

A Simple Theory of the Financial Crisis; or, Why Fischer Black Still Matters

Tyler Cowen

Nouriel Roubini (“Dr. Doom”) and the late Hyman Minsky are often heralded as the economic prophets of the current financial crisis. But there are also connections between recent events and the work of Fischer Black (1938–1995). Best known for his seminal work in option-pricing theory, Black also wrote extensively on monetary economics and business cycles.

An enigmatic thinker, Black sometimes wrote in epigrams or brief sentences and did not present his macroeconomic views in terms of a formal model. For that reason, interpreting Black is not always easy. Nonetheless, Black’s writings offer ideas for explaining the current crisis, most notably the idea that a general risk–return trade-off governs business cycles. Black also stressed “noise traders,” T-bills as the new form of cash, the inability of monetary policy to address many downturns, and the notion that a business cycle is characterized by significant sectoral shifts.

Published in 1995, Black’s *Exploring General Equilibrium* starts with the idea that entrepreneurs choose a preferred level of risk. Of course, choosing a higher level of risk involves higher expected returns but also a correspondingly greater risk of collapse. That is a common assumption about individual entrepreneurs, but Black’s innovation was to insist that such reasoning could be applied to the economy as a whole.

Black’s account of the business cycle downturn required many different economic sectors to go wrong all at once, through widely held but incorrect assumptions about the real world. At the time, this approach was out of sync with “rational expectations” theories. In favored approaches of the 1980s and 1990s, it was common to admit that individual mistakes were possible but that such mistakes would be governed by the “law of large numbers.” (This view was prevalent before the rise of behavioral economics to its current popularity.) Mistakes could occur in many different and scattered directions, and so mistakes did not suffice to drive the co-movement of many different economic sectors. Although forecasting mistakes would cause some sectors to do worse than average, other sectors would do better than average because of forecasting errors in the opposite direction. Black, however, never accepted this perspective, and he continued to insist that the law of large numbers did not necessarily apply to a business cycle setting. As I will show, some plausible expectational errors are magnified in the aggregate and do not cancel one another out.

Most business cycle analysts offer detailed scenarios for how things go wrong, but Black’s revolutionary idea was simply that we are not as shielded from a sudden dose of bad luck as we would like to think. With that in mind, I would like to consider how we might make sense of the current financial crisis and recession by drawing broadly upon some of Black’s ideas.

Tyler Cowen is professor of economics at George Mason University, Fairfax, Virginia.

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The Financial Crisis: One Possible Scenario

Fundamentally, the current financial crisis is not about the bursting of a real estate bubble. Although housing and subprime loans were the proverbial canary in the coal mine, the real problem was that investors chose too many risky assets of many different kinds. Nor is the financial crisis about mistakes in the banking sector, although many such mistakes were made. At bottom, the financial crisis has been a story of how poorly suited we are at handling unexpected systemic risks, especially those that stem from the so-called real economy. In essence, the story of the current financial crisis can be told in three broad chapters: (1) the growth of wealth, (2) the decision to opt for risky investments, and (3) the underestimation of a new source of systemic risk.

First, starting in the 1990s, global wealth grew enormously. Communism fell, world trade expanded, China grew at about 10 percent a year, and the investing class experienced unprecedented gains in income and wealth. Strong demand to invest the new wealth existed. Before Ben Bernanke became Fed chairman, he coined the phrase "global savings glut" to describe this new state of affairs.

More and more wealth was released into financial markets as many countries—including Spain, Iceland, Ireland, and the United Kingdom—modernized their financial systems. China channeled its new wealth into U.S. credit markets by buying T-bills and mortgage agency securities. These purchases freed up other funds for the pursuit of riskier investments.

The second basic trend was the increased willingness of both individuals and financial institutions to make risky investments, including the purchase of overvalued equities, risky derivatives positions, loans to such highly leveraged companies as AIG, and real estate loans (especially subprime loans). Many of these risks were not based in the financial sector but, rather, involved unduly optimistic revenue models, as we have seen in the automotive industry, state and local governments, and such "Web 2.0" companies as Facebook. Some of the risky investments included speculation in volatile commodity prices, which spread the boom-bust cycle to such commodity exporters as the oil-exporting countries.

The risks of many investments were aggravated by increases in leverage. Many U.S. investment banks moved from leverage ratios of about 12 to 1 to ratios of about 30 to 1 and expanded their investments in risky assets in the process. The result was a lower margin of error for profit-and-loss calculations, and thus, these high leverage ratios were not validated.

Many believe the Fed is largely responsible for the crisis. From 2001 to 2003, Alan Greenspan, the former Fed chairman, kept the federal funds rate at 1 percent, but monetary policy was not fundamentally at fault for the resulting overreach. If monetary policy had been the primary driver of the credit boom, investment would have gone up and consumption would have fallen. After all, without an increase in real resources (the global savings glut), an economy cannot expand on all fronts at the same time. But consumption was highly robust during the boom, especially in the United States. This fact implies that the resources behind the real estate and financial asset boom came from the real economy and that the Fed is largely not to blame for the current crisis. The presence of major financial problems in "tight money" Europe is consistent with this interpretation.

How Were All These Systematic Errors Possible?

The obvious question is, How were so many unsound decisions in so many countries made? A number of specific answers can be given, ranging among hypotheses about home prices, the weak transparency of mortgage securities, corporate malgovernance, excess subsidies to housing, and excessively loose monetary policy. Although these answers may have merit in explaining particular aspects of the crisis—given that bubbles have burst in just about every asset market and in many countries—they do not seem sufficiently fundamental.

Once we liberate ourselves from applying the law of large numbers to entrepreneurial error, as Black urged us, another answer suggests itself. Investors systematically overestimated how much they could trust the judgment of other investors. Investment banks overestimated how much they could trust the judgment of other investment banks. Purchasers of mortgage-backed securities overestimated how much they could trust the judgment of both the market and the rating agencies as to the securities' values. A commonly held view was that although financial institutions had made

large bets, key decision makers had their own money on the line and thus things could not be all that bad. Proceeding on some version of that assumption, most market participants (and regulators) held positions that were increasingly vulnerable to systemic financial risk.

In this regard, an indirect link exists between the current crisis and the massive investment fraud perpetrated by Bernie Madoff. The point is not that all banking is a fraud but, rather, that we rely on the judgments of others when we make our investment decisions. For years, Madoff had been a well-respected figure in the investment community. His fraud was possible, in large part, because he was trusted by so many people. The more people trusted Madoff, the easier it was for him to gain the trust of others. A small amount of initial trust snowballed into a large amount of trust, yet most of that trust was based on very little firsthand information. Rather than scrutinize the primary source materials behind Madoff's venture, investors tended to rely on the identities and reputations of those who already trusted Madoff. In the run-up to the current crisis, a similar process of informational "cascades" led a great many investors to put excessive trust in highly leveraged banks and other business plans.

In a strict rational expectations model, we might expect some people to overtrust others and other people to undertrust others. Yet, when it comes to the cumulative and reinforcing nature of social trust, this averaging-out mechanism can fail for at least four reasons.

First and most important, a small amount of information can lie behind a significant social trend, as previously explained. One of the most striking features of the current crisis is how many countries it hit at roughly the same time, which suggests some kind of international peer effect.

Second, market participation involves a selection bias in favor of the overconfident. No one aspires to become a CEO for the purpose of parking the company assets in T-bills.

Third, incentives were pushing in the wrong direction. The individuals who were running large financial institutions had an opportunity to pursue strategies that resembled, in terms of their reward structures, going short on extreme market volatility. Those strategies paid off for years but ended in disaster. Until the volatility actually arrives, this trading position will appear to yield supernormal profits, and indeed, the financial sector was enormously profitable until the asset-pricing bubbles burst.

Fourth, the course of history cemented this bias toward excessive trust. As the world became more prosperous, to rely on the optimistic expectations of others seemed to be increasingly justified.

The notion that the United States was experiencing a real estate bubble was a staple observation among financial commentators at the time. A real estate bubble had formed and burst before—in the late 1980s—and the United States had survived that event with little calamity and only a mild recession. But most people failed to see the new and increased financial risk associated with the bursting of the more recent bubbles.

One view of rational expectations is that investors' errors will cancel one another out *in each market period*. Another view of rational expectations is that investors' errors will cancel one another out *over longer stretches of time* but that the aggregate weight of the forecasts in any particular period can be quite biased owing to common entrepreneurial misunderstandings of observed recent history. In the latter case, entrepreneurial errors magnify one another rather than cancel one another out. That is one simple way to account for a widespread financial crisis without doing violence to the rational expectations assumption or denying the mathematical elegance of the law of large numbers.

Where Did We End Up?

Subprime loans collapsed primarily because those investments were most dependent on relatively poor borrowers. But subprime loans are not essential to the basic story of the current crisis. Subprime borrowers simply ran out of money first and were least able to cover up their mistakes. The market for contemporary art, which depends almost exclusively on wealthy buyers, was one of the last markets to plummet, but we must not be misled by this difference in timing. The collapse of both markets stemmed from the same underlying forces, namely, unwise investment in risky assets and an excessive degree of trust in the judgments of others.

The net result is that both markets and governments failed miserably—at the same time and for the same reasons. Using hindsight, many have argued that the regulators should have done more to limit risk taking. But the regulators underestimated systemic risk in exactly the same way that the markets did. (Indeed, if regulators did not have this problem, you would expect them, in their capacity as private investors, to become systematically rich

relative to the rest of the market; that, however, is hardly the case.) Most national governments were happy about rising real estate and asset prices and did not seek to slow down those trends. In fact, the U.S. government encouraged risk taking by overlooking accounting scandals at mortgage agencies and by trying to boost the rate of home ownership (even today, the U.S. government has not given up on that goal).

The conjunction of these expectational failures has meant the collapse of major financial institutions. Unlike in the Great Depression, however, regulators have not allowed these institutions to fail outright. As a result, we now have "zombie banks," which soak up taxpayer money and Fed guarantees without performing the mix of intermediation services that would sustain economic activity. Many aspects of asset securitization have collapsed or are ailing. Perceived levels of risk are high, and many investors are running to safe assets, such as T-bills. The more safe assets governments create, the more investors pull out of the real economy and invest in those safe assets. The more the real economy collapses, the more investors move into the lower-yielding assets, which, in turn, further hurts the real economy. This sequence of events epitomizes Black's risk-return trade-off, with investors choosing much higher levels of safety.

As investors pull their resources out of risky assets, the prices of those assets reflect less and less market information and markets become less efficient. The risky assets then become riskier, which further lowers the demand for them. (If everyone holds T-bills, how can anything else be priced accurately?) Prices contain less information than before, and rational economic calculation becomes increasingly difficult, thereby making it hard to establish a basis for economic recovery. This scramble for individual liquidity does not always make society,

as a whole, more liquid, as John Maynard Keynes and others (including Black) emphasized. But we do not yet know how to get investors out of T-bills and back into riskier assets. That is another major problem impeding the recovery.

At the same time, the U.S. economy needs to undergo significant sectoral shifts. Resources need to be moved out of finance, out of construction, out of luxury goods, out of big-box retail, out of domestic auto production, and out of many economic activities sustained by bubble-driven borrowing. Arguably, large adjustments are also needed in the energy and health care sectors. All these changes represent an unprecedented level of required sectoral shifts. But it is difficult for an economy to make those adjustments when uncertainty is so high, when finance is so dysfunctional, and when price signals are so drained of value.

Unfortunately, there is no easy way out of our current predicament. Fiscal stimulus will probably not be very effective. The argument for fiscal stimulus is that it will stop things from getting worse by preventing further collapses in aggregate demand. Although that argument may be true, fiscal stimulus will not drive recovery. Recovery requires that zombie banks behave like real banks, that risk premiums be properly priced, and that the economy undergo sectoral shifts toward whatever will replace construction, finance, and debt-driven consumption. Fiscal stimulus will not do much to achieve those ends, and in fact, a temporarily successful stimulus might hinder the necessary long-run adjustments, especially for labor. Again, this conclusion follows from Black's insistence that a business cycle is essentially a set of sectoral shifts, and those shifts do not always occur easily.

This article qualifies for 0.5 CE credit.

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