM \$14 billion through the back door (with its overpayment another possible explanation for the name Maiden Lane, which literally lies at the NY Fed's back door), then the ex-post return earned on these securities was sensational.

If subprimes were irrationally, if not dramatically undervalued and weren't the proximate cause of the GR, what about other alleged boogeymen?

⁶ Ibid

⁷ <https://www.cbpp.org/research/economy/chart-book-the-legacy-of-the-great-recession>

⁸ <https://247wallst.com/banking-finance/2018/09/18/new-york-fed-sees-2-5-billion-profit-on-bear-stearns-in-final-maiden-lane-sales/> To be precise, the Fed establish an LLC to purchase \$30 billion of Bear's "junk" assets with a \$29 billion loan from the Fed and a \$1 billion loan from JP Morgan. (see <https://www.federalreserve.gov/regreform/reform-bearstearns.htm>)

The “Unsustainable” Rise in Housing Prices

The FCIC’s statement that the rise in house prices was unsustainable suggests that house prices can’t keep rising over long periods and were going absolutely crazy prior to the GR. In fact, real house prices can rise for years, indeed, decades. They did so essentially every year for the 32 years between Q1 1975 and Q1 2007.⁹ The rise was both smooth and gradual with real house prices only 64 percent higher in Q1 2007 than they were in Q1 1975 – this despite real GDP rising by 170 percent over the same interval.

The only period of a rapid rise in real house prices in this 32-year period occurred between Q1 2003 and Q1 2007 when real house prices rose by 22 percent. But over this period real GDP rose by 14 percent. Hence, real house prices rose only 2 percent faster per year than did the economy during the period of “unsustainable” house price increases.

One can write down models with a fixed supply of housing in which house prices will rise *pari passu* with output, at least in the long run. One can also write down models in which there is a variable supply of housing and the price of housing stays fixed, while the quantity of housing rises with output. As our economy has become more urbanized, the fixed supply of housing model, which partly references fixed central city urban land, is arguably becoming more relevant and may help explain the more rapid house-price increases that we’ve seen not just prior to the GR, but in the post-GR period as well.

In short, reasonable economic models can readily debunk or at least strongly question the view that house prices rising 2 percentage points faster than the economy for four years after rising far more slowly for the previous 28 years is “unsustainable.” Indeed, what the FCIC viewed as a housing-price bubble might better be described as a period of normal housing-price increases following 28 years of abnormally low housing-price increases.

Certainly, a temporary drop in house prices could have produced a contraction in construction. But contractions in construction have also arisen, indeed they’ve generally occurred, in the context of rising house prices. Moreover, a decline in a given sector doesn’t augur an economy-wide recession. Indeed, every expansion features a recession in particular sectors, just as particular sectors expand during every recession.

Furthermore, a drop in the price of homes does not adversely impact most homeowners. Yes, the value of their asset falls. But the implicit cost of homeownership (imputed rent) falls as well. And, if we’re talking about a nationwide decline in house prices, as we are with the GR, even those who moved experienced no economic harm because their ability to buy at a lower price offset their need to sell at a lower price.¹⁰

⁹ <https://fred.stlouisfed.org/series/USSTHPI>

¹⁰ What about people who die and leave a lower priced home. This harms their heirs but those who are buying homes are benefit by lower house prices. The fact that the house is physically intact implies that there is no overall loss to the economy from changes in house prices.

As the GR took hold, many homeowners went underwater on their mortgages. This surely led to the above-documented rise in foreclosures as mortgagees walked away from their obligations. But foreclosures don't represent a loss to the economy. The foreclosed house is, after all, still standing. Its ownership just switches hands. Of course, creditors lose due to the mortgage default. But homeowners win because they rid themselves of their mortgage liability.

In short, rising house prices are not required to keep the economy out of recession. Nor are declining house prices, even accompanied by mortgage defaults, an automatic harbinger, let alone a direct cause of recessions.

The housing-price decline may have been stimulated, in part, by dire statements from supposed experts. Take Anthony Mozilo's pronouncement, in July 2007, that "We are experiencing home price depreciation almost like never before, with the exception of the Great Depression." Mozilo was, at the time, the head of Countrywide Financial -- the country's then largest mortgage lender. This statement was all the more credible since its making was hardly in Countrywide's interest. Where Mozilo got his "facts" isn't clear, but there is no evidence in the data of anything like what Mozilo stated. The Case-Shiller national home price indexed peaked in July 2006. A year later, it was just 2 percent lower -- nothing remotely like Mozilo claimed.¹¹ Moreover, according to the Federal Reserve's All-Transactions House Price Index, house prices were actually higher in the Q3 2007 than Q3 2006.¹² But here was the country's top mortgage executive claiming house prices were plummeting and invoking the D word -- the Great Depression. The day of his statement, Countrywide's stock dropped 10 percent.¹³

Ratings Shopping

The FCIC's report states that failures of the big-three rating companies were "essential cogs in the wheel of financial destruction" and "key enablers of the financial meltdown." But a careful study by economists Efraim Benmelech of Harvard University and Jennifer Dlugosz, of the Federal Reserve System concludes, "It is not clear that rating shopping led to the ratings collapse as the majority of the tranches in our sample are rated by two or three agencies."¹⁴ The authors point out that whereas re-ratings were historically high in 2007 and 2008, they weren't dramatically higher than in 2002 and 2003. Moreover, 80 percent of the ratings of structured-finance securities were done by more than one firm.

Since structured-finance securities represented only 35 percent of the U.S. bond market in 2008, since only 7 percent of these securities were re-rated, and since, at most, 20 percent were over-rated due to ratings shopping, overrating affected less than one half of one percent of the U.S. bond market. Furthermore, this small figure surely overstates the importance of ratings shopping as many of the downgrades were caused by the GR itself, thanks to the GR's massive jobs losses.

¹¹ <https://fred.stlouisfed.org/series/CSUSHPINSA>

¹² <https://fred.stlouisfed.org/series/USSTHPI#0>

¹³ <http://fortune.com/2010/12/23/how-the-roof-fell-in-on-countrywide/>

¹⁴ <http://www.nber.org/chapters/c11794.pdf>, p. 203.

Indeed, had there been no recession, there would have been no reason for the rating companies, who had allegedly been bribed to overrate the securities, to jeopardize future bribes by downgrading the securities.

Increased Bank Leverage

Sky-high bank leverage is another part of the standard GR explanation. Banks were, we were told, leveraged 33 to 1 in 2008 compared with 12 to 1 in 2004.¹⁵ The only problem with this view is that it's not true. Bank leverage actually fell over the period 1988 through 2008.¹⁶ Equity rose from 6 percent of bank assets in Q1 1988 to 10 percent in Q1 2008.

Furthermore, leverage ratios, like mortgage default rates, are endogenous to the economy's state. Leverage is the ratio of debt to equity. But equity is the value of a company's assets less its debt. Hence, if the value of a company's assets fall, its leverage ratio rises.

Take a highly opaque and leveraged bank, X, that is being shorted by hedge funds. Suppose the managers of these funds vigorously talk up their positions, telling all who will listen that they've checked extensively on X's assets and found them to be deeply "troubled."¹⁷ Further suppose enough traders of bank X's assets become convinced that either a) X's assets are troubled, b) other traders believe X's assets are troubled or believe other traders so believe, or c) X needs critical-mass refunding from multiple funders, many of whom may decline to refund because they are worried others won't refund. In this case, the traders will sell the type of assets held by X because they realize X will need to dump its assets on the market to stay liquid. The result is a fire sale of X's assets, a drop, potentially precipitous, in the price of X's assets, and a rise in X's leverage.¹⁸

Given the severity of the stock market crash subsequent to Lehman's failure, one might think that leverage ratios rose dramatically during the recession. Not the case. Federal Reserve data shows the equity ratio falling from 10 to just 9 percent – a higher value than was registered in the prior 16 years.

The Fed data suggest that banks, as a group, were leveraged only 10 to 1 at the beginning of 2008, when the GR officially began. But what about the large investment banks? Was their leverage exceptionally high prior to the GR? Actually, no. William Cohan debunked this widespread myth in an *Atlantic* article entitled, "How We Got the Crash Wrong – Leverage Was Not the Problem – Incentives Were and Still Are."¹⁹

¹⁵ <https://www.theatlantic.com/magazine/archive/2012/06/how-we-got-the-crash-wrong/308984/>

¹⁶ <https://fred.stlouisfed.org/series/EQTA>

¹⁷ "Troubled assets" is, of course, the term the U.S. Treasury and Federal Reserve applied to subprime mortgages and other securities in seeking support for TARP, the Troubled Asset Relief Program.

¹⁸ This, of course, does what the shorters want – it raises the values of their short positions. Talking up one's short is, incidentally, exactly what's portrayed in *The Big Short*. What we don't know and probably never will know is whether those who shorted the market lied or massaged the truth about the assets they denigrated.

¹⁹ <https://www.theatlantic.com/magazine/archive/2012/06/how-we-got-the-crash-wrong/308984/>

Cohan's point is supported by an April 2008 paper issued by Lehman Brothers, entitled "Lehman Brothers – Leverage Analysis."²⁰ The paper shows that Lehman was no more leveraged in 2007 than in 2003.²¹ Moreover, Bear Stearns was only slightly more leveraged in 2007 than in 2003. And, as Cohan points out, Bear Stearns was more leveraged in 1998 than in 2008. Interestingly, the three large investment banks that didn't face runs – Goldman Sachs, Morgan Stanley, and Merrill Lynch – did materially increase their leverage in the run up to the GR, but not beyond leverage rates seen years in the past. Still the fact that the investment banks, which maintained their leverage, came under attack, but the investment banks that raised their leverage did not, provides more evidence against increasing leverage as a real, as opposed to misperceived GR culprit.

Too Little Capital

Another view of GR's cause is that banks failed due to insufficient capital. Capital references the ratio of a bank's equity to its assets.²² A bank with a sufficiently high capital ratio is viewed as safe from failure. This, after all, is the goal of Dodd-Frank's stress tests – insuring banks have sufficient capital to prevent a replay of the 2007-2009 financial crisis.

The Wikipedia entry for Bear Stearns indicates the company was leveraged 36 to 1 leading up to its collapse.²³ That's a capital ratio of less than 3 percent – far below the regulatory standards of the time. But Christopher Cox, Chairman of the U.S. Securities and Exchange Commission (SEC) at the time, disagreed. According to Cox, Bear Stearns was well capitalized when it failed, with a capital ratio over 13 percent and a debt-equity ratio of 6 to 1. Indeed, it appears that Bear Stearns could have easily passed the current Dodd-Frank stress test immediately prior to its demise.²⁴ Consider this statement from Chairman Cox.

*The fate of Bear Stearns was the result of a lack of confidence, not a lack of capital. When the tumult began last week, and at all times until its agreement to be acquired by JP Morgan Chase during the weekend, the firm had a capital cushion well above what is required to meet supervisory standards calculated using the Basel II standard.*²⁵

The same appears, on careful reading of SEC Chairman, Mary Schapiro's, **2010** testimony to the House Financial Services Committee, to have been true of Lehman Brothers. That testimony includes this statement.

The immediate cause of Lehman's bankruptcy filing on September 15, 2008 stemmed from a loss of confidence in the firm's continued viability resulting from concerns regarding its significant holdings of illiquid assets and questions regarding the valuation of those assets.

²⁰ <https://web.stanford.edu/~jbulow/Lehmandocs/docs/DEBTORS/LBEX-DOCID%201401225.pdf>

²¹ I reference here gross, not net leverage.

²² Regulators have developed different capital ratio measures, including Tier 1 and Tier 2 capital ratios. See <https://www.investopedia.com/terms/t/tier1capital.asp>

²³ https://en.wikipedia.org/wiki/Bear_Stearns

²⁴ <https://www.sec.gov/news/press/2008/2008-48.htm>

²⁵ Ibid

*The loss of confidence resulted in counterparties and clearing entities demanding increasing amounts of collateral and margin, such that eventually Lehman was unable to obtain routine financing from certain of its lenders and counterparties.*²⁶

There are, of course, different leverage/capital ratio measures. Moreover, these measures can be manipulated by banks' accounting practices and risk weighting decisions.²⁷ The complete disconnect between the Wiki entry and the statement of Chairman Cox may reflect a difference in facts, a difference in the capital ratio measure, a decision to consider gross, not net debt, or a difference in risk weighting of assets. The important point, though, is the disagreement. The Wiki entry as well as Cohan's article reference debt-equity ratios that are 5 to 6 times the ratio reported by Chairman Cox. This enormous discrepancy tells us that the public can easily reach and maintain incorrect conclusions about a bank's ability to withstand a run.

There is an even more important message in Chairman Cox's additional statement that "The market rumors about Bear Stearns liquidity problems became self-fulfilling."²⁸ Cox is saying that Bear Stearns had very little debt, but that its actual capital ratio didn't matter. Creditors, past and prospective, came to believe, based on rumors, that other creditors were pulling the plug. This led them to do the same. Since it literally only takes one dollar of overdue debt repayment to render a bank legally bankrupt, this dynamic can sink any bank, no matter its capital ratio, at any time. Thus, leveraged banks are unsafe at any speed, i.e., they have and will fail regardless of their true leverage.

Lehman was also well capitalized prior to its demise. It had tier-1 capital of 11 percent when its creditors pulled the plug.²⁹ An 11 percent capital ratio is close to the current banking system's tier-1 capital ratio of 12.3 percent, calculated based on the Federal Reserve's recent stress tests. This indicates that today's banking system is no safer than was Lehman Brothers when it was driven out of business.³⁰

Egregious and Predatory Lending

The FCIC cites "egregious and predatory lending" as another of the causes of the GR. Such lending references adjustable-rate mortgages, mortgages with balloon payments, interest-only mortgages, piggy-back, and so-called pay-option ARM loans. Loans of these type were and are

²⁶ <https://www.sec.gov/news/testimony/2010/ts042010mls.htm>

²⁷ Lehman's Repo 105 transactions is a case in point.

²⁸ <https://www.sec.gov/news/press/2008/2008-48.htm>

²⁹ <https://www.americanrhetoric.com/speeches/richardfuldlehmanbrobankruptcytestimony.htm> Here is Fuld's relevant testimony re its 11 to 1 Tier 1 capital. "As far as the leverage, and I spoke about it earlier, there's a very big difference between the 30 times and where we were when we finished in the third quarter at 10\1/2\. A big piece of what that 30 was, again, was the match book, which was governments and agencies. So that should not be considered as an additional piece of risky leverage. Again, I will say that on September 10th we finished with the best or one of the best leverage ratios on the street and one of the best tier 1 capital ratios on the street. And, even to your question, that's how I viewed the company, and that's why I viewed it as strong, Mr. Congressman. Those were the metrics. Those were the metrics that the regulators used. Those were the metrics that all of us in the industry used, and ours were one of the best."

³⁰ <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20180621a.htm>

subprimes. There is no doubt that many of these loans were made to borrowers who took on too much risk or agreed to pay interest rates that were predatorily high. Certainly, if one reads the views of The Center for Public Integrity, one comes away believing that all subprime loans involved terms that were impossible for the public to understand.³¹

But such loans had been in existence since 1982, i.e., 26 years before the GR.³² Moreover, the share of subprime loans that were predatory could not have been that large since, at most, 15 percent went into foreclosure during the GR. But they did so in the context of an unemployment rate that reached 10 percent!

As mentioned, in 2007, before the GR, the foreclosure rate was 5 percent. Its lowest value, between 2002 and 2007, was 3 percent, which was observed in Q3 2005.³³ If one assumes that all of the 2 percentage-point increase in subprimes involved predatory lending, we're still talking about predatory lending causing, at most, 0.3 percent more mortgages to definitely default, namely, enter foreclosure. This is simply too small a figure to matter to the overall economy. Indeed, given the size of the 2007 mortgage market, it represents just \$32 billion.³⁴ In 2007, U.S. GDP was \$14.4 trillion. The economy's 2007 total net wealth was \$68 trillion. Hence, \$32 billion is trivially small compared to the size of the 2007 overall economy or its total net wealth.

Dramatic Increases in Household Mortgage Debt

Another GR "smoking gun" is the pre-GR run up of mortgage debt, which roughly doubled between 2002 and 2007.³⁵ Surely, the addition of over \$750 billion in mortgage debt in the course of 6 short years must represent a priori evidence that a massive recession was in the works. Not so. There is nothing in economic theory that suggests that increased borrowing should cause recessions. The increase in borrowing to purchase homes was not associated with a massive spending spree on the part of the American public. Indeed, the share of GDP consumed by the public remained fixed at roughly 67 percent between early 2002 and late 2007.

This means that Americans, as a whole, borrowed more, not to spend, but to invest. Stated differently, their decision to borrow more on their homes was not accompanied by a decline in their net wealth. Collectively, they simply borrowed and lent. In fact, Americans' net wealth rose by over \$6 trillion between 2002 and 2007. This represented an 83 percent increase. And, although the ratio of mortgage debt to household net wealth rose, it didn't rise by much – from 17 percent in 2001 to only 20 percent in 2007.

³¹ <https://www.publicintegrity.org/2009/05/06/5452/predatory-lending-decade-warnings>

³² *Ibid.*

³³

https://www.google.com/search?tbm=isch&q=mba+chart+subprime+series+delinquency+chart&chips=q:mba+chart+subprime+series+delinquency+chart,online_chips:delinquency+rates,online_chips:subprime+mortgages&sa=X&ved=0ahUKEwi_yb-XzMTdAhXOmuAKHfb7BkwQ4IYIKigB&biw=1261&bih=710&dpr=2#imgrc=jmEmu25vcPO3RM:

³⁴ <https://fred.stlouisfed.org/series/HHMSDODNS>

³⁵ <https://fred.stlouisfed.org/series/MDOTHIOH>

What about household debt payment service as a share of disposable personal income? There was an increase prior to the GR, but nothing extraordinary. Between Q4 2001 and Q4 2007, the ratio troughed at 12.1 percent in Q2 2004 and peaked in Q4 2007 at 13.2 percent. A 13.2 percent ratio is small and the increase from trough to peak is only 9 percent.³⁶

Exponential Growth in Trading Activity by Financial Firms

Here, again, we have a supposed reason for the Great Recession that has no counterpart in economic theory. If Joe and Sally sell the same share of stock back and forth to each other an infinite number of times in, say, a second, nothing real will happen to Joe and Sally or the economy. Both Joe and Sally, as well as the economy, have the same net worth before and after their infinite number of trades.

Hence, the volume of trade, in securities or anything else, is not evidence of an economic problem. One might claim that the volume of trade was coincident with an irrational bubble in financial markets. But the trades being counted are those involving stock and the run up to the great recession did not reflect unprecedentedly high stock-market valuations.³⁷ The market was 1.5 times GDP in 2000, 1.4 times GDP in 2007, and 1.5 times GDP in 2017. The stock market is pro-cyclical, but there is nothing in the stock market data that would presage the supposed greatness of the “Great” Recession.

Unregulated Derivatives and the Repo Market

The GR was marked by the dissemination of news about derivatives with exotic-sounding names, such as RMBS, CDOs, synthetic CDOs, CDO squareds and CDS. Because many were complex and not all subject to much regulation, they were singled out repeatedly by the press and commentators during the GR and included in the FCIC’s favorite list of GR *bête noires*.

If these securities actually helped cause the GR, one would expect their value to have peaked before, not during the GR. But net financial derivatives were 126 percent higher at the end of the GR than at the beginning.³⁸ Furthermore, in the two years leading up to the GR, net financial derivatives rose only 7.7 percent.

The reigning narrative – that derivatives were misunderstood and over rated by compliant rating companies – has been questioned in a recent study by economists Juan Ospina and Harald Uhlig.³⁹ They examined 8,615 residential mortgage-backed securities (RMBS) over the period 2007-2013, almost all of which were rated AAA. Through 2013, the cumulative loss on these “toxic” securities was only 2.3 percent. Some three quarters of the AAA-rated RMBS had essentially zero losses through 2013. On a principal-weighted basis, the average loss rate was only 0.42 percent. Moreover, ratings did not worsen closer to the GR. Loss rates for AAA-RMBS

³⁶ <https://fred.stlouisfed.org/series/TDSP>

³⁷ <https://fred.stlouisfed.org/series/DDDM01USA156NWDB>

³⁸ <https://fred.stlouisfed.org/series/IIPFINANCNQ>

³⁹ Ospina, Juan, and Harald Uhlig. *Mortgage-backed securities and the financial crisis of 2008: a post mortem*. No. w24509. National Bureau of Economic Research, 2018.

issued between 2006 and 2008 were no higher than those issued in prior years. Most striking, AAA-rated RMBS actually outperformed the universe of AAA-rated securities.

Yes, losses were far higher for non-AAA rated segments of the RMBS market. But that's what one would expect from a "great" recession. However, these securities represented a small fraction of the RMBS market. In summarizing their findings, the Ospinal and Uhlig state, "these facts challenge the conventional narrative, that improper ratings of RMBS were a major factor in the financial crisis of 2008."

What about REPOs? Did they cause the GR? Well, they certainly increased in the run up to the GR. But short-term financial-company borrowing has been growing far faster than the economy for decades.⁴⁰ The fact that some economic variable rose rapidly prior to the GR is not evidence that it caused the GR. Smart phone sales tripled between 2005 and 2008, but no one would link that to the GR.⁴¹ Of course, Repos would be implicated in causing the GR had they been part of excessive leveraging by financial intermediaries. But, as discussed above, overall financial-company leverage fell, not rose prior to the GR.

Investors Mispriced/Ignored Risk

The Ospinal and Uhlig paper also speaks to the assertion that Wall Street professionals acted like rank amateurs in the supposed financial lending euphoria leading up to the GR. Had that been the case, the RMBS assets would not have done so well despite the outsized recession and major reduction in housing prices starting in 2006. As Lo (2012) points out, in 2007, CDOs paid significantly higher returns than equally-rated corporate bonds due to their extra risk.

Unaligned CEO Incentives

Yet another explanation for the GR is that CEOs of financial institutions had too little "skin in the game." Jimmy Cayne, former head of Bears Stern, would surely disagree. Cayne lost close to \$1 billion as his bank collapsed. Ken Lewis, CEO of the Bank of America, had \$190 million to lose by making wrong decisions and succeeded in losing \$142 million. Lehman Brothers' Dick Fuld received most of his 2007 compensation in the form of Lehman Brothers' stock.⁴² Or consider the 2011 study by economists, Rüdiger Fahlenbrach and René M. Stulz, who examined executive compensation contracts of 95 banks. The stock and option compensation in these contracts exceeds wages by a factor of eight.⁴³ In short, there is no persuasive evidence that shadow or conventional bankers had too little skin the game.

⁴⁰ <https://fred.stlouisfed.org/series/FBREPOA027N>

⁴¹ <https://www.statista.com/statistics/191985/sales-of-smartphones-in-the-us-since-2005/>

⁴² <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jel.50.1.151>, Green, Joshua (September 12, 2013). "*Where Is Dick Fuld Now? Finding Lehman Brothers' Last CEO*". *Bloomberg Businessweek*.

⁴³ Fahlenbrach, Rüdiger, and René M. Stulz. "Bank CEO incentives and the credit crisis." *Journal of financial economics* 99, no. 1 (2011): 11-26.

Regulatory Capture

This phrase points to regulators being in the future pay of Wall Street thanks to the revolving door between Wall Street and Pennsylvania Avenue. Yet the biggest factor that regulators needed to oversee was Wall Street's leverage. As discussed, it was not historically high preceding the GR either across the board or in the large investment banks that failed. One could well argue that it was always too high, but that doesn't help us explain the GR.

Democratization of Finance

Under this theory, government sponsored enterprises (Fanny and Freddie) and government regulators were too permissive with banks in their quest to help the poor get into affordable housing. One can argue either way, depending on one's interest in redistribution and preferred method to redistribute. But if this were the chief or even a major cause of the GR, subprime mortgages would need to have played a much larger role than they did.

The Federal Reserve Kept Interest Rates Too Low

Many commentators place the blame for the GR squarely on the government, particularly the FED and Fannie May and Freddie Mac, our major government-sponsored enterprises, which help insure mortgages. Thirty-year mortgage interest rates were certainly lower between 2000 and 2007 than in the prior quarter century.⁴⁴ But they weren't that low especially adjusted for inflation. In the 1990s, the real 30-year mortgage rate averaged 7.91 percent. It averaged 6.27 between January 2000 and December 2007.⁴⁵ This decline is hardly something to write home about, let alone pretend is the underlying GR culprit. Furthermore, the Federal Reserve controls short-term, actually overnight, interest rates. It doesn't directly control long-term interest rates, including long-term mortgage rates. As for adjustable rate 5/1-year adjustable rate mortgages (ARMs), their real rate averaged between 5 and 6 percent in the two years preceding the GR. Real rates of this magnitude are not low.⁴⁶

Summary of the GR's Usual Suspects

The above interrogation of the standard GR suspects finds none of them guilty. Subprimes that went into foreclosure weren't a large enough factor in the mortgage market, the housing price "bubble," if you can call it that, was minor, rating shopping wasn't a big deal given cross rating and the ex-post performance of rated securities, increased financial leverage is a myth, egregious and predatory lending was too small to matter, the run up in mortgage debt was in line with the rise in the country's net worth and didn't signal a consumer-spending spree, derivatives were generally properly rated and not toxic, repos didn't lead to excessive financial leverage, investors didn't ignore risk, CEO incentives to play it safe were in force, regulators did not permit financial companies to expand their leverage, the democratization of finance did not make a major difference, and real mortgage interest rates, both short- and long-term, weren't low.

⁴⁴ <https://fred.stlouisfed.org/series/MORTGAGE30US>

⁴⁵ See <https://fred.stlouisfed.org/series/MORTGAGE30US#0> and <https://fred.stlouisfed.org/series/PCEPI>.

⁴⁶ <https://fred.stlouisfed.org/series/MORTGAGE5US#0> and <https://fred.stlouisfed.org/series/PCEPI>.

Perhaps the biggest myth of all about the GR is that it was truly “Great.” The decline in real GDP over the course of the GR was only 3.1 percent. This is not remotely comparable to the 25.9 percent plunge in output recorded during the first four years of the Great Depression. And it’s less than twice the average percentage decline in output recorded in the prior five recessions. It’s also not much larger than the 2.5 percent real GDP drop in the 1981-82 recession.

Yes, during the GR, the stock market fell by almost one third and the unemployment rate doubled. But stock prices fell by a far larger percentage (40 percent) between 2000 and 2002 and, in the 1981-82 recession, the unemployment rate peaked at a higher level than in the GR. Like the supposed causes of the Great Recession, the size, itself, of the GR appears to have been hyped.

Stated differently, if one wants to claim the 2008-2009 recession was “great,” the 81-82 recession should at least be called the “Impressive Recession.” In the Impressive Recession, stocks fell 24.6 percent, real GDP fell 2.5 percent, and unemployment rose by 3.3 percentage points. The respective Great Recession figures are 43.6 percent, 3.1 percent, and 3.1 percent. Yes, GR figures are all larger, but not by that much.

And housing prices? They fell between Q1 2007 and Q2 2012 by 19 percent. But, as argued above, a decline in housing prices doesn’t constitute a macro shock. And for most households it doesn’t even represent a micro shock. This is readily seen by simply looking at the stock of housing. The fact that its price changed didn’t move, let alone eliminate a single brick, stone, plank or shingle on any of the tens of millions of homes across the country.

Multiple Equilibria

If, as argued above, the evidence rules out the usual suspects, what actually caused the GR, whose size, itself, seems to have been hyped? My answer is multiple equilibrium, broadly defined. Sheer panic, facilitated by opacity, false rumors, misinformation, exaggeration and a strong assist from interested parties, flipped the economy to a very bad equilibrium. This diagnosis implies a deep structural problem in the financial system --- one that seemingly can’t be addressed by Dodd-Frank or similar reforms proposed or enacted in Europe.⁴⁷

Economics has many theories of economies rapidly flipping from good to bad. They go under the headings multiple equilibrium, contagion, self-fulfilling prophecy, panics, coordination failures, strategic complementarities, sun spot equilibria, collective action, social learning, and herding. Below I reference all these mechanisms for rapid economic transformation as “multiple equilibrium,” rather than sticking with a narrow, technical definition of multiple equilibrium as more than one solution to a given model’s equations.

The fact that the foundational bank-run models --- Bryant (1980), Diamond-Dybvig (1983), Pech and Shell (2003) and related models – admit multiple equilibrium in which financial-market

⁴⁷ See Kotlikoff (2012) for a discussion of the British Vickers Commission reform.

collapse arises absent any fundamental financial- or real-sector problem is striking.⁴⁸ These models tell us that a bank run can arise as naturally as not.⁴⁹ They also tell us that the banking system is inherently built to fail and that focusing exclusively on the models' good equilibrium is folly. I.e., from the perspective of these models, the question is not whether the banking system will fail, but when. Hence, it's passing strange that the FCIC report makes no mention whatsoever of either paper, let alone the theory underlying bank runs. This is akin to the Federal Aviation Administration investigating a plane crash due to structural failure without referencing the plane's blueprints. This, presumably, reflects the makeup of the FCIC whose ten members included just one economist. The economist, while outstanding, had no background in banking or finance.

The original bank-run models are now four decades old. Other, more realistic versions have emerged. They too were ignored by the FCIC. An example is Goldstein and Pauzner (2005), who model coordination failures in which agents react to publicly available news based, in part, on their beliefs about how other agents will react. Such news can be about economic fundamentals or, simply, that a firing run, which will affect fundamentals, is on.⁵⁰ Bebchuk and Goldstein (2011) study credit market freezes. Their focus is on banks defunding non-financial firms because they believe other banks are doing the same. They reference this as self-fulfilling credit freezes (credit freezes in which beliefs about other defunders are correct in equilibrium.) But their framework can applied to banks defunding banks.

Another mechanism for drastic economic adjustment involves information cascades. In models, such as Bikhchandani, et. al., (1992), cascades involve economic agents ignoring their own information and inferring the "truth" based on the actions other agents are taking.⁵¹ This induces herd behavior as in a stampede in a crowded theatre (financial market) when someone shouts *FIRE (BANKRUPT)*. The key herding point, for our purposes, is that people can get trampled in the absence of any fire whatsoever, i.e., regardless of the fundamentals.

⁴⁸ Diamond-Dybvig (1983) explain bank runs as depositors collectively running to claim their money, which the bank invested, on their behalf illiquidly with the promise to give those with unexpectedly high short-term liquidity needs a higher return on their savings. But the runs on Bear, Lehman, AIG, and most of the other 29 major international financial companies to fail before and during the GR were creditor defunding runs. They can be easily modeled if one assumes that leveraged banks need a critical amount of credit to operate. Thus, if no one runs on (i.e., runs away from) Lehman Brothers in September 2008, it's safe for everyone to stay with Lehman. But if others run or may run, it's best to play it safe and run as well. If enough players fail to provide Lehman sufficient funding, any individual funder who can't provide critical funding on their own will chose not to fund.

⁴⁹ Multiple equilibria, in the simplest framework, are formally two or more sets of solutions to the same underlying equations. This means that the economy can flip from one equilibrium, say A, to the other, say B, simply if its participants all come to believe that the equilibrium is now B. Again, in the simplest framework, this flipping won't be based on something fundamental since everything that's fundamental is included in the equations. Instead, it will be based on something, like the appearance of a sun spot, that has nothing intrinsically to do with the economy.

⁵⁰ In Goldstein and Pauzner (2005), common news is about the productivity of capital. But in a richer model, in which there are firing runs, the fundamental shock could be that a firing run has started, perhaps triggered by the failure of one or more major financial institutions.

⁵¹ Intuitively, if someone yells *FIRE* in a crowded room, everyone runs even if no one smells smoke. The same is true of bank creditors, when it comes to refinancing a Bear Stearns or a Lehman Brothers.

Chamley (2014) provides a variety of models of financial herding behavior. One of his key contributions is showing how government policy can rule out bad equilibriums, which is the central motivation underlying the Limited Purpose Banking proposal referenced below. In contrast, Dodd Frank's goal is to reduce, not eliminate the chance of financial system meltdown.

Jackson and Kotlikoff (2018) provide a different and very simple mechanism for landing the economy in a bad position. They posit a model in which honest bankers provide a variable share of intermediation services. When this share is low, households defund the banks and, absent disclosure, will, mistakenly, continue to do so even during periods when the share of honest bankers is high.

In completely ignoring the theory of bank runs (There is not a single reference to any theoretical model.), the FCIC pretended that what happened wasn't intrinsic to how the financial market is structured. Instead, the commission, for whatever reasons, appears to have rounded up the usual suspects and held a sham trial. Yet, the commissioners couldn't simply ignore the panic. In fact, in the process of fingering multiple apparently innocent culprits, the report used the word panic 100 times. That's roughly one usage every six pages. Here is the first.

The crisis reached seismic proportions in September with the failure of Lehman Brothers and the impending collapse of the insurance giant American International Group (AIG). Panic fanned by a lack of transparency of the balance sheets of major financial institutions, coupled with a tangle of interconnections among institutions perceived to be "too big to fail," caused the credit markets to seize up. Trading ground to a halt. The stock market plummeted. The economy plunged into a deep recession.

This statement certainly emphasizes irrational fear and links panic to opacity. But it falls far short of saying that the banking system and economy, as currently constituted, are built to fail with panic being the catalyst. Lehman's CEO, Richard Fuld, got closer to this conclusion in this part of his October 8, 2008 testimony to the House Oversight and Reform Committee.⁵²

At Lehman Brothers, the crisis in confidence that permeated the markets led to an extraordinary run on the bank. In the end, despite all of our efforts, we were overwhelmed. However, what happened to Lehman Brothers could have happened to any financial institution.

If it's true that what happened to Lehman Brothers could have happened to any financial institution, it means that fundamentals, be they the degree of leverage, the extent of subprime holdings, rating shopping, lack of bankers' skin in the game, regulatory under-sight, newfangled derivatives, housing prices, etc., weren't a pre-requisite for the GR bank runs. It also means that established lines of credit are worthless because banks will run on banks at the first sign of a death throe.

⁵² <https://www.americanrhetoric.com/speeches/richardfuldlehmanbrosbankruptcytestimony.htm>

Jimmy Cayne's, Bear Stearns' former CEO, echoed Fuld's views in his testimony to the FCIC.

Bear Stearns's collapse was not the result of any actions or decisions unique to Bear Stearns." Rather, he told the committee, "the market's loss of confidence, even though it was unjustified and irrational, became a self-fulfilling prophecy."⁵³ Jimmy Cayne testimony to the FCIC.

It's tempting to dismiss Fuld's and Cayne's statements as self-serving. But their insider views coincide with those of then SEC Chairman Cox, the FCIC's emphasis on panic and contemporaneous statements of impartial observers. Certainly, there was no fundamental news in Bear's last week that drove its stock value from \$70 a share on March 10th to \$2 a share on March 16th.⁵⁴ The only real news was that the bank was experiencing a defunding run and was desperately trying to stay afloat.

Betting on the Bad Equilibrium

Economists' models of bank runs incorporate lots of mechanisms and behaviors. What they don't include is the possibility that some agents stand ready and able to manufacture financial collapse because doing so will line their pockets, directly or indirectly. Consider, in this regard, hedge funds. In the days running up to Bear's demise, hedge funds pulled the plug on Bear by withdrawing their deposits en masse from Bear's prime brokerage. This was discussed by the BBC in an article entitled, "How Hedge Funds Sank Bear Stearns."⁵⁵ What's not known is whether these hedge funds also took short positions and, effectively, cornered the short market. Such actions would, presumably, have been illegal. What is known is that false rumors were planted – rumors that improved the position of the shorts.⁵⁶ According to the NY Times,

Speculation about a cash shortage drove Bear stock down almost 60 percent in a few days, a decline that coincided with a surge in short bets against the firm's stock. Alan D. Schwartz, the chief executive of Bear, later said that malicious rumors helped fuel the panic.⁵⁷

The Washington Post wrote that the SEC was investigating short sales in conjunction with Bear's failure.

An unusual spike in trading of Bear Stearns shares preceded the collapse of the 85-year-old Wall Street institution last week, and the Securities and Exchange Commission is looking into this activity, said a person familiar with the matter. In particular, the SEC is

⁵³ <http://www.washingtonpost.com/wp-dyn/content/article/2010/05/05/AR2010050505104.html>

⁵⁴ The \$2 price per share was ultimately increased to \$10 in reaction to a shareholder class action suit.

⁵⁵ http://www.bbc.co.uk/blogs/thereporters/robertpeston/2008/03/how_hedge_funds_sunk_bear_stea.html

⁵⁶ <https://dealbook.nytimes.com/2008/06/30/what-really-killed-bear-stearns/>

⁵⁷ <https://www.nytimes.com/2008/04/30/business/30shorts.html>

*examining a surge in short selling that occurred days before the trouble at Bear Stearns was revealed publicly.*⁵⁸

Shortly after Lehman failed, John Mac, head of Morgan Stanley, memo'd his company that

*What's happening out there? It's very clear to me — we're in the midst of a market controlled by fear and rumors, and short sellers are driving our stock down.*⁵⁹

As with hedge funds and banks competing with Bear and Lehman, we may never learn the full behavior of short sellers. But Vanity Fair described what happened to Bear Stearns as “murder” – murder facilitated by opacity so deep that teams of potential suitors couldn’t figure out, within Bear’s survival window, what the Bear’s assets were worth.⁶⁰ To quote from the article,

*The fall of Bear Stearns wasn't just another financial collapse. There has never been anything on Wall Street to compare to it: a “run” on a major investment bank, caused in large part not by a criminal indictment or some mammoth quarterly loss but by rumor and innuendo that, as best one can tell, had little basis in fact. Bear had endured more than its share of self-inflicted wounds in the previous year, but there was no reason it had to die that week in March.*⁶¹

According to this view, speculators can, with manufactured bad news or simply exaggeration, take down any bank in the country at any time. Then they can proceed to their next victim.⁶² Naked short selling – sales of a company’s stock by entities that don’t own the shares they are selling -- also played and can still play a role in “murdering” banks. *Rolling Stone* described the short sales of Bear and Lehman as “Wall Street’s naked swindle.”⁶³ The headline in the 2010 article reads, “A scheme to flood the market with counterfeit stocks helped kill Bear Stearns and Lehman Brothers — and the feds have yet to bust the culprits.” That’s equally true today. Indeed, the SEC hasn’t even issued a report on its supposed investigation in the eight years since *Rolling Stone* carried its story.

The story merits a careful read. As Bear and Lehman reached the end of their tethers, short sellers manufactured tens of millions of shares of the two companies and dumped them on the market. The

⁵⁸ <http://www.washingtonpost.com/wp-dyn/content/article/2008/03/20/AR2008032003515.html>

⁵⁹ <http://content.time.com/time/business/article/0,8599,1842499,00.html>

⁶⁰ https://www.vanityfair.com/news/2008/08/bear_stearns200808-2

⁶¹ https://www.vanityfair.com/news/2008/08/bear_stearns200808-2

⁶² This paragraph from the Vanity Fair suggests this is possibility is a common view on Wall Street. “Even with subpoena power, I’m not sure the S.E.C. will get to the bottom of this, because the standard of proof is just so difficult,” says a vice-chairman at another major investment firm. “But I hope they do. Because you can look at this as just another run on a bank or as a seminal point in the financial history of this country that could bring about a change, perhaps a drastic change, in the way we govern financial markets. If there is a solution to this kind of thing, it must be found in the roots of what happened at Bear Stearns. Because otherwise, I can guarantee you, it will happen again somewhere else.”

⁶³ <https://www.rollingstone.com/politics/politics-news/wall-streets-naked-swindle-194908/>

sale of counterfeit shares explains the term “naked” as in no backing.⁶⁴ Fatok, et. al. (2014) claim the bulk of the naked short sales occurred when the two companies were already on the ropes. But the SEC reached a different conclusion. Three days after Lehman failed, the SEC clamped down on most naked short sales.⁶⁵

To date, the SEC has engaged in very few enforcement actions against naked short sellers. The same is true in prosecuting short sellers who transmit false rumors. Paul Berliner is an exception. His case illustrates the impact of a single rumor. In 2008, Berliner spread a plausible, but false story that Alliance Data Systems’ sale price was being renegotiated downward due to purported problems in the company’s consumer banking business. Berliner dispensed this information while selling the company short.⁶⁶ Within a half hour of the rumor’s dissemination, the price of Alliance dropped by 17 percent, letting Berliner cash in and cash out.⁶⁷

Misinformation or exaggerated statements can also do massive damage. Consider, this extended quote from the very first page of William Cohan’s *House of Cards*.⁶⁸

The first murmurings of impending doom for the financial world originated 2,500 miles from Wall Street in an unassuming office suite just north of Orlando, Florida. There, hard by the train tracks, Bennet Sedacca announced to the world at 10:15 on the morning of March 5, 2008, that venerable Bear Stearns & Co., the nation's fifth-largest investment bank, was in trouble, big trouble. “Yep,” Sedacca wrote on the Minyanville Web site, which is dedicated to helping investors comprehend the financial world. The great credit unwind is upon us. Credit default swaps on all brokers, particularly Lehman and Bear Stearns, are blowing out, big time. Sedacca, the forty-eight-year-old president of a \$3.5 billion investment management company and hedge fund, had been watching his Bloomberg screens on a daily basis as the cost of insuring the short-term obligations—known in Wall Street argot as “credit default swaps”—of both Lehman and Bear Stearns had increased steadily since the summer of 2007 and then more rapidly in February 2008. Now he was calling the end of the credit party that had been raging on Wall Street for six years. “I've been talking about it for years,” Sedacca said later. “But I started to notice it that fall. Because if you think about it, if you have all this nuclear waste on your balance sheet, what are you supposed to do? You're supposed to cut your dividends, you're supposed to raise equity, and you're supposed to shrink your balance sheet. And they did just the opposite. They took on more leverage. Lehman went from twenty-five to thirty-five times leveraged in one year. ...”

Cohan takes Sedacca’s statement, which is a captivating introduction to his book, as unquestionably true. But what he doesn’t tell his readers is whether Sedacca had shorted Lehman

⁶⁴ https://en.wikipedia.org/wiki/Naked_short_selling

⁶⁵ Ibid.

⁶⁶ <https://www.sec.gov/litigation/litreleases/2008/lr20537.htm>

⁶⁷ <https://www.sec.gov/news/press/2008/2008-64.htm> Somehow, the SEC discovered Berliner’s scheme and prosecuted him. The result was a fine and lifetime banishment from Wall Street.

⁶⁸ Cohan (2010)

CDS or other Lehman securities. Nor does he ask whether the use of the term “nuclear waste” to describe Lehman’s assets had any factual basis or was just Sedacca justifying a successful past short position. Finally, Cohan doesn’t check if Sedacca’s got his numbers right. According to its April 7, 2008 paper on leverage – whose release the SEC, which was monitoring Lehman on a daily basis, surely approved, Lehman's leverage was 29, not 35 times in 2007, on a gross basis, and 16 on a net basis. Moreover, in her April 10, 2010 testimony, SEC Chair Mary Shapiro stated that “Throughout the summer (of 2008), Lehman embarked on various strategies to raise capital and to reduce the size of its exposure to mortgage-related and other illiquid assets.”⁶⁹ Lehman didn’t, contrary to Sedacca’s assertion, take on more leverage.

The Spread of Fear to the Public and Real Economy

Models of multiple equilibrium, whether new or old, implicitly feature the spread of fear. The press is a vector in this process. Consider, for example, the press’ references to recession. The Economist magazine views its own and other media’s use of the “R word” as economically so frightening and viral that it’s turned the word’s usage into a leading economic indicator. Here’s its description.

*Our gauge counts how many stories in the Washington Post and the New York Times use the word “recession” in a quarter. This simple formula pinpointed the start of recession in 1981 and 1990 and 2001. In the past few years the R-word index has been extremely low. It began to rise in the second half of 2007 and, measured at a quarterly rate, ... soared in early 2008.*⁷⁰

The Economist started writing about its R-word index in 2001 with the title, “Words that Can Harm You.”⁷¹ But how can words harm us unless they coordinate the public to take the wrong economic decisions? In January 2008, The Economist reported that, “Peddling gloom is the new parlour game on Wall Street and beyond.”⁷² Peddling gloom means selling disaster. But who reaps the profits of gloom? The answer is the press, which always need a fresh story, politicians, who always need a fresh cause, and short sellers, who benefit from external confirmation of their positions.

Another indicator of fear is the VIX, which measures market expectations of stock market volatility. The VIX more than doubled in the year prior to the onset of the GR and then rose by a factor of three when Lehman failed. This confirmed FCIC Chairman, Phil Agenlides’ analysis that “panic seized the markets.”⁷³ There was, of course, no change on September 15, 2008 in the volatility of the real economy – no negative technology shock, no outbreak of world war, no climatic cataclysm, no announcement of trade war, no fresh revelations of fiscal insolvencies, no unexpected wage hikes, no announcement of hyperinflation – nothing, just collective, coordinated, mass panic that sent the financial markets reeling.

⁶⁹ <https://www.sec.gov/news/testimony/2010/ts042010mls.htm>

⁷⁰ <https://www.economist.com/graphic-detail/2011/09/16/gauging-the-gloom>

⁷¹ <https://www.economist.com/finance-and-economics/2002/11/21/words-that-can-harm-you>

⁷² <https://www.economist.com/finance-and-economics/2008/01/10/warning-lights>

⁷³ <https://fred.stlouisfed.org/series/VIXCLS>

When the public understands that fear, as President Roosevelt so perceptively and succinctly put it, is the only thing to fear, it becomes very interested in the state of fear. This is why, in the run up to the GR, media mentions of and Google searches for recession, depression, subprimes, liar loans, the Vix and other indicators of gloom rose sharply. September 15, 2008 was, of course, the day Wall Street's music died, producing a huge surge in searches for the entire panoply of linguistic gloom and kicking off a 36 percent, 6-month drop in the stock market.⁷⁴

The index of consumer sentiment led the R-word index in predicting an R. It peaked in January 2007 and fell by almost one quarter over the course of the year. It fell by a roughly equal amount through June 2008 and then rebounded. But when Lehman collapsed, the index immediately plunged again despite no immediate changes of any kind to the real economy. I.e., Lehman's bankruptcy destroyed not a single Lehman building, file cabinet, computer, or any other type of capital. And it neither killed nor injured a single Lehman employee.

But the non-financial economy had had enough. In the nine months prior to September 15, 2008, there had been one major bad financial news story after another. The public had been bombarded with stories about liar loans, no doc loans, NINJA loans, rating shopping, regulatory capture, crazy-sounding, hyper-complex derivatives and derivatives of derivatives, extraordinary leverage, a massive house price bubble in the process of bursting, horribly unaligned CEO incentives, predatory lending, bank failures, widespread opacity, bonus-based, originate to distribute⁷⁵ mortgage securitizations, ...

To make matters both worse and highly concrete, Countrywide Financial, Bear Stearns, Fannie Mae, Freddie Mac, IndyMac, Merrill Lynch – all had been bought up at fire-sale prices or nationalized. In the days, weeks, and months following Lehman Brothers' collapse, AIG, Washington Mutual, Citigroup, and Wachovia all hit the skids. The economy surely saw what was, fundamentally, just a reshuffling of financial players and asset ownership as a sure sign (a very bright sunspot, if you will) that bad times were here again. The reaction was shift. Employers laid off their workers in droves to lower their payrolls before their customers stopped arriving. This was the worst of the many types of multiple equilibria associated with the GR.

Having the economy flip on the basis of bad news about the financial system is, economically speaking, old hat. In 1720, insider trading and fraudulent misrepresentation led to collapses of both the South Sea and Mississippi bubbles. The attempted cornering of the U.S. bond market kindled the Panic of 1792. The sale of investments in the imaginary Latin American country of Poyais led to the Panic of 1825. "Wildcat banking" helped produce the Panic of 1837. The embezzlement of assets from the Ohio Life and Trust Co. instigated the Railroad Crisis of 1857. Jay Gould and James Fisk's cornering of the gold market precipitated the 1869 Gold Panic. Cooke

⁷⁴ <https://trends.google.com/trends/explore?date=all&geo=US&q=great%20depression,Recession;>
<https://fred.stlouisfed.org/series/WILL5000INDFC>

⁷⁵ Even the concern with originate to distribute may have been dramatically overhyped as suggested in https://www.researchgate.net/publication/228168491_Securitization_and_Loan_Performance_A_Contrast_of_Ex_Ante_and_Ex_Post_Relations_in_the_Mortgage_Market.

and Company's failure to disclose losses on Northern Pacific Railroad stock sparked the Panic of 1873. A failed cornering of United Cooper's stocks instigated the Panic of 1907. The Hatry Group's use of fraudulent collateral to buy United Steel, the sale of Florida swamp land, the Match King Hoax, the Samuel Insull fraud and other swindles ushered in the Great Depression. And insider trading and stock manipulation brought down Drexel Burnham Lambert, precipitating the largest insurance failure in U.S. history.⁷⁶

When Lehman failed, all bets were off, including those placed against financial collapse by the world's largest insurer, AIG, which was next to go. Suddenly, it became clear that the global financial system could spontaneously implode and that there was no guarantee governments could stop it. They were lucky and did stop it, but not before 29 of the world's largest financial companies were either nationalized, sold off in shot-gun weddings or went bankrupt. The fact that the panic moved back and forth across the ocean tells us that financial contagion spreads globally as well as domestically and doesn't require interconnected balance sheets. This too represents evidence of multiple equilibrium.

Consider, in this regard, the Cypriot banking crisis of late 2012 and early 2013.⁷⁷ The possible failure of two small banks in that tiny country became front page global news for weeks not because the two banks were important in of themselves. Instead, a failure of these banks, to the severe detriment of depositors, could have led to a run on Greek banks, followed by a run on banks in Italy and Spain, followed by a run on ... Rather than let the two banks fail, the European Commission, European Central Bank, and IMF held emergency meetings and provided a bailout. This was a case of too small to fail – another clear sign of a global financial system that was too unstable (too prone to multiple equilibrium) to absorb even a seemingly minor jolt.

As the international financial system was effectively taken into receivership by the Federal Reserve, the European Central Bank, the Bank of England and the Bank of Japan, the real economy ground down to a prolonged period of stagnation, and, in Spain and Greece, depression. In the U.S., the index of consumer sentiment didn't return to its 2007 peak for an entire decade. The slow recovery is hard to explain except as the result of everyone expecting a slow recovery.

Economies can stay in bad equilibriums for very long times until there is enough good economic news to collectively galvanize animal spirits.⁷⁸ This can occur, even though, as was the case, central banks set interest rates close to zero. Such drastic policies were arguably taken as signs that things were even worse than generally believed and that this was no time to rehire on the assumption that demand for one's products was about to pick up.

Banking Crises and Public Goods

⁷⁶ This paragraph is taken verbatim from Tim Jackson and Laurence Kotlikoff, *Banks as Potentially Crooked Secret Keepers*, NBER working paper, no. 24751, 2018.

⁷⁷ https://en.wikipedia.org/wiki/2012%E2%80%9313_Cypriot_financial_crisis

⁷⁸ The Great Depression lasted a decade until World War coordinated the move to a full employment equilibrium.

The reason that financial crises are economically so deadly is that the banks are not growing wheat, which can easily be stored or purchased from abroad if there's a shortage. Banking panics are economically deadly because the banks are managing/running/providing a public good, namely the financial marketplace. Banks are intermediaries, i.e., middlemen. They connect lenders with borrowers and savers with investors. If the banks go down, the financial market fails. This is akin to gas stations simultaneously failing and preventing us from using a different public good – the highway system.⁷⁹ Moreover, if one gas station had borrowed to gamble from another, the two stations would have interlocking balance sheets meaning the failure of the first could cause the failure of the second.⁸⁰

Take, for example, this description, from the Fed, of Bear's financial-market making prior to its fall.

The imminent insolvency of Bear Stearns, the large presence of Bear Stearns in several important financial markets (including, in particular, the markets for repo-style transactions, over-the-counter derivative and foreign exchange transactions, [mortgage-backed securities](#), and securities clearing services), and the potential for contagion to similarly situated firms raised significant concern that the stability of financial markets would be seriously disrupted if Bear Stearns were suddenly unable to meet its obligations to counterparties, and the extension of credit allowed for an orderly resolution of the firm.

In the GR, the financial system froze. After Lehman, every remaining major bank and thousands of minor banks would likely have failed had the government not intervened in the truly unprecedented fashion in which it did. The government, in this case, was primarily the Federal Reserve. It became, for all intents and purposes, the only fully functional bank in the country, making loans to all manner of financial and non-financial enterprises, from the largest surviving banks to companies selling mobile homes. The Fed also bailed out, directly or indirectly (through other central banks), foreign financial entities.

Unsafe at Any Speed

The banks failed because they could. And they could fail because they were leveraged. They falsely promised to make repayments regardless of the circumstances. The Federal Reserve is also leveraged. In the aftermath of Lehman's collapse, the Fed effectively insured not just checking and saving accounts, but also money market funds. These obligations were officially and, respectively, FDIC and Treasury obligations. They ran to some \$6 trillion.⁸¹ But neither institution had \$6 trillion in ready cash to make good on its insurance. Hence, the Fed would have been on the hook. Indeed, had things gotten worse, there would surely have been a run on the

⁷⁹ Gas stations, by the way, are intermediaries between drivers and refineries. Were gas stations to collectively gamble with their businesses, fail in concert, and leave the public unable to use the roads, Congress would instantly mandate they operate their businesses on a fully equity-financed basis and that gas station owners gamble, if they so chose, strictly with their own money.

⁸⁰ <https://www.federalreserve.gov/regreform/reform-bearstearns.htm>

⁸¹ Kotlikoff (2010)

life insurance industry's cash-surrender value policies, which, at the time, also totaled roughly \$6 trillion.⁸²

Now imagine, as discussed in Kotlikoff (2010), that the government's explicit and implicit pledges of insurance had been called by the public. I.e., suppose the public had, despite the promises of government insurance, headed straight to the banks, money market funds, and insurance companies to empty out their accounts and cash out their cash-surrender value policies. In this case, the Fed would have had to print \$12 trillion virtually overnight. The M1 money supply at the time was just \$1.5 trillion.⁸³ Hence, this would have produced fully justified fears hyperinflation leading everyone to run for their money before prices soared.

The U.S. has yet to experience a run on its central bank. But this is common in countries like Argentina, where the public and the financial community are well aware that the government's pledge of deposit and related financial insurance can only be honored in the context of the wholesale printing of money. Such money printing means the pledge won't be honored in real terms. Thus, with central banks as with private banks, there are two equilibria – everyone runs and no one runs.

The Role of Opacity

Opacity is the midwife of financial panics. Bear Stearns was among the first to be picked off by those who stood to gain by a financial collapse because it was viewed as particularly opaque. According to Cohan (2010), no one on the street or, it seems, inside the bank, knew what its assets were really worth. What they did know is that its relatively high leverage and opacity made it vulnerable. So, too, according to Cohan (2010), did Bear CEO, Jimmy Cayne's reputation for caring more about his bridge game than his bank and his poor personal relationships with top Wall Street bankers as well as Treasury Chairman, Hank Paulson.⁸⁴

The fact that Bear's stock was valued at \$60 per share one week before JP Morgan bought it for \$2 per share (less a \$29 billion sale of Bear's troubled assets to the Fed valued at far less than \$29 billion) tells us that no one knew anything about Bear's assets, either before it died or when it died. Its valuation was, it seems, purely a matter of conjecture. Before it didn't, the market apparently though Bear's assets were worth something because everyone else thought its assets were worth something. This too is the stuff of multiple equilibria.

Samuelson's (1958) pure consumption loan model, in which the young can't save for old age, illustrates the problem. Money, in his model, has value because each young generation thinks the next young generation will treat it as having value and trade food (chocolate in Samuelson's example) for money. This belief makes every generation better off. But if the belief that successive young generations will make the swap comes to an end, Samuelson's elegant solution collapses to the no-money, bad equilibrium in which all current and future elderly starve to

⁸² Ibid

⁸³ <https://fred.stlouisfed.org/series/M1SL>

⁸⁴ See Cohan (2010)

death.⁸⁵ The indeterminacy is actually even worse. The Samuelson model admits a continuum of equilibria based on different assumptions about the path of future rates at which money will swap for chocolates.⁸⁶

Of course, it's hard to prove opacity -- that no one really understood Bear's book of business except, perhaps, Jimmy Cayne. Cohan's (2010) "proof" comes from interviewing insiders at Bear, but they may have born grudges. For whatever it's worth, let me relate my own interview, which I conducted in 2008 with my then brother-in-law, Jim. Jim was a top banker with JP Morgan at the time and was one of some two hundred JP Morgan bankers who were tasked to spend what turned out to be Bear's final weekend valuing Bear's assets. After Bear sold for less than the value of its headquarters building, I asked Jim how much he and his colleagues knew about Bear's assets before they began looking at its books. His answer was "nothing." I then asked Jim how much he and his colleagues knew about Bear's assets after they spent 24-7 for almost three days looking at Bear's books. His answer was "nothing."

Bear's collapse showed the market that there was potentially no there there in any of the banks. If Bear's mysterious "rock solid" assets were worth a fortune yesterday, but nothing today, maybe the same was true of other bank's assets. And as the next most "trustworthy" bank fell, because, again, it became clear that no one could really understand its assets either, the belief that yet more "trustworthy" bank's assets were rock solid declined. The serial failure of the banks, thus, appears to accord with what opacity and faith-based asset valuations would deliver.

By analogy, if Island A's kids stop swapping chocolate for money because they think their own kids won't swap with them, the failure of the self-fulfilling prophecy in Island A can flip the behavior of kids in island B who were modeling themselves after Island A's kids. Next, Island C's kids, who were modeling themselves after Island B's kids, can flip and so forth.

In the event, once the mighty Countrywide Financial and the 85-year-old Bear Stearns fell, other banks began to collapse. First IndyMac, then Fannie Mae and Freddie Mac (the massive government-sponsored mortgage companies) followed by Merrill Lynch on the same weekend as Lehman.⁸⁷ Next came AIG, Washington Mutual, Citigroup, and Wachovia. The serial failures, over a year, of one huge financial corporation after another, has the feel of an information cascade.

Eliminating the Twin Pillars of Financial Collapse – Leverage and Opacity

Banks that have zero leverage -- don't owe anything to anyone -- can't go bankrupt. Hence, the obvious way to prevent future banking crises is to preclude *all* financial corporations from borrowing. Moreover, if opacity is a major problem, the answer is to have the government oversee disclosure. Why the government? First, private parties can't, as we've seen, be trusted

⁸⁵ As discussed in Kotlikoff, Persson and Swensson (1986), each generation of young can consider printing its own money. That too, without some other features, can destroy Samuelson's good equilibrium.

⁸⁶ See Kotlikoff (2006)

⁸⁷ IndyMac and Merrill Lynch sold themselves. Fannie and Freddie were nationalized.

to provide truthful disclosure. Second, they can be mistrusted even if they are acting in a trustworthy manner. Third, information is a public good, making its disclosure a public good.

The Dodd Frank reform does very little to alter financial company leverage or limit the financial system's opacity. As indicated, today's banking system has essentially the same capital ratio as Lehman had the day it died. As for making financial companies transparent, it's business as usual on Wall Street. The pass on opacity was implicitly endorsed by the FCIC report. That report runs 633 pages. The word opacity appears once. The word opaque appears seven times.

Conclusion

Standard explanations of the 2008 financial crisis and its associated Great Recession represent the big con. Like the movie *The Big Short*, they make bad actors, not intrinsic problems with the financial system and the economy, namely multiple equilibrium, facilitated by leverage and opacity, the culprits.

Bad/greedy/lazy/irresponsible actors, we're told, engaged in all manner of financial malfeasance, risk taking, negligence, theft and greed. And what we're told is true. There were plenty of bad actors – enough to fill up hundreds of books and movie scripts. But the story of these bad actors is not the real story of the Great Recession. The real story is that both the economy and the banking system are inherently unstable. They are unstable due to expectations-driven multiple equilibria. If enough people think enough people think a bank is going down, that bank will go down regardless of its true condition. If enough people think the economy is going down, the economy will go down, also regardless of its true condition.

One approach to addressing the problem of financial multiple equilibrium is to replace Dodd-Frank with more fundamental financial reform, such as Kotlikoff (2010)'s Limited Purpose Banking (LPB). LPB would transform all financial corporations into 100 percent equity-financed mutual fund holding companies subject to full and real-time disclosure supervised by the government.

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