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# The US Financial System, the Great Recession, and the “Speculative Spread”

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## Abstract

The Great Recession was an enormous surprise to mainstream economists, while not as much to non-mainstream economists, due to differences in views of the financial economy and its interaction with the real economy. While policy makers continue to follow mainstream economic theory, with the implication that regulation and transparency can fix any market glitches, many remain skeptical of the ability of regulation to prevent this type of crisis in the future. Deeper restructuring of the economy, with curbs on the worst practices of speculation, are necessary to provide long-term stability. We have explored one way in which to measure speculation versus production, in what we call a “speculative spread,” and suggest that this may be an important means to understanding to what degree the economy is overfinancialized.

## *Introduction*

The Great Recession has caused great upheaval in the US financial sector, forcing sudden mergers and unforeseen reorganization. In this paper, we discuss the US financial system before and after the crisis, describing a general way in which to track excess speculation. We first obtain an overview of the US banking system, then describe changes associated with the Great Recession, including the troubled assets that arose during this time. Next, we discuss the source of the Great Recession and propose a method of identifying dangerous financial territory from a general perspective, which can be applied to any country. We call the dangerous financial territory the “speculative spread.” We conclude with policy recommendations.

## *Overview of the US Financial System*

The US financial system is comprised of banks and non-bank financial institutions. Depository institutions include commercial banks, which use funds for business and consumer loans and municipal bonds; savings and loan associations and mutual savings banks which use funds for mortgages; and credit unions, which use funds for consumer loans (Mishkin 2012). Contractual savings institutions include life insurance companies, which use policy premiums to purchase corporate bonds and mortgages; fire and casualty insurance companies, which use policy premiums to purchase municipal

bonds and corporate bonds and stock, and US government securities; and pension funds and government retirement funds, which use employer and employee contributions to purchase corporate bonds and stock. Investment intermediaries include finance companies, which use funds from commercial paper, stocks and bonds to extend consumer and business loans; mutual funds, which use funds from shares to purchase stocks and bonds; and money market mutual funds, which use funds from shares to purchase money market instruments<sup>1</sup>.

Overseeing these financial institutions are regulatory agencies with different responsibilities. Main US regulatory agencies include:

- Securities and Exchange Commission, which regulates organized exchanges and financial markets;
- Commodities Future Trading Commission, which regulates trading on futures markets;
- Office of the Comptroller of the Currency, which charters and regulates federally chartered commercial banks;
- National Credit Union Administration, which charters and regulates federally chartered credit unions;
- State banking and insurance commissions, which charter and regulate state-chartered depository institutions;
- Federal Deposit Insurance Corporation, which insurances deposits of commercial banks, mutual savings banks, and savings and loan associations;
- Federal Reserve System, which regulates all depository institutions;
- and the Office of Thrift supervision, which regulates savings and loan associations (Mishkin 2012).

The Federal Reserve is the central bank of the United States and oversees the US monetary system through the Board of Governors, which guides monetary policy by coordinating with the Federal Open Markets Committee; the Federal Open Markets Committee, which is the primary monetary policymaking body; and regional reserve banks, which act as intermediaries between local banks and the US reserve banking system (Teslik 2008). The Treasury Department operates through the Office of the Comptroller of the Currency, which regulates US banks, and the Office of Thrift Supervision, which supervises federally-chartered savings and loan associations. The Securities and Exchange Commission (SEC) is a government agency that oversees securities markets, enforces securities laws, and monitors stock and options exchanges. A major goal of the SEC is to promote transparency in securities trading. The Federal Deposit Insurance Corporation (FDIC) guarantees up to \$100,000 per person per bank, and

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<sup>1</sup> Deposit insurance covers deposits for up to \$100,000. After negative experiences with deposit insurance in the 1980s and early 1990s stopped the trend in increasing coverage of deposit insurance in the U.S., the FDIC Improvement Act was passed to introduce risk-based premiums to reduce risk-taking incentives, and to direct the FDIC to resolve failed banks in a manner least costly to the insurance fund (Kroszner and Strahan 2007). Deposit insurance expanded once again in 2002 as small banks issued fully insured certificates of deposit through the Certificates of Deposit Account Registry Service, allowing large depositors to skirt the \$100,000 deposit insurance limit. Deposit insurance was also increased for retirement accounts under the Federal Deposit Insurance Reform Act of 2005.

up to \$250,000 in retirement accounts. The Commodities Future Trading Commission regulates futures trading markets, which include a wide variety of futures, ranging from traditional futures on agricultural commodities to futures on currencies or stock indices. The National Credit Union Administration regulates credit unions, which are nonprofit savings and loan institutions.

The US is unique in having a very large number of banks. Both large banks and small community banks comprise the US banking system (Federal Reserve Bank of Kansas City 2003). Community banks are numerous but account for a relatively small amount of banking activity; they are important particularly in rural areas, where they account for half of all deposits and act as an important source of small business loans. Both community and regional banking activity have declined since 1980, while megabanks increased in size.

State branching deregulation between the 1970s and 1990s allowed larger banks to compete in local markets (Clark et al 2007). States allowed multi bank holding companies to convert subsidiary banks into branches. States also allowed banks to open new branches anywhere within a state (Kroszner and Strahan 2007). Full deregulation of interstate banking was embodied in the Reigle-Neal Interstate Banking and Branching Efficiency Act of 1994. Larger networks for large banks and better credit scoring technology, as well as the ATM, have also improved competitiveness for large banks in local networks. Increasing competitiveness in the nineties was essential to flagging activity over the eighties, particularly as households shifted away from retail banking to mutual funds.

Banks also became increasingly internationalized in the eighties, with an increasing number of U.S. assets held in overseas branches, and with foreign banks operating in the U.S. Twenty percent of U.S. banking assets were held offshore in 1980, and little was done to control overseas banks that were lending to U.S. firms (Hester 2002).

Until the mid-1980s, banks were not allowed to participate in the investment banking and insurance industries under the Banking Act of 1933 (Glass-Steagall). The Glass-Steagall Act gave way to a variety of financial institutions, since banks were not allowed to participate in investment banking and insurance industries for some time. Regulations were loosened in the eighties and nineties, and in 1999 the Glass-Steagall Act was repealed under the Financial Modernization Act of 1999 (Gramm-Leach-Bliley), which allowed financial holding companies to own affiliates engaged in banking, insurance underwriting and securities activities (Kroszner and Strahan 2007). These financial conglomerates came to dominate the financial industry in both banking and underwriting. The Sarbanes-Oxley Act of 2002 sought to impose a number of controls on firms, including the requirement to report off balance sheet financial activity.

As many restrictions on banking activity were loosened, regulation of banking capital to asset ratios (rather than minimum capital requirements) were put into place starting in the 1980s to control leverage. At first, this was accomplished using a ratio of raw equity to capital (Kroszner and Strahan 2007). However, these were viewed as inadequate with the increase in off-balance sheet activities, which generated revenues through riskier activities. Basel I regulations addressed this by creating different capital requirements for assets with different risk exposures, including off balance sheet

activities. A more comprehensive capital regime under Basel II, based on model-based constructions of risk, was created in 2004, but not immediately implemented.

Even before the Great Recession, the 1990s period of banking deregulation is often compared to the 1920s period of pre-regulation (Hester 2002). Commercial and investment banking rose during these periods. Deregulation that took place in the nineties was part of an ongoing trend that prompted banks to seek profitable opportunities in financial innovation. Banks sought profits not only from traditional banking, but also from off-balance sheet activity, which became increasingly risky.

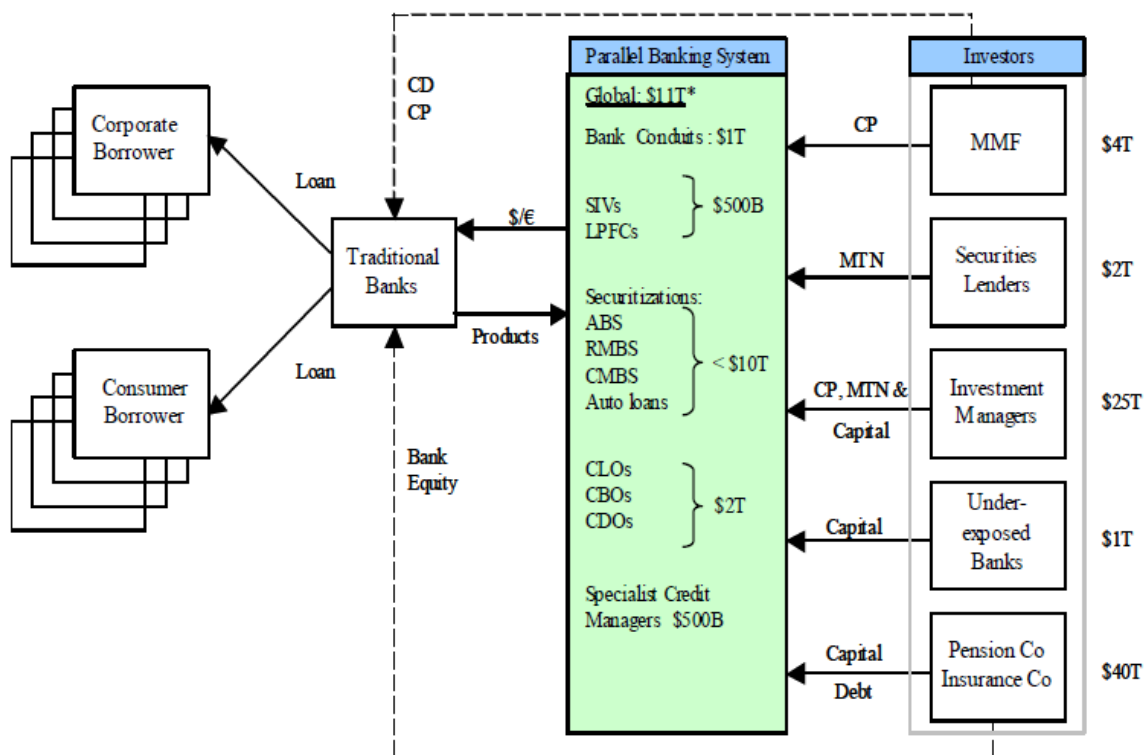
Banks began to securitize and off load loans extended to subprime borrowers. Mortgage loans were “sliced and diced” and tranced into different pools of risk, then bundled into collateralized debt obligations (CDOs) or other mortgage backed securities. The securities were highly rated and sold to investment banks, corporations, and individual investors, setting the stage for the beginnings of the Great Recession, which would occur once the value of the underlying subprime loans declined. In this pre-crisis banking system, the shadow banking system (non bank financial system) was closely related to the banking system, often within the same financial conglomerate, which might contain both a commercial/retail bank and an investment bank, members of the banking and shadow banking sectors respectively<sup>2</sup>.

The pre-crisis financial system, with both the banking and the shadow banking system, can be viewed in the following diagram.

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<sup>2</sup> Confusing, right?

### Traditional Banking Funding via the Parallel Banking System (pre-Crisis numbers)



Source: Gordian Knot.

From this diagram, we can examine the parallel roles of the banking and shadow banking system (Gorton 2010). The traditional banking system, while lending to consumers and corporations, was funded by portfolios of the loans that were sold as bonds to securitization vehicles in the parallel banking system. Securitization vehicles include securitization, bank conduits, structured investment vehicles (SIVs), limited purpose finance corporations (LPFCs), collateralized loan obligations (CLOs), collateralized bond obligations (CBOs), collateralized debt obligations (CDOs), and specialist credit managers. These vehicles are financed by investors that include money market mutual funds, securities lenders, investment managers, under-exposed banks, and pension and insurance companies.

#### *Changes Associated with the Great Recession*

A number of factors conspired to create the environment for the Great Recession. As most economists agree, regulatory gaps failed to properly oversee non-bank financial institutions, particularly within the shadow banking system (which was closely intertwined with the workaday banking system), missing the growing leverage that was building in the financial sector. Financial institutions were de facto vastly undercapitalized. Incentives promoted moral hazard, as financiers received high compensation for risky activities.

Undercapitalization occurred as banks moved loans off balance sheets, reducing liabilities that were visible to the public and to regulators. Banks then continued to make loans without having to keep as much liquidity on hand for the “disappeared” liabilities (for which they are often still responsible). Undercapitalization and outright fraud were results of faulty balance sheet reporting. In the case of Lehman Brothers, some short-term financial transactions were reported as sales, and the leverage ratio appeared to be lower than it really was. AIG did not disclose the actual amount of liabilities associated with its credit default swaps.

To make matters worse, a large element of moral hazard was introduced by transferring risk responsibility for loans to a third party. Banks and mortgage companies offered loans to high risk individuals because they knew the risk could be passed on to a third party. After the shadow banking system bundled and securitized the loans, ratings agencies assigned very high ratings to these dubious assets, since they were being paid by the shadow banking industry to do so.

As noted above, leverage ratios were too high. A safe leverage ratio is considered at or below 12. Leverage ratios between 2000 and 2009 for banks worldwide were at about a mean of 12.39, while investment banks had leverage ratios of a mean of 13.269, large non-investment banks had leverage ratios of about 17.379, sponsor banks (banks that had off-balance sheet investment vehicles, mainly large commercial banks) had leverage ratios of about 22.712, and non-sponsor banks had leverage ratios of about 12.375 (Kalemli-Ozcan, Sorensen and Yesiltas 2011). The sponsored banks and large non-investment banks were heavily involved in the business of slicing and dicing mortgages, creating the dangerous leverage that was not reflected in bank balance sheets.

In the US alone, financial institutions with the largest amounts of leverage in 2007 included the investment banks and financial conglomerates of Bear Stearns, Lehman Brothers, Merrill Lynch, Morgan Stanley, and Citigroup. Leverage for U.S. banks can be viewed in the following chart.

**Table 1. Big US Banks Leverage**

	Leverage (2007)	Leverage (2008)
Bank of America	11.7	10.3
Bear Stearns	33.5	NA
Citigroup	18.4	13.5
Goldman Sachs	22.4	13.4
JP Morgan	12.6	12.9
Lehman Brothers	30.7	NA
Merrill Lynch	31.9	33.4
Morgan Stanley	33.4	13
Wells Fargo	12	12.8

**Source: Kalemli-Ozcan, Sorensen and Yesiltas 2011**

Leverage remained within reasonable bounds on paper but swung out of control de facto in the buildup to the crisis. In addition, exposure to sub-prime related assets became increasingly apparent by 2008. Table 2 shows the total reported subprime exposure and percent of reported exposure. Commercial banks, hedge funds, and insurance companies were reportedly the most exposed to the subprime crisis, through mortgage backed securities.

**Table 2. Subprime Exposures by Type of Institution**

	Total reported subprime exposure (US \$bn)	Percent of reported exposure
Investment Banks	75	5%
Commercial Banks	418	31%
Government Sponsored Enterprises	112	8%
Hedge Funds	291	21%
Insurance Companies	319	23%
Finance Companies	95	7%
<b>Leveraged Sector</b>	<b>896</b>	<b>66%</b>
<b>Unleveraged Sector</b>	<b>472</b>	<b>34%</b>
<b>Total</b>	<b>1,368</b>	<b>100%</b>

**Source: Greenlaw, Hatzius, Kashyap and Shin (2008)**

The buildup to the crisis was the prodigious increase in leverage and its associated lack of responsibility for liabilities accumulated. When the heavy load began to crumble at the bottom, as subprime mortgages failed, the leveraged assets experienced losses so large that they threatened to bring down entire institutions, and fear was embodied then in falling asset prices across the board. Bank and asset “runs” brought the system to a standstill at the end of 2008.

Financial institutions began to fail and were merged with other institutions to reduce losses. Two institutions most threatened were non-bank financial institutions, Bear Stearns and Lehman Brothers. Bear Stearns was acquired by a bank holding company, while Lehman Brothers was allowed to fail. There was an outcry well after the fact against the elimination of the Glass Steagall Act through the Gramm Leach Bliley Act of 1999, which had limited commercial bank securities activities. Once removed, commercial banks were allowed to engage in asset securitization, and they did so en masse. Investment banks were threatened even more with the specter of regulation. Goldman Sachs and Morgan Stanley, two large investment banks, converted to bank holding companies in order to avoid this type of regulatory fervor.

Due to subprime exposure and its subsequent contagion, during the crisis numerous bank mergers took place to save failing institutions. Merrill Lynch was merged into Bank of America, JP Morgan Chase acquired Bear Stearns and Washington Mutual, and so on. At a banking industry-level perspective, the forced mergers that took place in 2008 may be viewed as only a part of an upward trend in banking consolidation (Wheelock 2011). After all, the number of banks fell steadily from the nineties through



the Great Recession, while the local market concentration *declined* over the same period. The nature of mergers during the crisis was clearly different however, since institutions were combined out of desperation or force. The case can be made that firm concentration has created, and continues to create, moral hazard, since there are even more firms today that are “too big to fail” than before the crisis.

Despite the rise of regulatory fervor during the crisis, the Great Recession has been viewed as providing explicit support to non-bank financial institutions such as AIG and Bear Stearns. The proposal to regulate rather than to restructure the financial system, with its unwieldy shadow banking sector, has left some economists uneasy, since the financial system is increasingly reliant on the shadow banking sector, with its massive variety of assets, for funds. As Nersisyan and Wray (2010) point out, the composition of financial assets has changed dramatically since 1945, with assets held by commercial banks and savings institutions giving way to assets held by managed funds and a host of non-bank financial companies, comprising over half of all financial assets by the 1990s. This has been compared to Ponzi financing—sheer speculative activity. Some economists refute this idea, making the case that banks had to find another way of making profits as profitably declined during the eighties and nineties<sup>3</sup>.

Some economists and policy makers have also stated that the non bank financial sector, and the makings of the Great Recession, had arisen to provide profits to the wealthy. And as has already been said elsewhere, the profit-seeking nature of the “new” financial industry has sharpened inequality<sup>4</sup> in America. Those who have money are able to make larger financial gains than those who do not. This appears to be true not only from a supply side (those originating new securities did so in search of profit) but also from a demand side (those demanding new securities did so in search of profit). The financial industry reaped 29% of corporate profits in the fourth quarter of 2010 (Strachan 2011). At the same time, the top 1% of American financial wealth owners held 43% of the wealth in 2007 (Wolff 2010),

### *Troubled Assets*

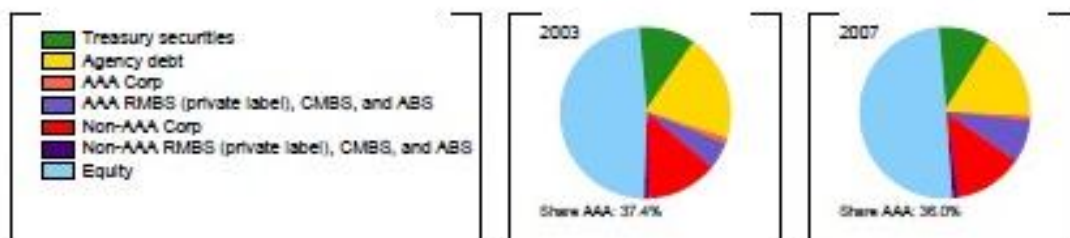
At the heart of the crisis was the creation and distribution of what would later become troubled assets. An increasing number of American institutional and individual investors held new types of financial securities in the 2000s. These securities promised high returns at relatively low risk. AAA mortgage backed securities and CDOs became more and more popular through 2007. Wealthy foreign institutional and individual investors also increasingly purchased these assets. The figure below shows the composition of US securities in 2003 and 2007.

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<sup>3</sup> Securitization of loans created many of the new financial assets. Securitization began in the 1960s with the creation of Ginnie Mae and increased dramatically in the 1980s with the development of collateralized mortgage obligations (DeYoung 2007). Many mortgages were securitized and sold to government-sponsored enterprises, including the Federal National Mortgage Association, Fannie Mae, and the Federal Home Loan Mortgage Corporation, or Freddie Mac.

<sup>4</sup> Today, the top 1% of households own about 35% of all private wealth, and the rest of the households on top own virtually everything else.

## U.S. securities outstanding Total



Source: Bernanke et al (2011)

The percentage of risky assets held increased between 2003 and 2007, and the overall level of assets held increased greatly. Assets that were held in great numbers by both Europeans<sup>5</sup> and Americans by 2007 included a variety of mortgage and non-mortgage backed asset securities, as well as non-AAA corporate bonds. We explore these riskier assets that grew in dollar terms just before the crisis hit.

What were these assets, and why were they created and held? Of course, the idea behind any type of securitization is that the evaluation and risk bearing functions of financial institutions can be separated, so that one institution or branch with local knowledge originates a loan while another institution or branch places the risk in internationally diversified portfolios. Credit and liquidity transformation allow loans of varying creditworthiness to be tranching in more uniform, or liquid, pools, and distributed.

Commercial mortgage backed securities<sup>6</sup>, residential mortgage backed securities, and other asset backed securities, including non-AAA corporate bonds, were increasingly held in Collateralized Debt Obligations (Titman and Tsyplakov 2010) and Structured Investment Vehicles. CDOs were traded by non

<sup>5</sup> As Bernanke et al (2011) has discussed, as many mortgage-backed assets were highly rated, they were also attractive to foreign investors who were somewhat less risk averse. From about 1998 onward, foreign investors in both Global Savings Glut countries and Europe held between 22 percent (1998-2002) to 55 percent (2004 to 2007) of highly rated securities issued by US residents. Investments in the US included purchases of non-AAA rated securities and equity by Europe. Holdings by European investors were more similar to holdings by US residents than they were to GSG countries. Therefore European and American residents had similar motives (diversification and pursuit of profit) in purchasing assets outside of securities and agencies, which we shall proceed explore individually. We exclude discussion of stock holdings, which have been in use for centuries and were less destabilizing than some of the other assets held.

One group of non bank financial asset holders did so to diversify risk. These were foreigners who held safe American assets. As Ben Bernanke has pointed out (Bernanke 2005, 2007), the Global Savings Glut (GSG) hypothesis, where foreign investors, with an excess of savings over investment, invested money in US assets that were perceived as safer than emerging-market domestic assets. Investments from GSG countries were mainly in Treasuries and Agencies for the purposes of balancing international portfolio risks.

<sup>6</sup> Commercial mortgage-backed securities were introduced in the 1980s and taken up in large amount in starting in 1989 to absorb mortgages through the Resolution Trust Corporation which securitized mortgage loans held by failed savings and loan institutions. Non-agency residential mortgage backed securities were created in the seventies to expand the private secondary mortgage market.

bank financial firms within hedge funds. Notably, Bear Stearns was one of the first financial institutions to announce collapse of subprime hedge funds (traded for CDOs) in July 2007.

Hedge funds provided means for very wealthy individuals to place their wealth in profitable institutions. Investors in hedge funds are required to hold a large amount of wealth—a net worth of \$1 million for accredited individual investors, or qualified purchasers (individuals or firms) who must have at least \$5 million in investments, not including property for a primary residence or business (Sherman 2000).

Structured Investment Vehicles were invented by Citigroup in 1988 and were set up as finance companies. SIV assets were held by money market funds, relatively “safe” funds offered by mutual funds, as well as by commercial banks and other financial institutions. The trouble with SIV assets, particularly those held by financial institutions, is that much of the asset values were predicted by models rather than by real values per se, and the models turned out to have overvalued the assets, and that they were held off balance sheet, so that banks were in fact doubly undercapitalized. The motive for financial institutions to hold SIV assets was to supposedly reduce credit and liquidity risks and to increase lending capabilities (enhance liquidity) in search of higher profits.

These assets were traded through the shadow banking system, which continues to be a very vast and complex system that is difficult to regulate. Runs on the shadow banking system occurred in 2007 and 2008 (Pozsar, Adrian, Ashcraft, and Boesky 2010). These consisted of runs on financial companies, selloffs of asset backed securities through special purpose vehicles and broker-dealers, and, most notoriously, the failure of Lehman Brothers. After this period, parts of the shadow banking system had disappeared--\$5 trillion of it. Shadow banking components were brought under bank holding companies, which are under the supervision of the Federal Reserve. However, further regulation and control of the shadow banking system continue to be discussed today.

### *The “Speculative Spread”*

Since the crisis occurred, additional regulations have begun to be put in place to prevent this from occurring again. The Dodd-Frank Act of 2010 was enacted to end “too big to fail” bailouts, create an advance warning system for the financial industry, close loopholes for loopholes for risky and abusive finance, provide new rules for transparency and accountability for credit rating agencies, and limit executive pay (US Senate 2012). But it has not been viewed as particularly impactful with respect to the US financial industry, and it certainly did not move toward resolving the worst speculative activity.

Speculation must be controlled. The trouble with investment as a generator of extranormal profits is that, not only does it increase inequality between wealthy and financial interests and the working population, but that it also creates financial risks that are not associated with real value. Creating extranormal profits is often referred to as speculation—speculation takes on risky investments in the hopes of creating higher than normal profits, at an expense of potentially losing very large amounts. In the case of the Great Recession, very large amounts of money were indeed lost, not only by investors

but also by the real economy, which suffered from the economic shock originating from the subprime financial sector<sup>7</sup>.

As evidenced both by the Great Recession and by the Great Depression, speculation can have damaging effects on the very fabric of the economy. Because of this, speculation is arguably economically inefficient, in part because it locks in increasing financial risk. As in the case of using large market share to maintain and grow large market share (i.e., trusts), the financial entity becomes cancerous when it grows too large to be based on real profits. This is because speculation can lead to herding behavior on incorrect information (Keynes 1936; Froot, Scharfstein and Stein 1992), as well as to overleveraging. In the Great Recession, rating companies “herded” on the propagation of incorrect information, and investors herded on the purchase of excessively risky assets. Leverage was sky high. Speculation had permeated the financial system and, once the bets were lost, a large amount of financial value was wiped out.

We recommend, from Hsu and Li (2012), a method of examining what level of speculation the economy can tolerate. In addition to imposing proper regulation, authorities should determine how much financial activity can be properly supported by the real economy. This makes sense because without sufficient real economic activity, financial activity must become speculative. This relationship can be shown in the following relationship, which describes what we call the “speculative spread”:

$$F - P > kD,$$

where  $F$  is the index of finance,  $P$  is the index of production,  $D$  is the index of financial deepening, and  $k$  is a positive parameter.  $F - P$  is the “speculative spread.”

In the case where  $F - P > kD$ ,  $F - P$  must decrease (for high income countries) or  $D$  must increase (for low income countries), and where  $F - P < kD$ ,  $F - P$  must increase. In other words, if the growth of finance is less than or equal to the growth of production, an increase in financial deepening is necessary. Conversely, if the growth of finance is greater than the growth of production, a decrease in financial deepening is necessary. This is not easy to operationalize, since both financial deepening and production are heterogeneous; there is no average representation of either.

In this case, we define speculation as the divergence of non-bank financial activity from real productive activity. This definition captures much of the shadow banking activity, some of which is truly speculative and some of which may not be. It is meant to be representative of the divergence of securitization from productivity, and will be refined in future work using the Flow of Funds data.

The speculative spread is calculated by using subtracting  $P$  from  $F$ ; we use our own index to measure non-bank financial development  $F$ , including equal weights of the ratio of other financial institutions to GDP (OTHER) and stock market capitalization to GDP (STOCK)<sup>8</sup>, normalizing by the smallest data, in this

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<sup>7</sup> GDP contracted not only in the US but also throughout the world as a result.

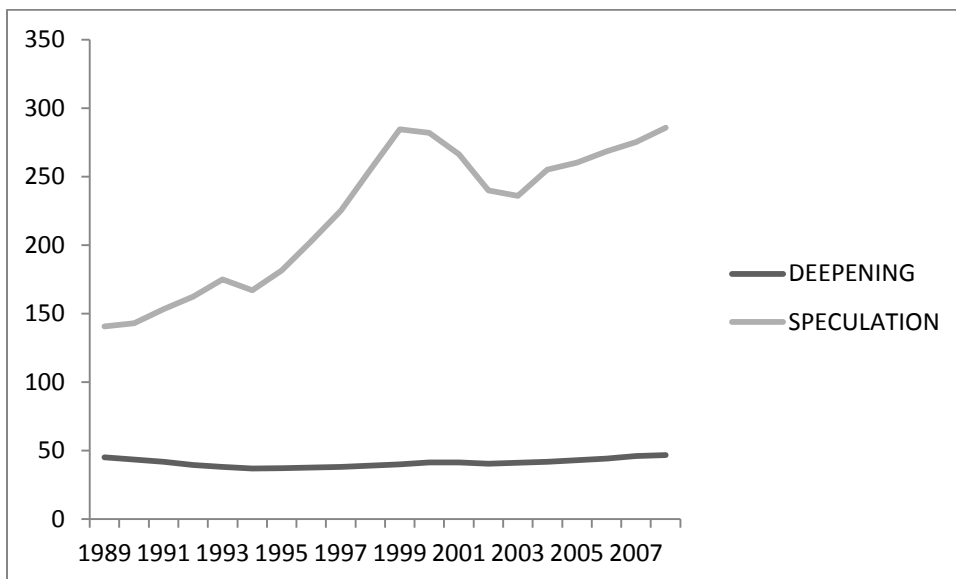
<sup>8</sup> All data for  $F$  index from Beck and Demirgüç-Kunt (2009). We had, and removed, the indicators public bond market capitalization to GDP and bank returns on assets because they were not significant in determining the level of economic development (GDP per capita).

case Uruguay in 1995. We also use our own index to measure production  $P$ , including equal weights of the Industrial Production Index<sup>9</sup> and the Agricultural Output Index<sup>10,11</sup>. Since these production index components have already been normalized (indexed), we use the composite production index  $P$  directly.  $F-P$  represents speculative activity.

The financial deepening index  $D$  is represented by two equally weighted variables. The variables representing financial deepening have been used in prior work by King and Levine (1993b) and include measures of liquid liabilities to GDP (DEPTH)<sup>12</sup> and gross claims on the private sector to GDP (PRIVY)<sup>13</sup>, normalizing on the smallest data point, Peru in 1990.

Without going into too much detail, we present results of the speculative spread compared to financial deepening in the US found in Hsu and Li (2012). In the US, the speculative spread has grown since 1989, as financialization has only increased.

### Speculative Spread in the United States



<sup>9</sup> Laspeyres' index number of total value-added in all industrial production, where value added is the value of output less the values of both intermediate consumption and consumption of fixed capital. (United Nations, annual, Series P).

<sup>10</sup> Based on the sum of price-weighted quantities of different agricultural commodities produced after deductions of quantities used as seed and feed weighted in a similar manner. All the indices at the country, regional, and world levels are calculated by the Laspeyres formula. Production quantities of each commodity are weighted by average international commodity prices in the base period and summed for each year. To obtain the index, the aggregate for a given year is divided by the average aggregate for the base period. The commodities covered in the computation of indices of agricultural production are all crops and livestock products originating in each country. Practically all products are covered, with the main exception of fodder crops.

<sup>11</sup> Both the IPI and API are taken from Eurostat.

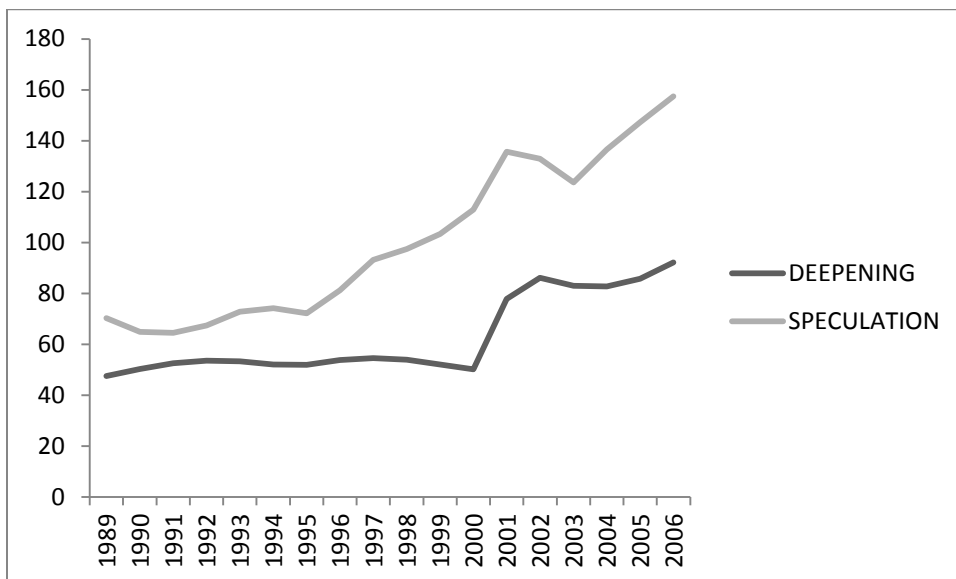
<sup>12</sup> Data from Beck and Demirgüç-Kunt (2009).

<sup>13</sup> PRIVY calculated from IFS 32d/GDP. We do not use Levine's measure PRIVATE, which is calculated from IFS 32d/(32a through 32f, excluding 32e), since there are numerous gaps in the data, limiting the number of observations.

Source: Hsu and Li (2012)

The speculative spread in the US has increased over time, particularly in the two years preceding crises, while the financial deepening index has remained more or less static. This can be compared to the case of Canada, in which both the financial deepening and the speculation indexes increase somewhat more in tandem.

#### Speculative Spread in Canada



Source: Hsu and Li (2012)

What this implies is that in the US, non-bank financial activity (potentially subject to speculation) as it compares to productive activity has increased, while bank financial activity has not. This is a result of the rise of the shadow banking system. While lately some economists have advocated or defended the rise of the share of non-bank financial institutions in providing financial services, it was activity outside of banks (or off balance sheets) that set the stage for the current crisis and non-bank financial institutions remain far less regulated than banks. Certainly, some aspects of the shadow banking system are more pernicious than others. This is something that is currently of interest to regulators, and is being explored under the Financial Stability Board. Money market mutual funds, despite “breaking the buck” in 2008, are much more highly regulated than assets like CDOs. Securitization, although important in allowing financial institutions to originate loans and sell off the loans to expand the lending market, can itself succumb to adverse selection as less profitable firms use off balance sheet securitization. There is also a lack of a “securities lender of last resort,” which came up in 2005 when chronic repo failures occurred (Gorton and Metrick 2010).

More than anything, however, is the issue that the shadow banking system is prone to speculation, as the recent crisis has demonstrated. Assets sold by shadow banks became so fashionable in the 2000s

that they were coveted by many individual and institutional investors, leading to speculation. Extreme lack of transparency, questionable use of computer modeling, lack of regulation, and perverse incentives in the form of sky-high bonuses fueled the tendency of the shadow banking sector to engage in profit seeking above and beyond the real sector. To make matters worse, speculation is procyclical. Speculation mainly occurs during periods of excess returns, which have been shown to be positively related to consumption growth (Avouyi-Dovi and Matheron 2005). As income and consumption increase, purchases of assets increase correspondingly, amplifying the business cycle and setting the stage for a potentially very sharp decline. This is what happened in the recent crisis. Some positive real gains were greatly amplified as Keynes' "irrational exuberance" set in, setting off large scale purchases of assets in the shadow banking sector.

Finally, the shadow banking system is tightly integrated with the formal banking system. Losses in banks' subprime mortgage sector were limited at first to that sector, tied to something real, but were unfortunately used as the basis for highly leveraged assets in the shadow banking sector. Structurally, the shadow banking system is not entirely separate from the formal banking system. Commercial banks continue to be allowed to engage in investment banking activity, as Glass-Steagall has not been reinstated.

#### *Policy Recommendations and Conclusion*

After the crisis, we were left with regulatory chaos and insufficient solutions. The shadow banking system remains generally nontransparent and difficult to control. The banking system itself has moved on after the crisis, with help and encouragement from both the Treasury and the Federal Reserve. Loans are being made but banking activity largely remains low. Structurally, little has changed—even the fear of repeal of Gramm-Leach-Bliley was never realized (although attempts to pass this type of legislation were made).

Based on our "speculative spread" model, we recommend more of an economic policy emphasis of building up the real sector and on reducing the shadow banking sector. At the very minimum, appropriate regulation of the shadow banking sector must occur, and this is in the process of being examined by policy makers. Job creation and lending to business would increase financial deepening, and this can be brought more in line with speculation by restricting the types and extents of assets that can be bought and sold. Transparency within the shadow banking sector is necessary but not sufficient—too many assets not directly stemming from real production may themselves endanger the economy due to a propensity to overleverage off of real production. Some measure of how much shadow banking activity is "acceptable" within the bounds of the real economy must be used to guide policy making in this sector.

The Great Recession was an enormous surprise to mainstream economists, while not as much to non-mainstream economists, due to differences in views of the financial economy and its interaction with the real economy. While policy makers continue to follow mainstream economic theory, with the implication that regulation and transparency can fix any market glitches, many remain skeptical of the ability of regulation to prevent this type of crisis in the future. Deeper restructuring of the economy,

with curbs on the worst practices of speculation, are necessary to provide long-term stability. We have explored one way in which to measure speculation versus production, in what we call a “speculative spread,” and suggest that this may be an important means to understanding to what degree the economy is overfinancialized.



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