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OTC Derivatives: Failed Banks or Failed Nations?

By Ron Hera
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Economic bubbles are not recognized by those inside of them, and the entire Western world has become quietly trapped inside the largest economic bubble in history. The global financial crisis that began in 2008 has been attributed to sub-prime mortgage lending and mortgage backed securities (MBSs), such as collateralized debt obligations (CDOs), which were revealed as toxic assets. While the root cause of the financial crisis is assumed to have been the residential real estate asset price bubble, the underlying systemic risk, and the primary reason for the "too big to fail" doctrine whereby governments were compelled to save financial institutions at any cost, lies in over the counter (OTC) derivatives. The suspension of the US Financial Accounting Standards Board (FASB) mark-to-market rule in 2009 preserved the value of bank balance sheets, i.e., of their mortgage portfolios, but what was of far greater importance was that it prevented triggering the conditions of thousands of OTC derivatives contracts, such as credit default swaps (CDS), that would have wiped out virtually all of the largest banking institutions in the world.

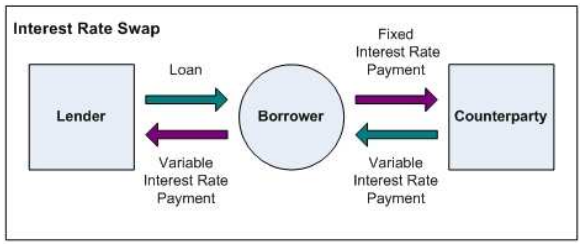


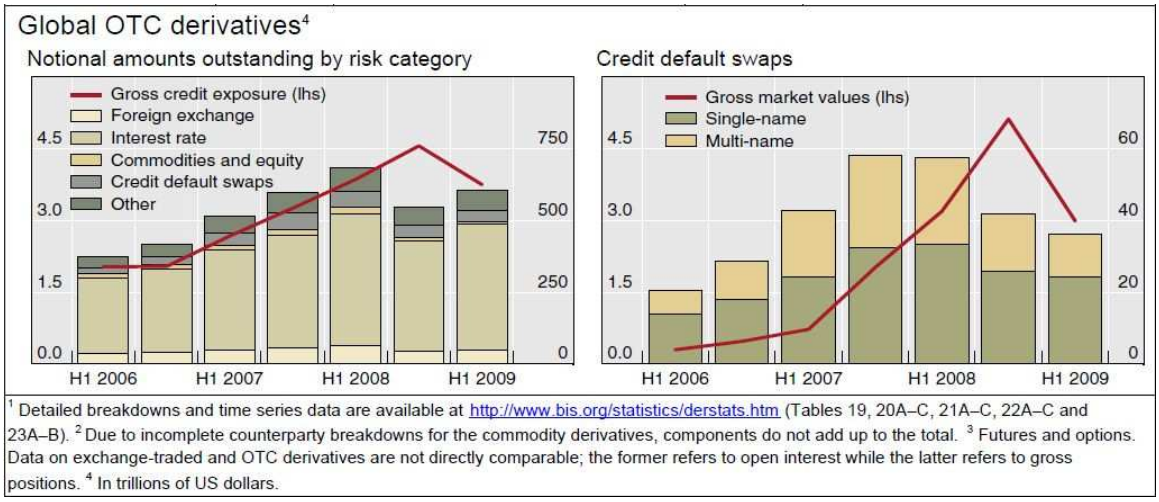
Chart ©2010 Hera Research, LLC

OTC derivatives can serve a straightforward role as financial insurance policies covering real business risks. In a hedging scenario, an investor that has exposure to a variable interest rate can transfer the risk to a second investor (the counterparty) by entering into an interest rate swap. A swap is simply an agreement to exchange cash flows. If the interest rate goes up, the second investor pays the difference while the first investor pays the original rate (to the second investor) along with the cost of the swap. Of course, if the second investor becomes insolvent, the original investor is still liable to the lender and will have lost the insurance from risk provided by the second investor as well as any net amount paid to the second investor. Taken in isolation the risks to both investors are limited, but the second investor can offset their risk through a third investor, and so forth, giving rise to a web of interconnected risks. Other types of OTC derivatives include currency exchange rate swaps and forwards, which are essentially non-standard futures contracts, as well as credit default swaps (CDS). OTC derivatives can be used for speculation, as well as hedging. In a speculative scenario, OTC derivatives are analogous to wagers, e.g., a bet that a certain company will default on its bond obligations. Speculation in OTC derivatives involves no connection to an underlying asset or to a real business risk, but the liabilities and risks they create are real. Under state gaming laws the speculative use of OTC derivatives, such as naked CDS (similar to naked shorts) and synthetic CDOs, was illegal in the US until state gaming laws were preempted by the federal government's Commodity Futures Modernization Act of 2000 (CFMA).

Derivatives on different underlying assets are traded in the absence of clearing houses, i.e., in unregulated markets. Since they are not exchange traded, derivatives, such as CDS, are not widely understood. In OTC markets, counterparty default risk generates a network of interdependencies among market actors and promotes risk volatility. The resulting emergent property of the financial system is systemic risk, which became apparent in 2008 when Lehman Brothers Holdings, Inc. failed.

Officially, roughly $604.6 trillion in OTC derivative contracts, more than ten times world GDP ($57.53 trillion), hang over the financial world like the sword of Damocles, but to the average investor the derivatives bubble is invisible. From the perspective of those outside the bubble, the explosion of OTC derivatives is a mania.

The inherent lack of transparency in OTC markets impairs price discovery and obviates the efficient markets hypothesis, i.e., that financial instruments are almost always priced correctly, thus OTC derivatives and the risks associated with them may be priced incorrectly, as in the case of American International Group's CDS contract premiums.



[1] Detailed breakdowns and time series data are available at http://www.bis.org/statistics/derstats.htm (Tables 19, 20A–C, 21A–C, 22A–C and 23A–B). [2] Due to incomplete counterparty breakdowns for the commodity derivatives, components do not add up to the total. [3] Futures and options. Data on exchange-traded and OTC derivatives are not directly comparable; the former refers to open interest while the latter refers to gross positions. [4] In trillions of US dollars.

Chart courtesy of Bank for International Settlements

Although media attention continues to focus on the political theme of economic recovery and residential real estate, the true cause of what came to be known as the credit crisis continues unabated, outside the purview of the central banks and governments.

Regulation and Ideology

An attempt by the CFTC to regulate OTC derivatives in 1998 was rejected by Alan Greenspan, then Chairman of the Federal Reserve, Robert E. Rubin, then Secretary of the Treasury, and Lawrence ("Larry") H. Summers, then Assistant Secretary of the Treasury. At the time, regulation ran counter to the dominant ideology in Washington D.C., which reflected the views and interests of the banking and financial services industry.

Despite early warnings such as the bankruptcy of Orange County, California, the Proctor & Gamble lawsuit against Bankers Trust and the failure of Long Term Capital Management (LTCM), the President's Working Group on Financial Markets described OTC derivatives in November 1999 as an important innovation that had "transformed the world of finance, increasing the range of financial products available to corporations and investors and fostering more precise ways of understanding, quantifying, and managing risk." In 2000 Greenspan, Rubin and Summers backed deregulation of OTC derivatives.

The regulatory rationale for OTC derivatives stems from the use of derivatives to circumvent existing regulations and tax laws. Investors prohibited from investing in certain financial instruments can assume virtually identical positions in unregulated OTC derivative markets. By changing the type, source or timing of income, OTC derivatives can have different tax results compared to investments in underlying commodities or financial instruments. OTC derivatives can also create moral hazard and perverse incentives. Moral hazard may exist when an entity assumes more risk than it would have otherwise without regard for the effects on counterparties because executives know they will be bailed out should the firm become insolvent. An example of a perverse incentive would be where an entity stands to gain, e.g., in the CDS market, if a certain company defaults on its bond obligations but concurrently has other relationships with the company that influence the outcome, e.g., as a creditor. Widespread speculation puts financial firms and the financial system itself in jeopardy while forcing governments to choose between bailing out irresponsible investors and allowing the economic disruption that would result from the failure of the financial system. Regulation of OTC derivatives, i.e., placing them on regulated exchanges, would increase transparency, force standardization of contracts and provide legal certainty. Since derivatives can be a source of off balance sheet financing, regulation would also make the true leverage of financial firms visible to investors. Regulation can also ensure that counterparties can cover losses and would therefore help to contain speculation and greatly reduce systemic risk.

Exponential Risk

If every market actor seeks to hedge their risks in a like manner, the total notional value of all OTC derivatives can grow exponentially. Considering the notional values of existing contracts, speculation clearly represents a substantial portion of all OTC derivatives. As the number and total notional value of OTC derivatives grows, systemic risk increases because more interdependencies, complexity and credit exposure are created, i.e., the systemic impact of a particular party's failure grows, simultaneously becoming less predictable.

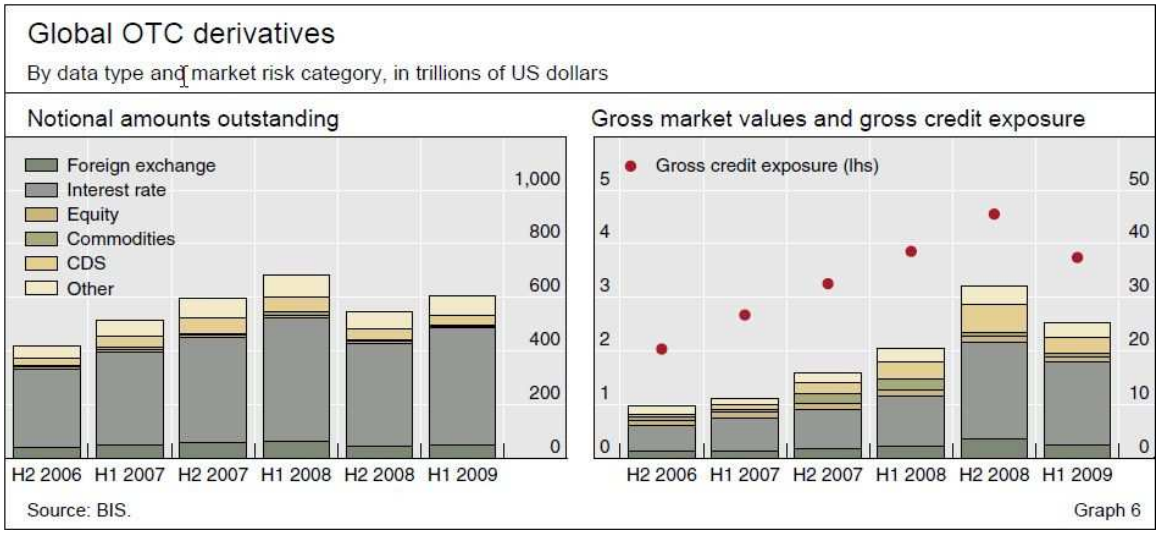


Chart courtesy of Bank for International Settlements

Rather than distributing risk, it became clear in 2008 that OTC derivatives increased the magnitude of financial system instability and the probability of systemic failure due to the complexity and lack of transparency of the contracts, disproportionate leverage exposure and dependencies on other markets vulnerable to disruptive forces. It also became clear in 2008 that the reasons OTC derivatives promote systemic instability are fundamental.

The Underlying World

Since the terms of derivatives contracts involve market factors that can change independent of the actions of the counterparties, OTC derivatives create contingent credit exposure and therefore involve an intrinsic element of uncertainty in addition to counterparty risk. What is more important, however, is that because counterparties tend to participate in the same markets, an implicit correlation inevitably exists. This deeper level of risk, endogenous risk, occurs when funds or institutions with similar positions also have similar risk tolerances and preferences, thus create unexpected correlations between economically diverse and otherwise uncorrelated positions.

At the same time, risks transferred between parties remain present in the financial system but exist in different, and perhaps less well-understood forms. Regardless of the techniques used to model risk, and despite the theory of risk cancellation, i.e., two risky positions, taken together, can effectively eliminate risk, market actors naturally seek to transfer higher risks to counterparties while paying less than fair value, if possible, and accepting only lower risks in exchange for premiums when taking on liabilities. Used irresponsibly, OTC derivatives expose counterparties to risks they would never accept if they had all of the relevant information. Maximizing profits in an unregulated environment means exploiting misalignments of risk that correlate positively with system instability. Since it is impossible in principle for all market actors to win the competition to shed risk while maximizing profits, some portion of market actors will always misprice risk and be rendered insolvent. The failure of a market actor, however, can trigger a domino effect through their network of counterparties, potentially taking down winners and losers alike. Both risk obfuscation and competitive dynamics thrive on a lack of transparency and ultimately destabilize the system.

Since Gaussian distributions do not reflect the real world, large changes up or down are more likely in the stock market than a normal distribution and standard deviation (sigma) would suggest. However, it is possible to model risk using statistical techniques such as the Monte Carlo method.

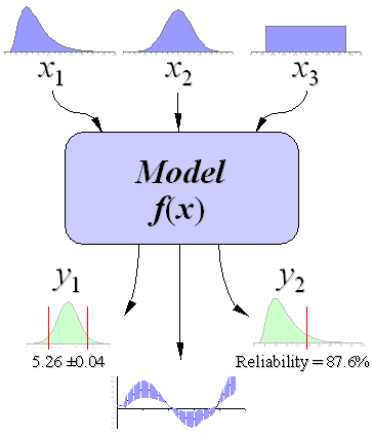


Diagram courtesy of Wittwer, J.W. (Monte Carlo Simulation Basics)

The Monte Carlo method, named for the casinos in Monte Carlo, is a stochastic method, meaning the state of a model is determined by both predictable and random elements. The Monte Carlo method provides a way of analyzing uncertainty, e.g., in the craps dice game. For example, the Monte Carlo method can be used to analyze the effects of random variation or errors on the sensitivity, performance or reliability of a system. Monte Carlo simulations can be used to simulate real problems, e.g., using historical data, and to predict future outcomes. Probability distributions, used as inputs to the simulation, are generated randomly or derived from historical data. The results can, in turn, be represented as probability distributions and used, for example, to estimate value at risk (VaR) in an investment portfolio, i.e., a prediction of the worst likely loss under a given confidence interval over a specified time horizon. Of course, Monte Carlo simulations and VaR estimates depend on historical price trends and volatility.

At a particular point in time, the global financial system is most like a closed system; essentially an idealized representation of wealth and economic activity that, in reality, exists largely outside the financial system. In other words, the financial system is itself abstract and therefore has properties like those of a model. As a result, patterns that occur in financial markets never perfectly represent the world and every pattern that exists in the financial system is potentially vulnerable to inconsistencies with the underlying world, which is not only non deterministic but subject to change without notice. The problem is not variation within a domain but variation of the domain itself, i.e., structural rather than cyclical change.

British journalist Dr. Gillian Tett, in her Financial Times article Mathematicians Must Get out of Their Ivory Towers, observed that "…when finance has borrowed ideas from physics, it has been an old-fashioned Newtonian branch of physics, not the Theory of Relativity. So, just as the Theory of Relativity has forced scientists to recognise that space and time can expand or shrink, […] calculations of probability can shift according to context." The implication is that virtually any statistical model of financial risk can be invalidated. In contrast, investors who apply fundamental analysis, such as Warren Buffett, rely primarily on data from the underlying world rather than on trading patterns that reflect only the financial system, which is an abstraction.

A model that is correct *n* -1 times out of *n* is insufficient to allay risk if case *n* is a catastrophic failure. According to Warren Buffett, "If you hand me a gun with a thousand chambers or a million chambers in it and there's a bullet in one chamber and you said put it up to your temple, how much do you want to be paid to pull [the trigger] once; I'm not going to pull it. You can name any sum you want. It doesn't do anything for me on the upside and I think the downside is fairly clear. So, I'm not interested in that kind of a game, and yet people do it financially without thinking about it very much. … I think it's madness."

The failure of LTCM in 1998 demonstrated that risk modeling need only be incorrect to a degree, in a single respect or over a limited time horizon to invalidate a model, i.e., models are as fragile as the underlying world is complex. As Eric Rosenfeld, former LTCM principal, explained "The risk management was wrong. The risk management managed to the sunny days. You have to manage to the bad days." Referring to LTCM's partners Warren Buffett said:

> *Those guys would tell me … a six sigma event wouldn't touch us, or a seven sigma event, but they were wrong. History does not tell you the probabilities of future financial things happening. They had a great reliance on mathematics and they felt that the beta of the stock told you something about the risk of the stock. It doesn't tell you a damned thing about the risk of the stock in my view; and sigmas do not tell you about the risk of going broke in my view and maybe in their view now too. … The same thing in a different way could happen to any of us probably, where we really have a blind spot about something that's crucial because we know a whole lot about something else. It's like Henry Kauffman said the other day. He said "the people that are going broke in this situation are of two types, the ones that knew nothing and the ones that knew everything." It's sad in a way.*

The risks of OTC derivatives, according to George Soros, "…are not always fully understood, even by sophisticated investors", which Mr. Soros most certainly is. In the 2002 annual report of Berkshire Hathaway, Inc., Warren Buffett famously wrote:

> *The derivatives genie [having been deregulated two years prior] is now well out of the bottle, and these instruments will almost certainly multiply in variety and number until some event makes their toxicity clear. …* ***Central banks and governments have so far found no effective way to control, or even monitor, the risks*** *posed by these contracts [emphasis added]. We [are] apprehensive about the burgeoning quantities of long-term derivatives contracts and the massive amount of uncollateralized receivables that are growing alongside. In our view, however, derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal.*

Ground Zero

In August 2007, central banks took emergency action to head off a global credit crisis, but their efforts were in vein. By June 2008, the notional value of OTC derivatives was more than $683 trillion, after more than doubling in the preceding two years. The event that Warren Buffett anticipated in 2002 occurred on Sunday, September 14th, 2008, when Lehman Brothers filed for bankruptcy, the largest corporate bankruptcy in US history. The failure of Lehman Brothers set off a derivatives chain reaction affecting Lehman's counterparties and directly caused the credit crisis. Since it is impossible for market actors to know what risks or how much leverage their counterparties have, OTC derivatives render credit ratings meaningless. The flow of credit and lending activity halted on a worldwide basis, causing sharp contractions in economic activity and deflation.

Until Western governments took action, it remained possible that virtually every major financial institution in the Western world would go bankrupt simultaneously. The imminent collapse of the global financial system threatened to destroy wealth and damage economic activity more severely than the Great Depression. Members of the US Congress reported having discussed financial and economic Armageddon and martial law with former Secretary of the Treasury, Henry Paulson, and Federal Reserve Chairman, Ben Bernanke. In later testimony before the Congress, Mr. Paulson explained that "…when a financial system fails, a whole country's economic system can fail" thus the interconnecting web of OTC derivative contracts can "…lead to chaos or people even questioning the basic system."

Mr. Paulson was widely criticized for his alleged hyperbole but the blame has been at least partially misplaced. For example, despite historic efforts to support the financial system, the credit crisis virtually halted international shipping almost overnight. The breakdown in letters of

credit, used by importers to pay suppliers, was reflected in the Baltic Dry Index, which tracks international shipping prices of various dry bulk cargoes on a worldwide basis.

Chart courtesy of InvestmentTools.com

While it is not possible to know precisely what would have happened had governments and central banks not bailed out the global financial system, real economic activity would certainly have contracted more quickly and more severely, and financial markets would have behaved accordingly, declining more sharply and destroying more wealth. Since the failure of the global financial system was narrowly averted, commentators have often underestimated the seriousness of the problem and its potential consequences.

The argument that bankrupt institutions should have been allowed to fail, while true to the tenets of capitalism and to free market principles, is often made without appreciating the fact that virtually all of the largest banks in the Western world might have been wiped out leaving governments to deal with the depositors and investors. Further, history shows that serious economic disruptions have tragic human consequences, such as widespread starvation.

In the final analysis, Western governments were effectively held hostage by large banks. The resulting, bitterly disputed bank bailouts (which are still ongoing) came at a staggering cost of roughly $5.3 trillion in the EU and as much as $23.7 trillion in the US (officially $4 trillion).

Speaking at a meeting organized by The Economist at the City of London's modern and impressive Haberdashers' Hall, George Soros said that "The success in bailing out the system on the previous occasion led to a superbubble, except that in 2008 we used the same methods. Unless we learn the lessons, that markets are inherently unstable and that stability needs to be the objective of public policy, we are facing a yet larger [sovereign debt] bubble. We have added to the leverage by replacing private credit with sovereign credit and increasing national debt by a significant amount."

The Aftermath

For taxpayers in Western countries, the multi-generational debts incurred have come in addition to loss of wealth in stock portfolios and asset values, along with other losses resulting from severe economic recession, such as loss of business revenues or insolvency, personal unemployment or bankruptcy, etc. The political consequences have yet to play out. The citizens of affected countries can find little comfort in the knowledge that the situation could have been worse when the root cause of the problem was and remains a massive economic bubble fueled by what has been revealed as reckless speculation, grossly out of proportion to real economic activity.

The colossal debts incurred by Western governments are only a fraction of a percent of the potential liabilities stemming from OTC derivatives that still exist in the global financial system. Warren Buffett recently said that "when the financial history of this decade is written, it will surely speak of the internet bubble of the late 1990s and the housing bubble of the early 2000s. But the US Treasury bond bubble of late 2008 may be regarded as almost as extraordinary." US Treasury debt continues to grow as emergency measures continue well beyond their expected durations. Federal Reserve Chairman, Ben Bernanke, said in a recent address that "It is unconscionable that the fate of the world economy should be so closely tied to the fortunes of a relatively small number of giant financial firms. If we achieve nothing else in the wake of the crisis, we must ensure that we never again face such a situation."

Sadly, Mr. Bernanke's point is moot. Two and a half years on, virtually nothing has been done in the aftermath of the global financial crisis to regulate OTC derivatives or to control the extreme risk they pose. With several US states and European countries now virtually bankrupt, the capacity of Western governments to bail out financial institutions has been exhausted. The risk of systemic failure is higher at present than before the crisis began in 2008, as there is now no backstop for the global financial system other than debt monetization, which would result in high inflation or hyperinflation. History may yet remember the global financial crisis that began in 2008 as a fateful choice between failed banks and failed nations.

In an effort led by Representative Barney Frank in the House and Senator Chris Dodd in the Senate, a vast array of financial system reforms have been compiled into a single bill that is more than 1400 pages long. The massive bill subsumes numerous common-sense provisions, such as restoring the prohibition on bank holding companies that prevented them from owning other kinds of financial businesses (enacted in 1934 as a part of the Glass–Steagall Act and repealed on November 12, 1999 by the Gramm–Leach–Bliley Act) and Representative Ron Paul's widely supported bill to audit the Federal Reserve (formerly HR 1207 and S 604). However, the bill stops short of rolling back changes to the Commodity Exchange Act (CEA) made by the Commodity Futures Modernization Act of 2000. Backed by Greenspan, Rubin and Summers, the Commodity Futures Modernization Act of 2000 is what let the OTC derivatives genie out of the bottle and resulted in the global proliferation of financial weapons of mass destruction.

The 1,410 page bill (S 3217), entitled "Restoring American Financial Stability Act of 2010," contains roughly 150 pages related to financial derivatives, but numerous counterproposals to specific provisions are being discussed. Not surprisingly, measures to control OTC derivatives and to prevent depository institutions from engaging in OTC derivatives trading are opposed by banks, which are actively lobbying against reform.

The failed financial ideology of Greenspan, Ruben and Summers, which led to the financial crisis that began in 2008, remains deeply entrenched in Washington D.C. While election year political rhetoric focuses on "consumer protection," reforms vital to the stability of the basic system are being quietly lobbied away. A proposed ban on swaps, for example, was dropped early on. Current economic advisor to President Barack Obama, head of the President's Economic Recovery Advisory Board, and former Federal Reserve Chairman, Paul Volker, recently said that "the provision of derivatives by commercial banks to their customers in the usual course of a banking relationship should not be prohibited." Similarly, plans to establish a bailout fund to prevent US taxpayers from again being held hostage by "too big to fail" banks have been scrapped, along with plans to break up "too big to fail" banks; and the effort to audit the Federal Reserve is being watered down to a one-time disclosure.

Trading derivatives on regulated exchanges would be a major step forward, but it may no longer be enough. Economic bubbles are not recognized by those inside of them, the Congress of the United States being no exception. The $604.6 trillion derivatives bubble, which is equal to more than ten times world GDP, is a global issue. If existing OTC derivatives remain in place and there are no restrictions on what banks can trade derivatives, there is no actual or immediate reduction of systemic risk. Thus, the risks that led to the financial crisis in 2008 are likely to remain present in the global financial system for years to come. In fact, many banks have more CDS risk now than in 2008. Passing a bank-approved version of the financial reform bill, while it may be portrayed as a political victory or serve to calm financial markets temporarily, is unlikely to prevent another global financial crisis.

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