

Preliminary draft, March 2009

Walking after the Elephants of Financial Crisis*

Yong J. Yoon

Center for Study of Public Choice and Department of Economics,
George Mason University, Mailstop 1E6, Buchanan House, Fairfax,
Va 22030-4444: 703-993-2332, 703-992-2334(fax)
yyoon@gmu.edu

Abstract: Economists walk after the elephants in the procession of financial crisis and economic recession. Their complaints may not be heard but they must speak with economic logic, and the logic I use in this paper is a public choice analysis. Speculative booms and busts are part of the free economy. Usually booms burst without much effect in the economy. The current financial crisis looks severer, however. What is noticeable about the procession is the eerie kind of Knightian uncertainty. The elephant of current turmoil tells about the economics profession as much as the economic condition. Economists do not seem to provide evidence of expert opinion. The paper provides a story of the financial crisis from the perspective of risk illusion and politicized mortgage making.

*An earlier version of this paper was presented at the Public Choice Society meetings in Las Vegas, march 2009.

Key words: financial crisis, public choice, politicized mortgages, risk illusion, securitization of mortgages

JEL categories: D72, D81, G

I. Introduction

Episodes of speculative booms and busts have been part of the free market economies. The objects of speculation are inelastic in supply, and booms usually burst without much damage to the economy. The current financial crisis looks a lot severer, however. And the recession is not typical business cycle recession traceable to tight money. In fact, interest rate is basically zero thus monetary policy is not working. What was/were the cause(s) and what are the cures? Economists are, and will be, busy with these questions. Certainly economist's job is to explain the phenomenon, predict the pattern, and proffer policy alternatives. In attempting to answer this question, economists follow the standard method in hard sciences of identifying the factors that caused the phenomenon. The crisis started with subprime lending and the mortgage industry in general. And the factors are low global interest rate, the Fed's monetary policy of low interest rate, government's encouragement of subprime loans, securitization and derivatives, etc. And these factors together have caused the crisis. However, I follow a different approach.

My approach is based on the premise that institutions matter by influencing our perceptions as well as incentives. To find better rules, or institutions for financial system, we may ask the following question. What kinds of institutions would mitigate the financial crisis? This will be done by comparing the old banking system and the new banking system of universal banking. I argue that the turmoil would be much more tolerable if we had old banking system in which commercial banks specialize in loan making. The financial crisis could be stopped if the Fed announced and stuck to the policy of the lender of last resort. Instead, government and the Fed exercise discretionary policies of bail outs and stimulus programs.

Our financial system and the government played major roles in the financial crisis that brought recession. I provide the story of the 2000-2008 subprime mortgage and financial crisis in section II. The logic of bailout is provided in section III. Section IV analyzes the risk arithmetic of securitized assets based on subprime mortgage portfolios. Ultimately risk is judgment not calculus. Risk externality and risk illusions are discussed. The risk externalities lead the tragedy of risk commons, and the risk illusion is just as real as money illusion and fiscal illusion. The conclusion section V discusses banking reforms that will prevent financial crisis and the role of economic science and politics in policy making.

II. The story

The credit crunch is caused by bad housing loans. The financial crisis will end when the housing market stabilizes, i.e. prices of house settles down.

Here is some relevant statistics: There are 25 million subprime and Alt-A -- in other words, nonprime -- mortgages. They are worth \$4 trillion, 40 percent of all outstanding mortgages today (\$10tr). Outstanding subprime mortgage in July 2007 was a total of \$1.5 trillion. Subprime mortgages rose from virtually nothing to \$1.5tr in three years, helped by open market securitization. In 2001 54% of subprime mortgages were securitized and this rose to 75% in 2006. Fannie Mae and Freddie Mac were the major securitizers of home mortgages. They hold or have guaranteed \$1.5 trillion of these subprime mortgages -- that is about 10 million subprime mortgages. Forty percent of their total single-family exposure is subprime mortgages. During the financial crisis of 2007-08, the share prices of these financial institutions fell from near \$70 per share to below \$10 within a year. See Figure 1.

a. Animal spirit

The S&P/Case-Shiller home price indices (Fig 2.2 in Shiller, 2008) show that there was housing boom during 2000-2007. Low international interest rate and the low Fed Funds rate between 2002 and 2005 (Greenspan's Fed chairmanship) are considered as important contributing factors to the bubble. The Fed's intention was to prevent recession and deflation. Bubbles used to be local, like 1925 Florida land bubble and California bubble in 1880s. Speculations are involved in both stock market and the housing market bubble, but stock price move like random walk while housing market move in the same direction year after year.

Mortgage portfolios in the current crisis were geographically diverse. Such diversity, investors thought, could protect the investors of securitized assets and derivatives based on subprime mortgage portfolios. It turned out not the case. Mortgage defaults are highly correlated. The pattern of the high correlation was dubbed irrational exuberance (by Greenspan).

Economists like Allen Greenspan (2008), Akerlof and Shiller (2009) and others revive the Keynes's idea and argue that the housing boom is caused by socially contagious animal spirit. They argue that what drives people's thinking is purely social in nature. Indeed, psychology and ethics matter a lot as the current discussions agree that, for economic recovery, confidence and trust in the stability of the system is crucial. Should economists give in to the animal spirit explanation? Before that we have to look at the institutions that affect our perceptions of risks. Social contagion or not, the crisis would not happen or less severe if we had a financial system in which commercial banks concentrate on loan making and politicized mortgage lending is not allowed through Fannie Mae and Freddie Mac.

b. Double runs – up and down

The supply of housing is inelastic and most homeowners cannot respond to price rise. As a result of political favor, subprime creditors start to buy homes. Home price rises and expectation of price rise is formed. Because housing is durable asset, price rise invites further demand and further price rise until the expectation stops somehow. The mechanism is similar to the bank run argument by Diamond and Dybvig (1988), in which the probability of bank failure increases as more people expect bank default and the run seems to justify the expectation. The same logic applies to housing market bubble and bust, run for bubble and run for bust.

Once price rise expectation is formed, just like in bank run, they run to buy house before price rises further and this run causes rapid price rise. When price is too high and construction starts to meet the demand, price starts to fall and expectation is formed that price will fall. Then, the collateral is insufficient and home buyers must pay the difference. The homeowner may believe it is not worth to keep the house because price is falling and they want to move out before the price falls further. This quickens price fall. More houses will default because of the collateral is insufficient for the loan.

c. Politicized mortgage lending – lax lending

Politicians passed acts to boost the house ownership of the low income people. There was politicization of mortgage lending through the paternalistic policies that made the loan requirement easier more than economic consideration would dictate. You can call this government encouragement of home ownership. During the nine year trend of price rise, subprime borrowers with no documentation loans became common.

During the 2000 – 2007 housing boom, mortgage lenders underestimated the risk because the value of the collateral was rising. The politicized mortgage lending could have started the

boom by reducing the lending criteria. The new entrants were the subprime borrowers, who created demand and pushed up prices. As the housing bubble started, mortgage lenders attracted new entrants to the market. Lenders made it easier for borrowers to obtain subprime loans. Mian and Sufi (2008) provides evidences of a relaxation of mortgage lending criteria during this period. As the bubble burst in 2007, many mortgage holders could not afford mortgages and foreclosure increased. House price declined. Other mortgage holders who had borrowed close to 100% of the house cost had negative equity. Some people simply walked away from the house for the lenders to foreclose, reinforcing the housing price decline. The perception of risk has changed as the banking system moved from relationships to transactions. Securitization is responsible for the lax screening of mortgages. The arithmetic of securitization is discussed in section IV.

d. Old banking and new banking – securitization and derivatives

Glass-Steagall Act of 1933 was enacted to prevent the spread and contagion of bank run over the country. The loan making business was separated from investment banking. The act was repealed in 1999. As financial sector was liberalized, new financial instruments appeared, most prominent were securitization and derivatives. These instruments are actively used for risk diversification but also for speculation.

The new institutional conditions, repeal of Glass-Steagal Act, universal banking, Fannie and Freddie changed the financial structure in the economy from old finance to new finance.

In the old finance, mortgage originator was mortgage holder. Banks exercises their expertise in screening loans. This production of information was indeed the bank's contribution to the national economy. In the new finance, commercial banks originated

mortgages and collects fixed fee and sell to securitization. In this process, the originator is not final mortgage holder. The originator has less incentive to pay attention to the qualification of loan application. On the other hand, the final holder cannot analyze the mortgages in the pool. In this process, the potential economic value is lost, while diversification based on formula was practiced.

e. Risk illusion and the tragedy of the commons

Risk is ultimately judgment, not calculus. The new finance system made it easier to include low quality subprime mortgages into circulation. We can interpret this as investors had the illusion of lowered cost or price of risk. And lower price invites demand for risk. Judgment requires attention and the institution restricts the information and influences our perception of risk. During the credit crunch, investors relied on the AAA-rating level, and the rating agencies were much criticized for lenient rating. What should be noted is that rating measures default risk not liquidity risk, and credit crunch means liquidity risk. The politician's encouragement for homeownership and the changed incentive of bank loan making contribute to negative risk externality and the result is what is known as the tragedy of the commons. Section IV discusses on risk illusion.

III. The logic of bail out

The US government and the Fed bailed out financial institutions and carmakers, General Motors and Chrysler. Bailing out financial institutions was discretionary policy and I argue that, the Fed could announce itself as the lender of last resort and stick to the policy. The Fed gives loans to troubled financial institutions and charge interest. Since the value of collateral can be uncertain the Fed should prohibit dividends and bonuses by these financial institutions. The logic of bailing out carmakers is different from

that of financial institutions. Of course, political logic overwhelms economic analysis. I examine the logic of bailing out carmakers.

The logic I examine is based on option demand. After subprime mortgages triggered a financial crisis and as recession sets in, the talk of bailouts became daily parade on the news media. The popular argument is “Fannie Mae is too big to fail.” Now, “General Motors is too big to fail.” The question is why should taxpayers money should be spent to rescue a private enterprise in a free enterprise economy like the U.S.? What is the economic logic of bailout if there is any?

This section provides an economic idea that explains the intuitive notion about bailouts. Weisbrod (19xx) introduced the conception of option demand in which some of the consumption goods have public good’s nature. He provides the example of public transportation. Even though you do not commute on a bus line, you may wish the community had a bus service so that you may rely on it on a stormy day. However, for a bus line to be economically viable, you need a community big enough and generate sufficient demand for bus service. Suppose 10,000 people are required to make a bus line economically viable. But your community of 9,000 persons is 1000 person shy to have a bus line. Each person of the community gives some value on having a bus line, say \$1 for the option value of having the bus line. Weisbrod proposed a subsidized public transportation. The community people may collect \$1 per person and the sum of \$9,000 could compensate for the insufficient demand.

This argument can apply to bailing out General Motors. Suppose average Americans give some value, including a sentimental value, for having GM around and for the option of purchasing a GM car, an American car. If GM is not there anymore, they will have to buy the Japanese cars or Korean cars. Their welfare will be reduced as much as they value the option of having GM running. The valuation, or consumer surplus, each person

assigns to the option could be the tax money they are willing to spend in bailing out GM. The question remains regarding how much to spend on bailing out GM. The answer is that the taxpayers' money can be spent to make GM viable and no more. The next question is where we should stop bailing out. Which company is too big to fail and which company should go to bankruptcy court? Should too-big-to-fail become the criteria? The logic introduced in this note tells that tax payers money should be spend only on companies about which taxpayers have option value, a measure of consumer surplus.

This argument sounds innocent enough, yet is no different from protectionism when applied to bail outs. One can argue that this is a passive one and would not damage the open economy. However, even if these were no explicit policies to undermine the global economy, international trade will shrink because of the reduced extent of the market.

Economists all believe that trade encourage specialization. But mostly think in terms of Ricardian or Heckscher-Ohlin theory of trade. These models assume that the world specializations are the same before and after opening the economy. What happens through opening the economy is sorting out, by comparative advantages, to determine which country specializes in production of which good. However, these neoclassical models cannot address the world recession properly. Stay with Ricardian or H-O theory, then trade encourages specialization according to comparative advantages which are determined by the relative configuration of each country's technologies. Now, in recession, each country has bad technological or demand shocks. So each country produces less and trades less. But specializations of each country will remain the same. However, in our trade model (Yoon, 2007) based on Smith's extent of the market, recession will cause some specializations disappear in some of the countries. This will have a lasting effect, because there will 'forgetting by not doing' a

symmetric phenomenon to ‘learning by doing’. When recession is over countries will pick up new specializations different from the lost ones. In this way, the list of specialization of each country will change over credit cycles, especially over the severe ones.

IV. Arithmetic of Securitization: Risk Illusion

The overexpansion of credit in the US housing market caused huge losses by financial institutions and tightening of credit. We explain the products that were used to securitize mortgages and why those products performed so badly.

a. Securitization.

The core of the financial crisis is the subprime mortgages in the housing market. In the new financial system of universal banking that developed during the last thirty years, financial institutions may not retain the mortgaged they originated on their books. Subprime mortgages are securitized and sold to investors as ABS (asset based securities). Securitization and derivatives are useful tool (financial contracts) in financial market by sharing risks and providing liquidity. However, they can be used for speculation too as in the case of housing booms. Securitization is also linked to the lax screening of mortgages.

Here is a brief statistics on subprime mortgages. There are 25 million subprime and Alt-A -- in other words, nonprime -- mortgages. They are worth \$4 trillion. In 2001 54% of subprime mortgages were securitized and this rose to 75% in 2006.

The process of securitization is expositied by using a simplified ABS model by Hull (2009). A portfolio of subprime mortgages (Asset 1 through asset N) is created. See Figure 2. The portfolio

generates cash flows. In our numerical example in Figure 2, the principal of the portfolio is \$100 million. The credit risks of the portfolio are sliced (tranching) out into three pieces with different risk characteristics. The three pieces are senior (III), mezz(II), and equity (I) tranches. The 'senior' is least risky and the 'equity' is most risky. This structure determines the order of cash flows to each piece and who bears the losses of principal on the underlying portfolio.

In the numerical example of figure 1, the 'equity' has 5% of principal and bears the first 5% of losses in the principal. 'Equity' tranche is wiped out when losses exceed 5%. In returns for this, its compensation is 30% on its part of principal (5% or less of the total principal). In fact, after senior and mezz receive promised cash flows, 'equity' receives anything remaining. Mezz tranche is wiped out when the loss is more than 25% and earns 10% of outstanding principal (20% or less of the total principal). Losses in excess of 25% are borne by the senior tranche. The principal for senior tranche is 75% of the principal underlying the mortgage portfolio. The promised return is 6% of its principal. Securitization is structured so that the 'senior' slice is AAA-rated. The 'equity' slice is either retained by the originator or sold to a hedge fund. As the structure indicates, the values of slices depend on the default rate and correlation with the portfolio.

To find a market for the Mezz slice, a structure known as ABS CDO (collateralized debt obligation) is designed by financial engineers. The idea is to slice out the risks from a portfolio of mezz in the same way as an ABS portfolio slices out the risks from a portfolio of subprime mortgages. The structure is illustrated in Figure 3. CDO is structured so that the senior slice (m-senior) is rated AAA. It turns out that derivatives of this type are the most troublesome and at the core of the financial crisis. The numerical example is instructive. Even the AAA- rated security, the CDO senior tranche (m-senior), can be wiped out when the original

portfolio loses 25% of its principal. If the portfolio loses 20%, the AAA-rated CDO senior tranche is worth 33% of the original value. More specifically, the value (v) is related to the loss of the portfolio:

The range of the portfolio loss (L) is $0 < L < 100$ and the value of the portfolio is $100 - L$. Until ABS 'equity' and CDO 'equity' and 'mezz' are wiped out, the principal of m-senior is secure,

$V = 100(0.2)(0.75) = 15$ when $L < 10$;

$v = 15 - (L-10) = 25 - L$ for $10 < L < 25$; when the loss is more than 25 m-senior is wiped out,

$v = 0$ when $L > 25$.

As the Exhibition 1 indicates, in July 2008 Merrill Lynch agreed to sell its senior ABS CDO, once valued at \$30.6 billion and rated AAA, to Lone Star Funds for 22 cents on the dollar. In our numerical example, this is equivalent to 21.7% loss of the portfolio principal: The portfolio principal is \$200 billion. Then portfolio of m-senior is \$40 billion, and $v = 30 - (L-20) = 50 - L = (0.22)(30)$. Solving for L and obtain $L = \$41.2$ billion. Furthermore, Merrill Lynch agreed to finance 75% of the purchase price. Merrill Lynch lent Lone Star Funds about \$5 billion to complete the sale. This could be the private model that solves the problem the Treasury wanted by bailing out 'too big to fail' banks. Note that Lone Star Funds is a private equity fund, who can make profit by waiting until the toxic mortgages mature because it is unconstrained by capital requirements, unlike a publicly-traded firm.

As the simple CDO model suggests, securitization influences incentive of the mortgage originators. In the old banking system, the mortgage originators examine thoroughly lending opportunities. The risk was based on the relationship between borrowers and lenders. Commercial banks contribute to the national product by producing information in the process of screening loan proposals. In the new banking system, the majority of the loans would be securitized. The incentive was to make profit by selling a mortgage

to an investor. The original economic contribution of banking has been reduced and moved to transactions, risk management and speculation. Originators would be more careful about the loans they make when they knew the loans might not be securitized. The interest of a loan originator is not aligned to those of an investor in the loan. For instance, when the equity slice for most ABS that the originator holds, is worth zero, the originator has no financial interest in the portfolio.

On the other hand, if the originator securitizes part (say, 80%) of its portfolio, investors might suspect that the better loans have been retained and that screening was lax on the rest.

The complexity and lack of information flow causes the risk illusion. Most investors, when they bought AAA-rated slices, do not read the legal document that is several hundred pages long. Instead, they rely on the “AAA” label. The rating measures credit quality not liquidity. Once the slices were perceived as risky it became almost impossible to trade them. This is because potential investors did not understand enough about the underlying portfolio. These derivatives are difficult to price, and even with financial engineering models would not have mitigated the subprime crisis. The risk measurement is based on historical experience, but risk is ultimately human judgment. (See Hull, 2009, for discussions of other related issues.)

b. Risk Illusion

The current debates raises question about economist’s role in society. The question could be stated as follows. Can we learn enough about risk through positive economic method and come up with the correct policy? Or, when knowledge is insufficient, how are we going to agree on rules about controlling risk in society?

Risk or uncertainty is usually treated as given exogenously and analyzed from the perspective of individual decision making. The financial risk may be endogenously determined in the whole financial system, but such aspect has been ignored in the profession. Risks can be external bads introduced by individual action against perceived risks. Such risks are wasteful without introducing any risk-return trade offs, and create the tragedy of the 'risk commons'. The behavioral response to risk can cause real effect such as moral hazard. Furthermore, risk commons will cause more uncertainty on individual decision making. The tragedy of the risk commons is the Knightian uncertainty and catastrophic freeze by individual decision makers. The management of risk commons requires rules beyond individual risk management, because the risk illusion is just as real as the money illusion and fiscal illusion.

To put the risk question in simple terms, consider a model economy, $Y = F(K, L) + \varepsilon$ where Y is output, F is a production function, K and L are capital and labor inputs, and ε is a random variable. Suppose F , K , and L are public knowledge. Now if you and I involve in a betting on Y , the outcome of the economy which depends on the random variable ε . Does this gambling make the economy more risky? It should not. It only causes a change in income distribution by transfer. Neither an insurance contract between two persons will make the economy less risky. Subprime mortgage and financial crisis are all caused by speculation, betting on and insuring against uncertain events. Bubble or whatever, they cannot make the economy more risky. We can do nothing about it, and we do not have to do anything about it. This is the advice from the simple economic model to the current financial trauma.

However, the subprime trauma has real effects. This would make no sense if risk is treated like the 'epsilon' exogenously given in the production function above. We assume risk is priced by the market by investors whose attitude toward risk is independent of

the probability distribution of risk. This dichotomy is the habit of mind of neoclassical economics. However, individuals may not treat expectation and attitude separately, and the institution may influence our perception of risk. A better model for the financial crisis might be the guessing game suggested by Keynes as beauty contest.

Risk is a judgment rather than statistical formula which gives the illusion of exogenous distribution of outcomes. But there are ways to live with our ignorance. Under insufficient knowledge, rules rather than discretion will reduce uncertainty and agreeing to rules will secure legitimacy, which is another way of reducing uncertainty in democracy. The institutions of minimum government intervention and natural liberty, free use of individual mind, body and property, could be understood from this perspective.

V. Conclusion.

I have argued that the severity of financial crisis and recession is closely related to the institution, our financial system.

Financial sector has been liberalized as Glass-Steagal Act of 1933 was repealed in 1999 with the belief that the free market idea should be applied to the finance industry. Many financial instruments appeared to diversify risk as much as possible. Securitization and derivatives are the major ones. These instruments in new financial regime gave different perceptions of risk and incentives. Financial instruments can diversify risk because different assets move differently. Yet, when they move in the same direction, these instruments are used for speculation and generate crisis by engrossing risks. What we need is the good old banks that are good at making loans.

The financial crisis is the difficulty of finding prices for the inventory of homes. The Fed should have constitutional restraint as the lender of last resort. Troubled banks can get loans from the Fed with interest. Since collateral value is uncertain, the banks will be required not to pay dividends and bonuses bonus.

Instead of focusing on stopping housing price fall and protecting the homeowners, government concentrate on reducing the housing inventories. This could be done by giving tax benefits to those who purchase existing home with down payments. Another possibility is that the Fed gives loans to private firms that will buy up the inventories. What should economists do to claim evidence of expert opinion? I have no answer for this question. Yet, I believe that each economist can participate in the debate on the current experience, which is the empirical studies in the true sense for economic science, more informative than lab experiments and econometric studies.

References:

George Akerlof and Robert Shiller. 2009. *Animal Spirit*, Princeton University Press.

James Buchanan. *Public Finance in Democratic Process*.

Douglas Diamond and Divbig. 1983. "Bank runs, deposit insurance, and liquidity" *Journal of political economy*

Milton Friedman. *A program for monetary stability*

----- . *A monetary and fiscal framework for economic stability in Essays in Positive Economics*

Alan Greenspan. 2008. "We will never have a perfect model of risk" *Financial Times*, March 16, 2008.

John Hull. 2008. "The credit crunch of 2007: What went wrong ? why? What lessons can be learned?" working paper, University of Toronto.

A. Mian and A. Sufi. 2008. "The consequences of mortgqge credit expansion: Evidence from the 2007 mortgage default crisis," working paper, Graduate school of business, University of Chicago

Robert Shiller. 2008. *The Subprime solution*, Princeton University Press.

Henry Simons. John Taylor. "How the Government created the financial crisis" *Wall Street Journal*, February 10, 2009.

Burton Weisbrod. "Collective consumption services of individual consumption goods" *Quarterly Journal of Economics*, August 1964.

Yong J. Yoon. "A Note on Methodology of Economics" 2009

Figure 1. Share prices of Fannie Mae and Freddie Mac during the Financial Crisis in 2007 - 2008

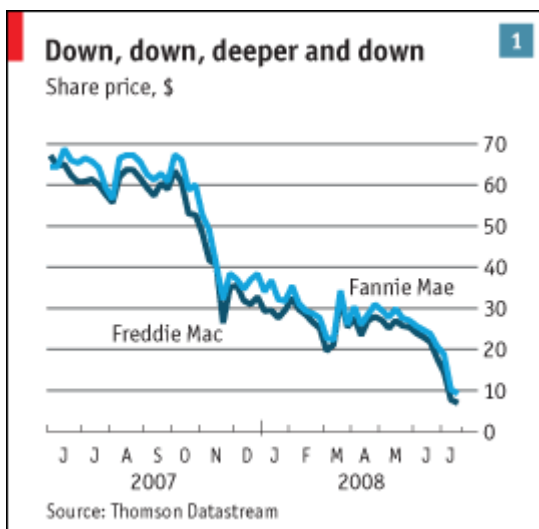


Exhibit 1.

New York Times

Merrill's Bitter Pill May Be a Sweet Deal for Lone Star

July 29, 2008, 7:20 am



Lone Star Funds seems to have the pioneering spirit suggested by its name.

In the latest example of the Dallas-based private equity shop's desire to tackle tough terrain, **Merrill Lynch** announced Monday that it had sold Lone Star almost all of its troublesome **collateralized debt obligations**, once valued at nearly **\$31 billion**, for the fire-sale price of **22 cents on the dollar**.

For Merrill, the sale represents a steep loss and will cause the majority of the bank's expected \$5.7 billion write-down in the third quarter.

The United States super senior asset backed-security C.D.O.'s that Merrill sold were once valued at \$30.6 billion. As of the end of second-quarter, Merrill valued them at \$11.1 billion - or 36 cents on the dollar. And Merrill sold them for \$6.7 billion to Lone Star.

Furthermore, Merrill provided 75 percent financing to Lone Star Funds, which means Merrill lent the private equity fund about \$5 billion to complete the sale.

But Dow Jones notes that for Lone Star, the deal is almost a no-brainer. Unlike a publicly-traded firm, the private equity fund is unconstrained by capital requirements and freed from quarterly

reporting obligations, allowing the buyout shop time to let the currently toxic mortgage-related investments to mature.

Thus, the news service says, if only a portion of the investments function the way they were intended to, Lone Star will pocket a handsome profit.

Furthermore, Dow Jones says, Merrill's C.D.O. portfolio isn't the only risky bet Lone Star has made recently. Other bets on investments hit by the current crisis include its \$1.5 billion [deal](#) for **CIT Group**'s mortgage business and the acquisition of **Bear Stearns**' residential mortgage arm.

Merrill Toxic Asset Sale May Present Model

[All Things Considered](#), February 10, 2009 · Last year, private-equity firm Lone Star Funds bought up nearly \$6.7 billion of Merrill Lynch's credit debt obligations at 22 cents on the dollar. Could that be the private model the Treasury Department wants others to duplicate? Simon Johnson, a professor at MIT and a former chief economist at the International Monetary Fund, offers his insight.

Figure 2. Securitization (Asset Backed Security)

Portofolio: {Asset 1, Asset 2,, Asset N},
principal \$100 million

- III: Senior slice. Principal: \$75 million, Return: 6%
- II: Mezz slice. Principal: \$20 million, Return: 10%
- I: Equity slice. Principal: \$5 million, Return: 30%

The basic structure is

- (i). Principal (III) > Principal (II) > Principal (I)
- (ii). Return (III) < Return (II) < Return (I), and
- (iii). Cash flow goes to III (6%) first, then II (10)%, and I (30%).
- (iv). Losses to portfolio (default) is born by the following rule:
 - Loss (x) is less than 5%,
 - I loses x in principal; earns 30% on principal, $100(1-x)$.
 - Loss is more than 5%,
 - I is wiped out.
 - Loss is, $5% < x < 25%$,
 - II loses x in principal; earns 25% on principal, $100(1-x)$.
 - Loss is more than 25%,
 - II is wiped out.

Figure 3 ABS CDO

Losses x to subprime portfolio

X = 10% -> Losses to Mezz = $(10-5)/20 = 25\%$ loss principal 1

Losses to Im = 100%

Losses to IIm = 100%

Losses to IIIm = 0%

X = 20% - > losses to mezz = $(20-5)/20 = 75\%$ loss

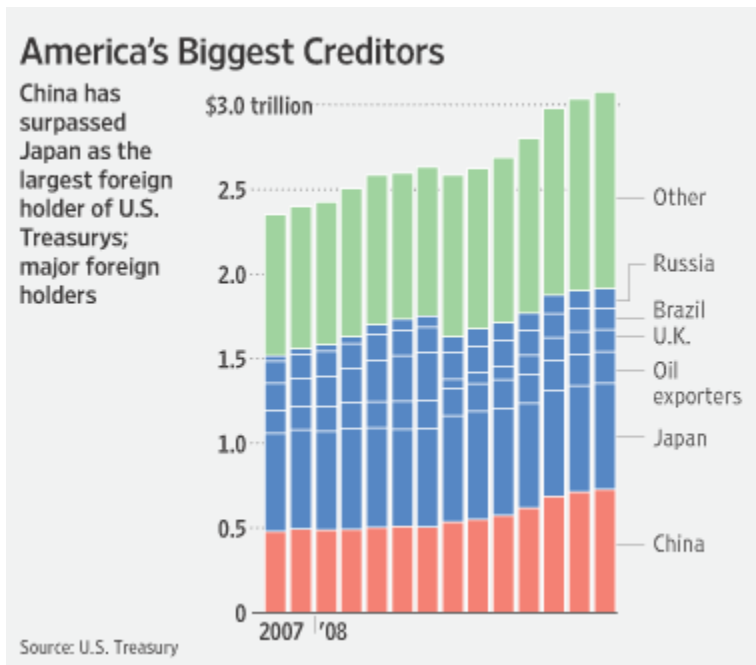
losses to Im = 100%

Losses to IIm = 100%

Losses to IIIm = $(15-5)/15 = 2/3$

X = 25% losses of all items are 100%

From an article in WSJ, specify it.





Walking after the Elephant of Financial Crisis

Yong J. Yoon

Department of Economics and Center for Study of Public Choice, George Mason University,
mail-stop 1E6, Buchanan House, Fairfax, VA 22030-4444.

At the moment we do not know the exact reasons for the financial crisis. I believe we will have much better understanding sooner or later.

Then, can we prevent it with the economists' expertise?

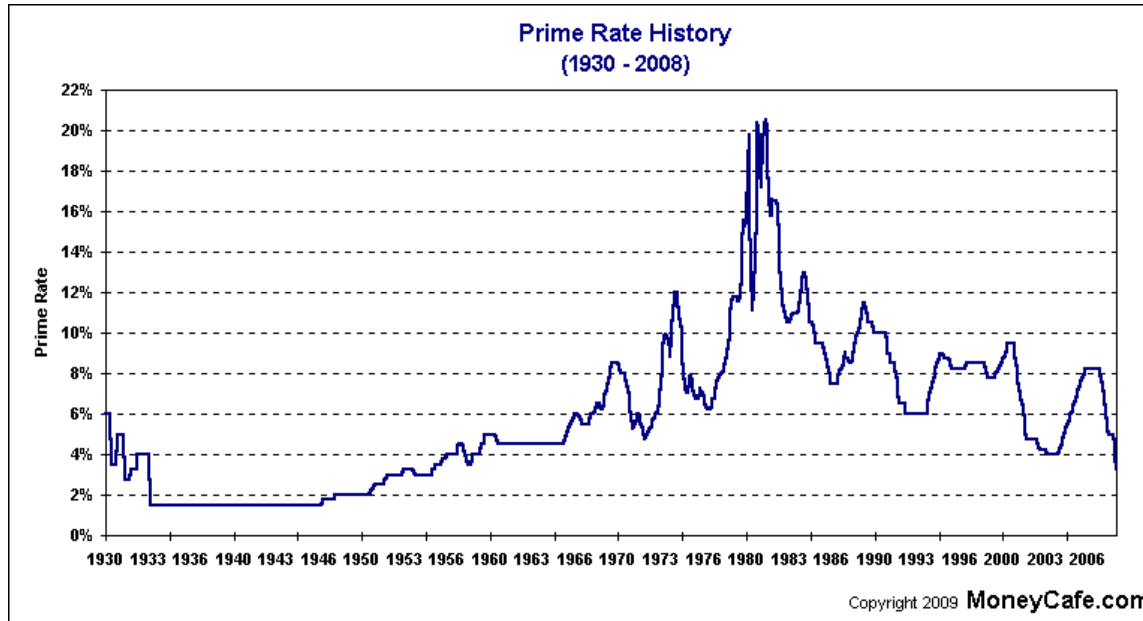
No, but economists will proffer more policy alternatives.

Current US Economy: high saving, high unemployment, and potential for inflation.



Prime Rate History

Below is a graph of the historical [Prime Interest Rate](#) from 1930 through 2008.



Financial Crisis and Recession/Depression

- 1. What Caused Financial Crisis?
- 2. Who is responsible?
- 3. Where is the economist?
- 4. Failure of the market and capitalism?
- -- Wall Street Greed and Bush administration deregulation?

- Answers:
 - 1. (Politicized mortgage lending and securitized mortgages.)
 - 2.(Politicians)
 - 3. (Economists will not prevent future crisis.
 - They are still useful in offering explanations ad hoc and proffering policy alternatives.)
 - 4. (Financial sector is most heavily regulated. Regulatory spending between 1980 and 2007, from \$725million to \$2.07billion.
 - One of the most foolish book title is Richard Posner's "A failure of capitalism")

Roots of the problem

- Politically popular affordable housing
- Bank loan qualification standards
- --- down payments, credit histories, income.
- 1977 The Community Reinvestment Act
- Clinton's Attorney General Janet Reno
- --- threat against lenders based on racial statistics
- Fannie Mae, Freddie Mac – government sponsored enterprise
- --- Purchase mortgage papers from banks
- --- gave incentives to make risky loans
- 2002 George W Bush – American Dream Down Payment Assistance Act --- subsidize down payments low income homebuyers
- Federal Housing Administration – zero down payment loans to low income Americans
- 2005-2007 Fannie and Freddie \$1trillion worth of subprime mortgages and guaranteed \$2 trillion worth of mortgages. GDP of Germany rank 5.

Warnings of pending collapse, which Congress and white house ignored:

- John Snow, US Treasury secretary
- The risks assumed by FM and FrM could cause systemic risk to the whole financial system.
- Peter Wallison of AEI warned that congress should rein in FM and FrM.

Securitized mortgages ■

- Consider the pool of mortgages A and B.
- A: default probability 0.1 (10%)
- B: default probability 0.1 (10%)
- Correlation: Uncorrelated
- Two securities are issued based on this pool of mortgages.
- Senior security is honored unless both default.
- Senior security will be safe with probability
- $1 - (0.1)(0.1) = \mathbf{0.99}$ or default risk is 1%.
- The Junior security, a junk bond, is respected only when both mortgages are safe.
- The default probability of junior security is
- $0.1 + 0.1 = \mathbf{0.2}$ (20%)
- However, under the housing boom and bust, the default probabilities are not independent. They become correlated. **Suppose the correlation is perfect.** Then, the default probability of the Senior security becomes **0.1 (10%)** a ten times jump.

To summarize

- Case 1: no correlation
- Senior security has default probability **1%**
- Junior security has default probability **20%**

- Case 2: Perfect Correlation
- Senior security has default probability **10%**
- Junior security has default probability **10%**