

Rethinking Finance: New Perspectives on the Crisis

Editors: Alan Blinder, Andrew Lo and Bob Solow

Chapter Abstracts

SESSION ONE: RETHINKING MARKET EFFICIENCY

The Efficient-Market Hypotheses and the Financial Crisis

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The world-wide financial crisis of 2008-2009 has left in its wake severely damaged economies in the United States and Europe. The crisis has also shaken the foundations of modern-day financial theory, which rested on the proposition that our financial markets were basically efficient. Critics have even suggested that the efficient--market--hypothesis (EMH) was in large part, responsible for the crises.

This paper argues that the critics of EMH are using a far too restrictive interpretation of what EMH means. EMH does not imply that asset prices are always “correct.” Prices are always wrong, but no one knows for sure if they are too high or too low. EMH does not imply that bubbles in asset prices are impossible nor does it deny that environmental and behavioral factors cannot have profound influences on required rates of return and risk premiums. At its core, EMH implies that arbitrage opportunities for riskless gains do not exist in an efficiently functioning market and if they do appear from time to time that they do not persist.

The evidence is clear that this version of EMH is strongly supported by the data. The data for 2011 are particularly supportive of the view that the stock market does not provide unexploited arbitrage opportunities that would permit professional equity fund managers to “beat the market.” Last year 84 percent of all equity managers were outperformed by the broad-based S&P 1500 Index. For funds investing in smaller companies (so-called small-cap funds) 86 percent of actively-managed funds were outperformed by the S&P 600 small-cap index. Over longer periods of time (such as 5 years) about 66% is the more normal proportion of active funds that fail to outperform the indexes. But the 33% that outperform in one period are not the same as those who “win” during the next 5-year period. There is little or no persistence in the ability of fund managers to beat the averages.

The Efficient Market Hypothesis can comfortably coexist with behavioral finance. Of course, the market makes mistakes and bubbles can exist. The insights of Hyman Minsky are particularly relevant in illuminating the recent financial crisis. When they do exist, bubbles are particularly dangerous when they are financed with debt. And the housing bubble and its associated derivative securities left both the consumer and financial sectors dangerously over leveraged. Policy makers are unlikely to be able to identify bubbles in advance, but they must be better focused on asset-price increases that are financed with debt.

Behavioral Finance in the Financial Crisis: Market Efficiency, Minsky, and Keynes

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Psychology, including aspirations, cognition, emotions, culture, and fairness, is at the center of behavioral finance and at the center of the crisis. The crisis highlights the need to incorporate behavioral finance into our economic and financial theories.

We discuss Keynes' insights about the psychology that drives us into cycles of boom and bust and Minsky's insights about the inherent instability of the capitalistic system. Both were neglected before the crisis, and both merit attention in its wake. We argue that while a belief that markets are efficient did not cause the crisis, unwarranted faith in free markets contributed to the crisis. And we describe the tug-of-war between those pulling toward freer markets and those pulling toward more regulated markets.

Some have blamed the crisis on a widespread belief that markets are efficient. We argue that this argument is unfocused by a lack of a common definition of market efficiency and by a conflation of efficient markets with free markets. The ambitious definition of efficient markets is that of rational markets, where security prices always equal intrinsic values. The modest definition of efficient markets is that of unbeatable markets. Bubbles cannot occur in rational markets but they can occur in unbeatable markets. We argue that a belief in market efficiency cannot bear responsibility for the crisis since most investors do not believe that markets are either rational or unbeatable.

Free markets are markets where government puts little or no imprint on financial behavior. We argue that a belief by many that free markets are always superior to regulated markets does bear some responsibility for the crisis. Regulations that would have limited the types of mortgages offered by bankers to homeowners would have helped stem the crisis or mitigate it. So would have limits on the degree of leverage employed by bankers and homeowners.

The tug-of-war between those who pull toward free markets and those who pull toward strict regulation of markets corresponds to the instability of capitalism, a key component of the 'Minsky view.' The financial sector becomes increasingly innovative in its use of financial instruments in periods of expansion, boosting its leverage, and funding risky projects with horizons exceeding the associated debt. "Hedge" financing turns into "speculative" financing and "Ponzi" financing. The ensuing dynamic leads to contradictory monetary policy, economic downturn, and financial crisis. The government responds by stimulating the economy and rescuing financial institutions that are too big to fail. These mitigate the downturn, but also set the stage for the next expansion and subsequent crisis. Yet Minsky was more confident in his diagnosis of expansion and crisis than in our ability to prevent them. The challenge we face is seeing an opaque future as clearly as possible, knowing not only that foresight is not as clear as hindsight but also that we would be judged in the future as if it is.

Why Did So Many People Make So Many Ex Post Bad Decisions: The Causes of the Foreclosure Crisis

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Over a four year period starting in 2007, lenders started almost 8 million foreclosure proceedings, as many as in the prior 28 years combined. In this chapter we ask the simple question: Why did so many people make so many ex post bad decisions? Why did borrowers take out loans they couldn't repay? Why did lenders lend them the money? Why did investors buy securities backed by loans to people who couldn't repay?

The most popular theory of the foreclosure crisis focuses on information and incentives and proposes that knowledgeable insiders preyed on gullible outsiders. The two leading examples are the lenders who used deceptive mortgage contracts to convince borrowers to take out loans they couldn't afford and the investment bankers who securitized and sold those loans to investors and deliberately obfuscated the quality of the collateral. According to this theory, borrowers and investors made bad decisions because they were deceived.

The information and incentives theory, however, fails to fit most of the facts about the crisis. Careful analysis of the micro data shows that deceptive mortgage contracts played a minor role as most troubled borrowers either had fixed rate mortgages or defaulted at a time when the payments on their loans were fixed. On the investor side, mortgage-backed securities are actually exceptionally transparent, issuers clearly identified and detailed relevant risk factors and documentary evidence shows investors could accurately forecast the performance of the loans based on the information provided. Finally, the highest profile casualties of the crisis, intermediaries like New Century and Bear Stearns, were consummate insiders and the biggest winners, fund managers like John Paulson, identified themselves as real estate finance outsiders.

A more coherent and logical explanation that fits the data is that the foreclosure crisis was the result of the bubble in U.S. residential real estate that started in the late 1990s and collapsed in 2007 as optimism about house price appreciation (HPA) led borrowers and lenders to make decisions that appeared logical at the time but went wrong when their expectations about HPA weren't realized. On the investment side, widely circulated investment bank analysis of loans showed that a fall in house prices would lead to massive losses on subprime deals but justified the investments on the grounds that even a mild fall in prices was highly unlikely. Borrowers defaulted on loans not when payments changed but when local house prices started falling.

The latter explanation is unsatisfying because, of course, it leaves open the question of what caused the bubble. We argue that economic science does not yet have the tools to identify the causes of asset price bubbles. While it is tempting to attribute the bubble to the expansion of mortgage credit availability in this period, it is difficult to identify causality: lenders attributed their willingness to expand credit to optimism about house prices. Further, a review of recent history shows that there was very little innovation or deregulation in mortgage markets in the 2000s: most of the consumer financial products sold to borrowers had been in wide use since the early 1980s; the key regulatory changes also occurred in the early 1980s. By historical standards, government involvement in the mortgage market in the boom years of the 2000s was limited.

SESSION TWO: RETHINKING FINANCIAL INNOVATION

Ratings, Mortgage Securitizations, and the Apparent Creation of Value

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The traditional business of rating agencies is the rating of corporate and sovereign bonds. During the 2000 to 2007 period another part of their business, the rating of structured products, grew very fast, so much so that by the end of this period it was contributing close to half of their revenues. Whereas the rating of bonds is based on a mixture of judgment and analysis, the rating of structured products is almost entirely model-based. The objective of the model is to ensure that the rating of a structured product is, in some sense, consistent with the rating of bonds.

This chapter studies the criteria used by rating agencies when they rate structured products. The criterion used by S&P and Fitch aims to ensure that the probability of a loss being incurred by a structured product with a certain rating is similar to the probability of a loss being incurred by a corporate bond with the same rating. By contrast, the criterion used by Moody's aims to ensure that the expected loss on a structured product with a certain rating is similar to the expected loss on a corporate bond with the same rating.

The rating of a structured product is in some sense a measure of quality. It is reasonable to assume that some investors assign a value to a structured product that is monotonic in the credit rating. This raises the question of whether the ratings criteria permit arbitrage. Is it possible to improve the average perceived quality of a portfolio by restructuring it? We propose a simple no-arbitrage condition that measures of credit quality should satisfy. We show that the criterion used by Moody's does satisfy the condition whereas the criterion used by S&P and Fitch does not.

Our results explain some of the phenomena that were observed during the crisis and have policy implications for the SEC oversight of rating agencies that has been mandated by the Dodd-Frank legislation. The chapter also raises some fundamental issues concerned with what ratings are trying to measure. If they are trying to measure value, their criteria are to some extent misguided. If they are trying to measure something else, it is, from a public policy perspective, important that this is made clear to the consumers of ratings.

The Role of ABS, CDS and CDOs in the Credit Crisis and the Economy

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The credit derivatives – ABS (Asset Backed Securities), CDS (Credit Default Swaps), and CDOs (Collateralized Debt Obligations) - played a significant role in the financial crisis affecting both the financial and real economy. This paper explains their economic roles, using the credit crisis as an illustration.

An ABS's collateral pool (in particular Residential Mortgage Backed Securities) consists of untraded mortgage loans. The cash flows from these mortgages flow to ABS bond tranches and equity. These ABS securities help to complete the market. ABS are beneficial because they

provide previously unavailable investment opportunities to market participants facilitating the access to mortgage capital which spurs real economic growth.

CDOs (CDO²) are a type of ABS. A CDO's collateral pool consists of traded ABS bonds, as distinct from the untraded collateral pool of ABS. In addition, in contrast to ABS, CDOs have more complex waterfall structures. Because a CDO's collateral pool consists of traded securities, their economic benefit is to provide investors with diversified portfolio returns at reduced transaction costs, similar to the beneficial economic role of mutual funds or ETFs.

Prior to the credit crisis, CDOs were created to exploit a market inefficiency. The market inefficiency was that CDOs (bond tranches) were mispriced – overvalued. This mispricing was caused by credit agencies misrating the CDOs, called rating arbitrage. The credit rating misratings were, in turn, caused by the incentive conflicts inherent in the rating agencies' payment fee structures. Rating arbitrage was persistent due to both the complexity of the CDOs and the dysfunctional institutional (short-term bonuses) and regulatory (legislated use of ratings) structures present in the economy.

Regulatory reforms are needed to reduce the reliance on credit ratings, and to remove the conflict inherent in the rating agency payment fee structure. Due to the large costs of creating CDOs, without the existence of rating arbitrage, these securities are unlikely to exist in the quantities previously experienced.

CDS are analogous to term insurance policies written on traded bonds. The buying of CDS (including naked CDS) is beneficial because it enables market participants to more easily short sell debt, thereby increasing the informational efficiency of credit markets. Trading CDS is harmful only if the counterparties are improperly collateralized/ capitalized. Regulatory reform is needed to ensure proper capitalization. CDS should be exchange traded where possible, and OTC traded contracts should be adequately capitalized and traded with more transparency so counterparty exposure is more easily determined.

Finance vs. Wal-Mart: Why are Financial Services so Expensive?

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The role of the finance industry is to produce, trade and settle financial contracts that can be used to pool funds, share risks, transfer resources, produce information and provide incentives. Financial intermediaries are compensated for providing these services. Total compensation of financial intermediaries (profits, wages, salary and bonuses) as a fraction of GDP is at an all-time high, around 9% of GDP.

What does society get in return? Or, in other words, what does the finance industry produce? I measure the output of the finance industry by looking at all issuances of bonds, loans, stocks (IPOs, SEOs), as well as liquidity services to firms and households. Measured output of the financial sector is indeed higher than it has been in much of the past. But, unlike the income earned by the sector, it is not unprecedentedly high.

Historically, the unit cost of intermediation has been somewhere between 1.3% and 2.3% of assets. However, this unit cost has been trending upward since 1970 and is now significantly higher than in the past. In other words, the finance industry of 1900 was just as able as the finance industry of 2010 to produce loans, bonds and stocks, and it was certainly doing it more cheaply. This is counter-intuitive, to say the least. How is it possible for today's finance industry not to be significantly more efficient than the finance industry of John Pierpont Morgan?

What happened? Why did we get the bloated finance industry of today instead of the lean and efficient Wal-Mart? Finance has obviously benefited from the IT revolution and this has certainly lowered the cost of retail finance. Yet, even accounting for all the financial assets created in the U.S., the cost of intermediation appears to have increased. So why is the non-financial sector transferring so much income to the financial sector?

One simple answer is that technological improvements in finance have mostly been used to increase secondary market activities, i.e., trading. Trading activities are many times larger than at any time in previous history. Trading costs have decreased, but I find no evidence that increased liquidity has led to better (i.e., more informative) prices or to more insurance.

SESSION 3: RETHINKING FINANCIAL REGULATION

Shadow Finance

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Shadow finance refers to all financial transactions that take place outside transparent financial markets. Whether OTC derivatives and swaps, private placements, and asset-backed securities markets, or the hedge fund and private equity industry at large, there has been tremendous growth in this sector relative to the more regulated and transparent markets, such as public exchanges, in the two decades preceding the financial crisis of 2007-2008. This is a somewhat puzzling development given that investors in the shadow finance sector benefit from weaker legal protections. We argue that one important reason why a shadow finance sector always co-exists alongside more regulated and transparent markets is the desire to limit dissemination of private information about asset values. We also argue that, along with deregulation, the shadow finance sector grew rapidly during these two decades because of IT innovations and the greater ability of informed dealers in this sector to lever up their positions.

We highlight an important negative externality on transparent markets from the migration of financial transactions to the shadow finance sector: the reduced access of retail investors to the most lucrative investments. Indeed, the greater protection against dissemination of private information induces dealers set up to trade in the shadow finance sector to invest in the identification of the most valuable assets for trade and thus allows them to bid away (*cream-skim*) the most valuable assets from public, transparent, exchanges. We also highlight how this migration of the most valuable assets away from regulated markets financed through greater and greater leverage can induce a destabilizing boom-bust cycle.

Our analysis suggests that a central tenet underlying existing securities regulations, which is to offer legal protections from financial sharks to the less savvy retail investors, but otherwise let sophisticated investors make investments free from most regulatory protections at their own peril, is flawed. The reason is that exemptions from securities regulations for “qualified investors” in the shadow finance sector end up facilitating the cream-skimming of the most valuable investments away from retail investors and thereby undermine public markets. There is a fallacy in the simple distinction between public markets—open to small investors, and private markets—open to qualified investors, which is that it rests on the false premise that the investments on offer in both markets are more or less identical on a risk-adjusted return basis. The reality is that the shadow finance sector offers sophisticated investors uniquely lucrative investment opportunities, and retail investors are being denied access to these. Also, the migration of financial transactions to the shadow finance sector results in inefficiently low diffusion of information acquired in private markets, which in turn may give rise to excessive information production and informational rent seeking in this sector.

The Political Economy of Financial Regulation after the Crisis

Robert E. Litan, *The Ewing Marion Kauffman Foundation*

Many culprits have been blamed for the financial crisis, including regulators and their multiple failures. In this chapter, I intend to do several things:

- Identify and briefly discuss the causes of the crisis and the role that regulatory failure played. I will argue that several types of regulatory failure were central “but for” causes: the de facto loosening of capital or leverage standards for banks and the formerly independent investment banks, the inability or unwillingness of the Fed and Congress to regulate subprime lending primarily by state-chartered lenders, and the excessive reliance by regulators on credit ratings. These were significant even if one accepts the view that Fed monetary policy was excessively loose in the years running up to the crisis or that federal housing policy excessively promoted home ownership.
- Assess the causes of these regulatory failures: capture or interest group pressure (from big banks, housing industry, etc), ideology, incompetence, or honest mistakes.
- Address the various ideas that have been advanced for improving financial regulation, in view of the central role that it has been given by Dodd-Frank in fixing what went wrong, and in light of the constraints under which regulators necessarily must operate. Among other notions, these ideas include:
 1. Better oversight, by Congress or even a new uber-agency, which may help but which also may drive regulators to be excessively risk averse.
 2. Better pay to attract better regulators. In theory better pay could be financed by user fees, given deficit-induced pressure on general budget.
 3. The possibility that next time will be different because an explicit body (the FSOC) is charged with systemic risk oversight and willingness to use new macro-prudential counter-cyclical tools such as tighter leverage, and LTV ratios. But note that the FSOC is already the locus of turf wars, and arguments both ways about detecting future systemic risks.
 4. The alternative of busting up the big banks as advocated by Simon Johnson and others, including Alan Greenspan. However, it is necessary to note that even with more medium

sized but large banks, it is still possible to have herding behavior/contagion and TBTF non-banks.

5. Better harnessing of market-like devices to rein in risk, especially by TBTF institutions (e.g. higher capital standards for larger regulated, or SIFI-designated institutions). However, note the failure of subordinated debt to properly signal the last crisis.

As for the future, will regulators just fail again, due to the same or similar reasons as before, especially interest group pressure? There is already some evidence of this regarding big bank dealer opposition to derivatives clearing rules. My tentative bottom line: we'll muddle through until the next crisis, most likely triggered by concerns over government deficits, not weakness in the financial sector, though the latter could aggravate any crises triggered by other factors. Benefits of memories of 2007-08 will fade. But weakness of regulation shouldn't mean we abandon it, since markets failed and most likely at some will fail again too.

Pay, Politics and the Financial Crisis

Kevin J. Murphy, *University of Southern California*

In early 2009, with the United States still enmeshed in the financial crisis and reeling from the bailouts to the banking sector, Congress shifted its attention to the critical task of finding someone (or something) to blame. The most obvious culprit was the “Wall Street bonus culture,” the tradition in which traders, brokers, and executives receive most of their compensation not in base salaries but rather in bonuses paid at the end of the fiscal year. Since this tradition rewards success but (allegedly) imposes no real penalties for failure, the Wall Street culture (allegedly) provides incentives for excessive risk taking of the sort that facilitated the crisis.

In this Chapter, I explore how the Wall Street bonus culture has contributed to and been affected by the recent financial crisis. I begin by documenting differences in the level and structure of pay and incentives for executives in broker-dealer firms compared to that in commercial banks and industrial firms. I show that the Wall Street bonus culture is, indeed, a Wall Street phenomenon, applying to broker-dealer firms (especially large ones) and not to other financial services firms. In addition, I show that the Wall Street bonus culture is, in addition, an equity culture: until the market collapse during the financial crisis, equity incentives and equity ownership were substantially higher for broker-dealer executives than their counterparts in banking and industry.

Next, I review how banking bonuses can create incentives for excessive risk taking. Bonus plans can provide incentives to take risks through two channels: (1) asymmetric rewards and penalties, and (2) performance measures that reward risky behavior. Ultimately, I find no evidence that the banking bonus culture provided incentives for risk-taking for top-level banking executives: indeed, the general structure of low base salaries and high bonus opportunities paid in a combination of cash, stock, and options should mitigate rather than exacerbate excessive risk taking. For lower-level traders and loan officers, I identify potentially important performance-measurement problems that – while not necessarily inducing increased risk taking – can nonetheless destroy significant amounts of value.

I then analyze the regulatory responses to perceived excesses in banking bonuses, beginning with the original restrictions on TARP recipients through the ongoing implementation of the Dodd-Frank Act. I show that the political responses (and the rhetoric behind the responses) have not been to reduce risk, improve pay or protect taxpayers, but rather to attack perceived excesses in pay for top-level executives, destroy the Wall Street banking culture, and punish executives in the companies perceived to be responsible for the global meltdown. I conclude that – while banking compensation can clearly be improved – government intervention will inherently be inefficient, punitive, and value-destroying.

SESSION FOUR: RETHINKING MACROECONOMICS AND FINANCE

This Time, It Is Different: Cutting Edge Macro Finance from the 1870s for the 2010s

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When the Financial Times's Martin Wolf asked former U.S. Treasury Secretary Lawrence Summers what in economics had proved useful in understanding and dealing with the financial crisis and the recession, Summers's response was: “There is a lot about the recent financial crisis in Bagehot...”. “Bagehot” here is Walter Bagehot’s 1873 book, *Lombard Street: A Study of the Money Market*. How is it that a book written 150 years ago is still state-of-the-art in economists’ analysis of episodes like the one that we hope is just about to end? There are three reasons. The first is that modern academic economics has long possessed drives toward analyzing empirical issues that can be successfully treated statistically and theoretical issues that can be successfully modeled on the foundation of individual rationality. But those drives are disabilities in analyzing episodes like major financial crises that come too rarely for statistical tools to have much bite, and for which a major ex post question asked of wealth holders and their portfolios is: “just what were they thinking?”. The second is that even though the causes of financial collapses like the one we saw in 2007-9 are diverse, the transmission mechanism in the form of the flight to liquidity and/or safety in asset holdings and the consequences for the real economy in the freezing-up of the spending flow and its implications have always been very similar since at least the first proper industrial business cycle in 1825. Thus a nineteenth-century author like Walter Bagehot is in no wise at a disadvantage in analyzing the downward financial spiral. The third is that the proposed cures for current financial crises still bear a remarkable family resemblance to those proposed by Walter Bagehot. And so he is remarkably close to the best we can do, even today.

Credit Supply Shocks and Macroeconomic Activity in a Financial Accelerator Model

Simon Gilchrist, *Boston University*

The depth and duration of the 2007–09 recession serves as a powerful reminder of the real consequences of financial shocks. We discuss recent theoretical research which examines the extent to which disruptions in financial markets can affect economic activity. We also provide a quantitative assessment of these theoretical models. In particular, this paper examines the extent to which the workhorse New Keynesian model—augmented with the standard financial accelerator mechanism— can account for business cycle fluctuations of the magnitude observed

during recession episodes including the recent financial crisis. To do so, we employ the methodology of Gilchrist and Zakrajsek [2011] to construct a measure of shocks to the financial sector, which is then used to simulate the model over the 1985-2010 period. These results indicate that a reasonably calibrated version of the model can match the observed decline in economic activity and can account for the sharp widening of nonfinancial credit spreads, a decline in nominal short-term interest rates, and the declines in inflation experienced in the wake of financial disruptions. Given its empirical relevance, we then use this framework to analyze the potential benefits of allowing the short-term nominal rate to respond to changes in financial conditions as measured by movements in credit spreads. We also compare this policy to an alternative "macroprudential" policy that directly limits the growth in lending during economic booms. We are particularly interested in the tradeoff between inflation and output volatility engendered by such policies.