FEATURED ARTICLE | MARCH 7, 2011

Why Financial Regulation is Doomed to Fail

Philip Maymin*

Financial regulation may be the cleanest test of regulation in general, in the sense that if regulation works anywhere, it should work in the financial sector. Here, regulatory transparency is high: Banks report vast quantities of data to regulators, and regulators are easily able to check and audit the numbers. Regulatory compliance is even higher; instances of fraud are rare and newsworthy, not commonplace.

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But does financial regulation work? Can it work?

It certainly has effects and consequences. One effect is that ordinary people simply do not care about the risk of their particular bank. Whenever the Federal Reserve conducts its broad survey of consumer finances, the most common reason people give for choosing financial institutions to hold their deposits is geographical convenience.[1] More than 40 percent of people consistently cite location as the most important consideration when choosing a bank. Safety or absence of risk hovers at around two percent.

Another effect of financial regulation is standardization. Getting a mortgage or a loan is essentially the same process no matter which bank you approach. And different banks evaluate them in virtually the same way, following federal guidelines for what constitutes a "conforming" loan, meaning one that is approved for purchase by government-sponsored enterprises such as Fannie Mae and Freddie Mac.

Some other effects of financial regulation are less competition—since regulation puts barriers in the way of starting a bank; and less choice—since no bank, not even the largest, most stable, and most successful one, can legally issue its own currency.

Of course, these and other effects are not necessarily the intended *goal* of regulation, but merely observable consequences. Perhaps some of the effects are good and some are bad, but they are not the purpose. The stated goal of financial regulation is quite simple: less risk.

Specifically, the stated goal of financial regulation is to reduce *systemic* risk. The idea is that single banks may come and go, but our society as a whole should not be exposed to the possibility of the entire banking system collapsing because that would devastate the economy.

This goal was stated clearly in the 1933 Glass-Steagall Act, which established the Federal Deposit Insurance Corporation (FDIC). The Act's stated purpose was "to provide for the safer and more effective use of the assets of banks."[2] The 2010 Dodd-Frank Act, instituting the most sweeping

changes since Glass-Steagall, stated that its purpose was "to promote financial stability."[3]

One might argue that the recent financial crisis demonstrates that financial regulations have backfired: Not only did the widespread regulations fail to prevent systemic risk, but, also, the systemic risk itself was even higher than it otherwise would have been in the absence of regulations. Is this argument true? If so, can the regulations be fixed? If not, what new regulations can be introduced to prevent a similar meltdown from happening in the future?

Regulating Risk

How do banks work today? Basically, they hold leveraged portfolios of assets and decide how much risk capital to allocate to be able to keep holding those positions during times of distress. For example, a bank may borrow $90 million to buy $100 million of IBM stocks. (Actually, they invest in all kinds of other securities and loans, too, but it is easier to think about common stocks.) In that case, the bank has allocated $10 million of its own money as risk capital. If the value of the bank's IBM holdings falls by more than ten percent, it will have to sell the stock, and that sale will come at a time when IBM is already down, thus exacerbating the stock's decline.

Is $10 million enough? A number that is too low will be fatal once the asset's price begins to decline. A number that is too high may prevent banks from investing at all. Recognizing this fine line, regulators attempt to strike a balance between the two.

The entity that provides global regulations is the Bank for International Settlements (BIS). The BIS was founded in 1930 with these explicit goals: "To promote the co-operation of central banks and to provide additional facilities for international financial operations; and to act as trustee or agent in regard to international financial settlements entrusted to it under agreements with the parties concerned."[4] In addition, the BIS "has always performed 'traditional' banking functions for the central bank community," and it has even "provided or organized emergency financing to support the international monetary system when needed."[5] Thus, the BIS is, in a sense, the world's central bank, but it has no direct power over citizens of sovereign nations. Instead, it relies on guidelines issued by the Basel Committee on Banking Supervision. The Basel Accords are suggested bank guidelines that are intended to be adopted by each of the member central banks and, therefore, to become local regulations in each country. Thus, the regulations flow down from the BIS to its member central banks, and then to the private banks in each country.

The most important function of the BIS is to set capital adequacy requirements to prevent banks from recklessly investing with insufficient risk capital allocated.

One of the Basel Accords' guidelines is for risk capital, as part of its function of ensuring capital adequacy. This is precisely the issue discussed above. The bank that wishes to own $100 million of IBM stock may not unilaterally decide how much or how little risk capital to allocate for that ownership; it must conform to the regulatory requirements.

Basel I, the first Basel Accord, came in 1988 and suggested that risk capital be determined in proportion to the value of the portfolio, weighted by the risk of each type of asset. For example, a bank with $100 worth of risk-weighted assets would be required to maintain $8 of risk capital. Risk weights were determined by class; so, for example, cash was weighted at zero percent, while residential mortgages were weighted at fifty percent. Thus, a bank with $200 in cash and $200 in

mortgages would be required to maintain $8 in risk capital.

In 2004, Basel II updated the methodology to require that the risk capital for a bank's desired portfolio be set in proportion to the historic volatility of the portfolio. In other words, the bank would calculate how bouncy the portfolio had been recently, and its required capital allocation would be some fixed multiple of that measure of bounciness. This is known as the Value-at-Risk approach, which is essentially a measure of the near-worst-case loss; for example, a 99-percent one-day Value-at-Risk of $10 million means that there is a less than a one-percent probability that the portfolio will decline by more than $10 million over a one-day period. In practice, the Value-at-Risk number is simply a fixed multiple of the portfolio's volatility.

Basel III, an update from 2010, adds an amount to the risk capital based on the volatility of the portfolio during "stress" environments such as the recent financial crisis.

All of these approaches can be expressed in terms of an objective set of regulations that effectively provides an algorithm for calculating the risk capital required for any given portfolio.

The Goldilocks of Risk

One might think that the ideal regulations would be those that find the right numbers for these portfolios, not too small and not too large—the Goldilocks of risk.

Surprisingly enough, it is not possible. It turns out that *no* algorithm for calculating the required risk capital for given portfolios results in lower systemic risk.

In Maymin and Maymin (2010), we prove why this is so, both mathematically and empirically.[6] First, the math. Imagine that there are 1,000 securities whose returns are each independently distributed according to the standard bell curve of a normal distribution. Simulate five years of monthly returns for each security, and then calculate the volatility that each one actually realized. Because there are only sixty data points for each security, some securities will appear to have a little higher volatility than they truly do, and some will appear to have a little less. Out of the one thousand securities, how many would you guess exhibit less than 80 percent of their true volatility?

The answer is ten, and we show this with a formula in the paper. If we make the situation more realistic by relaxing the assumption about normality, the problem is exacerbated, and the ten securities with the lowest realized volatilities would deviate even further from their true volatility.

We also show empirically that the securities with historically low volatility tended to have almost twice as much subsequent risk, while those with historically high volatility tended to have almost half as much subsequent risk. For both the riskiest and least risky securities, therefore, historical risk is a statistical illusion.

Here's where the problem of objective regulations comes in. To see it, consider the perspective of a bank deciding what to invest in. It can invest in any of the 1,000 securities, but if it invests in the special ten that exhibit less than 80 percent of their true volatility, it will have to put up one-fifth less capital than otherwise. At least to some extent, those ten securities will be more favored than the others. What's worse, every bank will favor the same ten securities because the

objective regulations are the same for everyone.

If those securities continue to rise, then no problem will be apparent. But if they should fall, then, suddenly, all banks will need to liquidate the exact same positions at a time when those positions are falling anyway. This sets the stage for systemic failure. Consider sub-prime mortgages as an illustration. These assets appeared to be historically low-risk and were, therefore, regulatorily favored. Banks invested more in them than they perhaps should have. For a while, as real estate prices continued their ascent, no problems surfaced. But once the market turned, banks began experiencing more losses on their sub-prime mortgage holdings than their regulatorily-mandated risk calculations had planned for. Banks needed to raise capital quickly and began doing two things: selling the sub-prime mortgages, dropping the prices even lower; and selling other assets. Because the banks all acted nearly simultaneously, and all in the same direction, the impact on the markets was both broad and deep, and systemic collapse became a real threat.

The Free Market

That particular failure would not have happened in the absence of regulations for two reasons. First, in a free market, each bank is free to use a different algorithm. There may even be specializations, with some banks preferring greater risks than others or focusing only on certain industries or asset classes. Thus, even if they all happen to use an algorithm similar to that currently specified by regulations, they are less likely to all make the same mistake by accident. Furthermore, the current regulatorily-specified algorithm is only one of many equally reasonable ones. Deviations from conformance reduce the chances that all banks will choose the same securities.

Second, without the guarantee of the FDIC, banks must compete for deposits, imposing an additional level of discipline and aligning the incentives of the banks more with the depositors in an attempt to keep their business. "Before deposit insurance, banks that were close to being insolvent would have experienced runs and would not have been able to attract replacement deposits," explains George G. Kaufman. "But deposit insurance prevented this self-regulating mechanism."[7] Banks in a free market are less likely to intentionally invest with insufficient risk capital.

Thus, the flexibility and the discipline provided by the free market would make it much less likely that all banks would happen to choose the same ten securities. But in a regulated world, such a systemic collapse is virtually guaranteed to happen eventually.

The problem is not limited to the particular regulations currently in place. Indeed, any set of regulations that attempts to assign risk to all securities in the same way for all banks would necessarily create some regulatorily-favored group of securities because the objective algorithm assigned too low an amount of risk capital to those securities purely as a result of statistical flukes and selection bias. Were each bank to do the analysis itself, their errors would be more random and less likely. Unfortunately, with a comprehensive system of regulations, identical errors pervade all banks.

Could better regulations avoid these errors? Perhaps adding yet another federal agency to the pile could alleviate the problems caused by the others. This hypothetical agency would have to evaluate each asset. Its employees would have to read all news items, including seemingly irrelevant news from other sectors. It would have to consolidate all information and predict the future better than literally any other person, bank, or agency on earth. But that's not all. This new

entity's fantastic power would have to be balanced with equally fantastic restraint and altruism. After all, people who possessed these skills could amass a fortune, but the new entity and its selfless agents must choose to forego this massive monetary gain for the selfless pursuit of regulating everybody else. Ultimately, the best people would not be offered a choice at all: they would either be drafted into the agency or banned from financial markets altogether.

In other words, such a hypothetical regulatory agency cannot exist. Indeed, any regulations to reduce risk will, in the end, only increase the risk of the entire financial system collapsing.

The Big Picture

As bad as the picture for finance looks, the bigger picture is even more ominous. We have over 150,000 pages of federal regulations for various industries.[8] If regulation is doomed in the financial arena, where enforcement is easy, transparency is broad, and some of the smartest people in the world are engaged in drafting the regulations, how much more of a problem must it be in other areas? Is it possible that regulations in other industries are also causing the very problems they are supposed to solve?

For more on this topic, see **Financial Regulation** by Bert Ely in the *Concise Encyclopedia of Economics.*

Footnotes

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*Dr. Phil Maymin is an Assistant Professor of Finance and Risk Engineering at NYU-Polytechnic Institute and the founding managing editor of *Algorithmic Finance*. He has been a portfolio manager at Long-Term Capital Management, Ellington Management Group, and his own hedge fund, Maymin Capital Management. He was a finalist for the 2010 Bastiat Prize for Online Journalism. His textbook, *Financial Hacking*, is due to be released by World Scientific in 2011.

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