

A Global Perspective on the Great Financial Insurance Run: Causes, Consequences, and Solutions

Ricardo J. Caballero¹

January 20, 2009

1. Introduction

The current financial crisis will be remembered for years to come: The financial losses are measured in trillions of dollars; we have witnessed the demise of elite financial institutions; fear and mistrust is widespread among investors and lenders; credit markets have ceased to operate except for those with very short maturities; massive and orthodox policy interventions are an every day occurrence; and we have been, and continue to be, on the verge of a global financial meltdown. How did we get into this situation? What should we do to get out of it and to prevent a relapse any time soon?

There is an emerging consensus which essentially rehashes an old list of complaints about potential excesses committed in the phase *prior* to the crisis. The sins include uncontrolled global imbalances, unscrupulous lenders, and an insatiable Wall Street, all of them lubricated by an ever expansionary Federal Reserve. It follows from this perspective that the appropriate policy response is to focus on reducing global imbalances, boosting financial regulation, bringing down leverage ratios, and adding bubble-control to the FED's mandate.

I do not share this consensus view and its policy prescriptions. Instead, my sense is that, to a first order, the correct policy response should build on the following three observations:

- Many of the ex-ante “imbalances” are more structural in nature than is implied in the consensus view, and hence will remain with us long after the crisis is over. They stem from a global excess demand for financial assets and, especially, for AAA financial assets.
- The main policy mistakes took place *during* rather than prior to the crisis. The core aspect of the crisis is a collapse in all forms of (explicit and implicit) financial insurance markets due to a sharp rise in (Knightian) uncertainty. The policy response has been too slow in addressing this core issue. In fact, until very recently, the Treasury's response often exacerbated rather than reduced perceived uncertainty. The failure to prevent Lehman's demise represents the worst of this dubitative and ad-hoc policy approach, but the “exemplary punishment” (of shareholders) policy during the Bear Stearns collapse also failed to recognize its uncertainty impact.
- Contrary to what investors thought at the peak of the boom, the (private) financial sector in the U.S. is not able to satisfy the global demand for AAA assets when large negative aggregate events take place. However, the U.S. government does have the capacity to fill this gap, especially because it is the recipient of flight-to-quality capital, even when the core of the global financial crisis is located in the U.S.

¹ MIT and NBER. These notes were prepared for the MIT's Economics Alumni dinner, NY, January 20, 2009, and are based on the articles listed in the references section.

These observations hint at a policy framework for the current crisis and for the medium run. For the latter, we can go back to a world not too different from the one we had before the crisis (real estate prices and construction sectors aside), as long as the government becomes the explicit insurer for generalized panic-risk. That is, while monolines and other financial institutions can lever their capital for the purpose of insuring microeconomic risk and moderate aggregate shocks, they cannot be the ones absorbing extreme, panic-driven, aggregate shocks. This must be acknowledged in advance, and paid for by the insured institutions. Reasonable concerns about transparency, complexity, and incentives can be built into the insurance premia. Collective deleverage, as currently being done, should *not* constitute the core response; macroeconomic insurance should.

The structural policy framework for the medium run also carries over to the crisis-policy itself. The essence of a solid recovery should build not from deleveraging and a forced brutal contraction of the financial sector, but from the explicit and systemic insurance provision against further negative aggregate shocks to their balance sheets caused by panic or predatory actions. The recent intervention of Citi, with a mixture of (paid) insurance and capital, is promising, and so is the second intervention of AIG. These interventions need to be scaled up to the whole financial system (banks and beyond), and it is better to do it all at once, for in this case the likelihood of the government ever having to disburse funds for its insurance provision becomes remote.

The following sections develop some of these arguments. Section 2 describes the pre-crisis phase; section 3 portrays the current crisis as primarily a run on all forms of private insurance; section 4 discusses optimal economic policy in this environment; and section 5 concludes.

2. The Pre-crisis Phase

For quite some time, but in particular since the late 1990s, the world has experienced a chronic shortage of financial assets to store value. The reasons behind this shortage are varied: They include the rise in savings needs by aging populations in Japan and Europe, the fast growth and global integration of high saving economies, the precautionary response of emerging markets to earlier financial crises, and the intertemporal smoothing of commodity producing economies.

The immediate consequence of the high demand for store of value instruments was a sustained decline in real interest rates. Conventional wisdom blames these low rates on loose monetary policy, but this position is difficult to reconcile with the period of the so called “Greenspan conundrum,” when tightening monetary policy had virtually no impact on long rates. Instead, the latter were driven by the large demand for store of value instruments rather than by short term monetary policy considerations.

Low real interest rates is an equilibrium response by which the market creates value out of existing financial assets. Yet another mechanism to increase asset supply is the creation of

new assets, including the emergence of the many speculative bubbles that we have seen over the last decade (some of which are legal and some are not —e.g., the NASDAQ bubble and the Madoff scheme, respectively).

Moreover, because of the U.S.' prominent role as the center of world capital markets, much of the large global demand for financial assets has been channeled toward its assets. This has been the main reason for the large global “imbalances” observed in recent years. The large current account deficits experienced by the U.S. are simply the counterpart of the large demand for its assets.

Under this perspective, there is a more subtle angle on subprime mortgages than simply being the result of unscrupulous lenders: These mortgages expanded the much needed supply of assets. The world needed more assets and the subprime mortgages were helping to bridge the gap. So far so good.

However, there was one important caveat that would prove crucial later on: The global demand for assets was particularly for safe AAA instruments. This is not surprising in light of the importance of central banks and sovereign wealth funds in creating this high demand for assets. Moreover, this trend toward safety became even more pronounced after the NASDAQ crash.

Soon enough, U.S. banks found a “solution” to this mismatch between the demand for safe assets and the expansion of supply through the creation of risky subprime assets: This consisted of pooling the latter on the asset side of an SIV, and to tranch the liability side to generate a AAA component buffered by the now ultra volatile “toxic” residual. The latter was then pooled again into CDOs, tranced again, and then into CDO-squared, and so on. At the end of this iterative process, many new AAA assets were produced out of very risky (subprime) claims.

The AAA tranches so created were held by the non-levered sector of the world economy, including central banks, sovereign wealth funds, pension funds, etc. They were also held by a segment of the highly-levered sector, especially foreign banks and domestic banks that kept them on their books, directly and indirectly, as they provided attractive “safe” yields. The small toxic component was mostly held by agents that could handle it, although highly levered investment banks also were exposed.

Much of the focus on the regulatory and credit agency mistakes highlights the fact that the AAA tranche seems to have been too large relative to the “true” capacity of the underlying risky instruments to create such a tranche. While I agree with this assessment, I believe it is incomplete and, because of this, it does not point to the optimal policy response.

Instead, I believe the key issue is that even if we give the benefit of the doubt to the credit agencies and accept that these instruments were indeed AAA from an unconditional probability of default perspective (the only one that counts for credit agencies), they were not so with respect to severe *macroeconomic* risk. This created a highly volatile

concoction, where highly levered institutions of systemic importance, were holding assets which were very vulnerable to aggregate shocks. This was an accident waiting to happen.

3. The (Insurance) Crisis

And happen it did. It started without much fanfare sometime in 2006, limited to the housing sector and the associated subprime mortgage market. Eventually, it spread to the financial sector as the securitization markets supported by these mortgages and other risky loans began to freeze. As this happened, conventional margin and collateral feedback mechanisms amplified the incipient liquidity problem. Then suddenly, the soundness of the AAA instruments created from risky loans in the previous phase were questioned. In particular, economic agents realized that they didn't quite understand what was behind these instruments.

This confusion was the first inkling of something that would later ravage global financial markets: Financial institutions specialize in handling *risk* but are not nearly as efficient in dealing with *uncertainty*. To paraphrase a recent secretary of defense, risk refers to situations where the unknowns are known, while uncertainty refers to situations where the unknowns are unknown. This distinction is not only linguistically interesting, but also has significant implications for economic behavior and policy prescriptions. There is extensive experimental evidence that economic agents faced with (Knightian) uncertainty become overly concerned with extreme, even if highly unlikely, negative events. Unfortunately, the very fact that investors behave in this manner make the dreaded scenarios all the more likely.

Worsening the situation, until very recently, the policy response from the Treasury exacerbated rather than dampened the uncertainty problem. Early on in the crisis, there was a nagging feeling that policy was behind the curve; then came the "exemplary punishment" (of shareholders) policy of Secretary Paulson during the Bear Stearns intervention, which significantly dented the chance of a private capital solution to the problem; and finally, the most devastating blow came during the failure to support Lehman. The latter unleashed a very different kind of recession, where uncertainty ravaged all forms of explicit and implicit financial insurance markets.

An economy with no financial insurance operates very differently from the standard modern economies we are accustomed to in the developed world: There is limited uncollateralized or long term credit (since such loans always have an insurance built in through the possibility of default), the risk premium sky-rockets, economic agents hoard massive amount of resources for self-insurance and real investment purposes, etc. During the last quarter of 2008 we witnessed the beginning of a transition from an economy with insurance to one without it. Ivashina and Scharfstein (2009) document that even healthy corporations began to draw down on their credit lines with otherwise solid banks, as they doubted their ability to do so at a later date.

In this environment, financially constrained agents obviously cannot go about their businesses with the flexibility they once enjoyed. However, the real hope for a recovery, as well as the concern for a meltdown, lies on the other side of the spectrum, on the unconstrained agents. At this juncture of the crisis there are mountains of investment-ready cash waiting for some indication that the time to enter the market has arrived. But investors are frozen staring at each other, and by so doing, they are further dragging the economy downward. The normal speculative forces that trigger a recovery are for everybody to want to arrive first, to “make a killing.” But with so much fear around us, investors have changed the paradigm and they are now content with letting somebody else try his or her luck first, so we are stuck.

Other cash-rich investors see great investment opportunities in the not so distant future, but, in the meantime, they do not unlock their resources for fear that the temporary investments may turn illiquid, a process which in itself contributes to widespread illiquidity, or because the lack of competition brought about by crisis almost ensures a better deal in the future. And yet others go one step further in profiting from illiquidity and panic itself, by shorting run-prone financial institutions they close the circle of fear that fuels the runs.

We need to reverse this mechanism by restoring the appetite for arriving first. I do *not* mean to say that this recession is an imaginary one. On the contrary, I believe it is a very serious recession. My point is simply that good policy has an opportunity to bring the recession back to familiar turf, and when this happens, the recession will become a manageable one from which current asset prices, on average, will look like once-in-a-lifetime deals.

4. Optimal Policy

The silver lining to this diagnostic is that the core policy prescription becomes evident: The government must immediately replace the main insurance markets ravaged by uncertainty. The good news is that, unlike the situation in most other economies in the world, the U.S., as a whole, is perceived as a safe haven and hence rather than triggering capital outflows, its financial crisis has done the opposite. The main implication of this safe-haven status is that the cost of funding massive policy interventions is very low.

In formulating the list of insurance markets to be supported, it is important to look beyond the obvious. Surely one of the first worrisome symptoms during the crisis was a contraction in all forms of non-overnight uncollateralized lending among highly reputable financial institutions. Later on we saw the corporate sector losing trust in these financial institutions and hence drawing on their credit lines, by which they shifted from insurance arrangements to a much more inefficient (from a systemic point of view) form of self-insurance.

Yet another, perhaps more subtle, insurance collapse came from the housing market crash itself, as households lost the buffer offered by HELCs against any shock they may face. This loss of insurance became all the more significant after Lehman’s demise, when the collapse in equity markets erased another buffer and overall economic uncertainty spiked. The sharp rise in margin requirements has played a similar role for leveraged investors.

In all these contexts, trimming the (lower) tail-risk offers the biggest bang-for-the-buck. In this sense, capital injections are **not** a particularly efficient way of dealing with the problem unless the government is willing to invest massive amounts of capital, certainly much more than the current TARP. The reason is that Knightian uncertainty generates a sort of double- (or more)-counting problem, where scarce capital is wasted insuring against impossible events (Caballero and Krishnamurthy 2008b).

A simple example can reinforce this point: Suppose two investors, A and B, engage in a swap, and there are only two states of nature, X and Y. In state X, agent B pays one dollar to agent A, and the opposite happens in state Y. Thus, only one dollar is needed to honor the contract. To guarantee their obligations, each of A and B put up some capital. Since only one dollar is needed to honor the contract, an efficient arrangement will call for A and B *jointly* to put up no more than one dollar. However, if our agents are Knightian, they will each be concerned with the scenario that their counterparty defaults on them and does not pay the dollar. That is, in the Knightian situation the swap trade can happen only if *each* of them has a unit of capital. The trade consumes *two* rather than the *one* unit of capital that is effectively needed.

Of course real world transactions and scenarios are a lot more complex than this simple example, which is in itself part of the problem. In order to implement transactions that effectively require one unit of capital, the government needs to inject many units of capital into the financial system.

But there is a far more efficient solution, which is that the government takes over the role of the insurance markets ravaged by Knightian uncertainty. That is, in our example, the government uses one unit of its own capital and instead sells the insurance to the private parties at non-Knightian prices.

The Knightian uncertainty perspective also sheds light on some of the virtues of the asset-purchases program of the original TARP. In practice, financial institutions face a constraint such that value-at-risk must be less than some multiple of equity. In normal times, this structure speaks to the power of equity injections, since these are “multiplied” many times when relaxing the value-at-risk constraint. In contrast, buying assets reduces value-at-risk by reducing risk directly, which typically does not involve a multiplier. However, when uncertainty is rampant, some illiquid and complex assets, such as CDOs and CDO-squared, can reverse this calculation. In such cases, removing the uncertainty-creating assets from the balance sheet of the financial institution reduces risk by multiples, and frees capital more effectively than directly injecting equity capital.

Does this mean that there is no role for capital injections? Certainly not. Knightian uncertainty is not the only problem in financial markets, and capital injections are needed for conventional reasons as well. The point is simply that these injections need to be supplemented by insurance contracts, unless the government is willing to increase the TARP by an order of magnitude (i.e. measure it in trillions).

5. Final Remarks

Before concluding, I wish to clarify that I am not arguing that the world was perfect before the crisis and that the aspects mentioned in the consensus view should be ignored. Of course we should continue to work to produce the right regulatory environment where the silver lining of crises is that problems become more apparent. But we should also acknowledge that this is a dynamic process which is likely to lead to new and different problems in the future, and therefore it is never ending. Instead, the questions that have concerned me here are: Given this constant flow of microeconomic incentive problems, what is the role played by the global macroeconomic environment in causing fragility? And, how can we deal with it without “throwing out the baby with the bath water”?

In a nutshell, I have argued that, by now, fear has distorted the price of risk and its insurance to an extreme. In this context, it makes little sense to apply the ordinarily used recipes of restructuring and liquidation during normal times. The main role of the government should be to provide insurance against systemic events at non-Knightian prices. This recipe applies as much during as after the crisis.

Paradoxically, the weakness that has plagued emerging market economies for decades has now stricken the financial systems of developed economies, and that of the U.S. in particular: This being a sudden loss of investors’ confidence which has ravaged credit markets and the stability of previously sound financial institutions. The conventional advice to emerging markets has been to accumulate international reserves and reduce short term liabilities. Consistently, the message now for financial institutions in developed economies is to accumulate capital and deleverage. I have, over the years, repeatedly argued that this policy prescription for emerging markets is a highly inefficient mechanism to solve their external vulnerability problem. For similar reasons, I view the capital accumulation and deleveraging mechanism as a highly inefficient solution to the financial vulnerability problem behind the current crisis.

Essentially, the U.S. (and other) financial markets are experiencing the modern version of a systemic run as we had not seen since the Great Depression. It used to be that depositors ran from banks. Some of this still happens, but runs in modern financial markets, to be systemic, have to involve a larger class of assets. A run against explicit and implicit financial insurance is essentially a run against virtually all private sector financial transactions but for those with the shortest maturities. Thus, the modern lender-of-last resort facility has to be a provider of broad insurance, not just deposit insurance. This is what it will take to get us back into a reasonable equilibrium where we can initiate a recovery from a (more) “normal” recession.

Yesterday (01/19/09), the U.K began the day well by announcing a mega-insurance policy for its financial markets. The good news were turned into yet another run on banks’ equity once it became apparent that the specter of shareholders dilution is still present. While it is reasonable for the government to protect taxpayers, it is unreasonable for it to inject equity into banks at fire-sale prices, as this is the equivalent (or the other side of) selling insurance at Knightian prices. The logic of my argument above suggests that if public injections of

equity are to happen, these should not take place at fire sale--Knightian prices but at some reasonable long run price. Convertible debt aid, that is converted at fire sales prices, has a payoff structure which is just the opposite of the put option payoff that is needed from this aid, and hence it is likely to exacerbate rather than dampen the problem.

Background References

Op-eds

[Normalcy is Just a Few Bold Policy Steps Away](#)

Ricardo J. Caballero
December 17, 2008

[Knightian Uncertainty and its Implications for the TARP](#)

Ricardo J. Caballero and Arvind Krisnamurthy
Financial Times, November 24, 2008

[Paulson Plan: "Exemplary Punishment" Could Backfire](#)

Ricardo J. Caballero and Pablo Kurlat
Financial Times, The Economists' Forum, Monday, 29 September, 2008

[Moral Hazard Misconception](#)

Ricardo Caballero
Financial Times, Weds, 16 July, 2008

["Musical Chairs.pdf"](#)

Ricardo J. Caballero and Arvind Krishnamurthy
February 2008

Articles

[Global Imbalances and Financial Fragility](#)

Ricardo J. Caballero and Arvind Krishnamurthy
December 16, 2008

[Financial Crash, Commodity Prices and Global Imbalances](#)

Ricardo J. Caballero, Emmanuel Farhi, Pierre-Olivier Gourinchas
November 17, 2008 (*forthcoming, Brookings Papers on Economic Activity*)

[Flight to Quality and Bailouts: Policy Remarks and a Literature Review](#)

Ricardo J. Caballero and Pablo Kurlat
October 2008

[Collective Risk Management in a Flight to Quality Episode](#)

Ricardo J. Caballero and Arvind Krishnamurthy

Journal of Finance, Vol. 63, Issue 5, October 2008

[An Equilibrium Model of "Global Imbalances" and Low Interest Rates](#)

Ricardo J. Caballero, Emmanuel Farhi, and Pierre-Olivier Gourinchas

American Economic Review 2008, 98:1, pgs 358-393.

[On the Macroeconomics of Asset Shortages](#)

The Role of Money: Money and Monetary Policy in the Twenty-First Century

The Fourth European Central Banking Conference 9-10 November 2006, Andreas Beyer and Lucrezia Reichlin, editors. Pages 272-283.

[The Future of the IMF](#)

Ricardo J. Caballero

May 2003, *American Economic Review*, Papers and Proceedings, 93(2), 31-38.

[Hedging Sudden Stops and Precautionary Contractions](#)

Ricardo J. Caballero and Stavros Panageas

Journal of Development Economics, 85 (2008) pp 28-57

[Bubbles and Capital Flow Volatility: Causes and Risk Management](#)

Ricardo J. Caballero and Arvind Krishnamurthy

January 2006, *Journal Monetary of Economics*, 53(1), pp. 35-53.

Government's role as credit insurer of last resort and how it can be fulfilled, by Perry Mehrling and Alistair Milne, October 2008