
Understanding the Global Financial Crisis And Its Impact on Maryland

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DEPARTMENT OF LEGISLATIVE SERVICES
OFFICE OF POLICY ANALYSIS
MARYLAND GENERAL ASSEMBLY

Karl S. Aro
Executive Director

Warren G. Deschenaux
Director

October 16, 2008

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate

The Honorable Michael E. Busch
Speaker of the House

Dear President Miller and Speaker Busch:

We are in the midst of a global financial crisis the full magnitude of which is as yet unknown. Currently, credit is severely restricted, and the federal government has enacted legislation that gives the U.S. Department of the Treasury broad authority to purchase and ensure troubled assets. While the full implications of the credit crisis or the federal legislation are not known, there appears to be some consensus regarding the events that led us to this point.

This fiscal crisis has generated questions about how this crisis came about and the effects of the crisis on both the citizens and State government of Maryland. In response to these questions, the Department of Legislative Services has prepared this report to assist in understanding the instruments and actors which got us to this point, the landmark action of the financial crisis to date, and its implications for both the citizens and State government in Maryland.

The report was prepared by Robert Rehrmann and Erik Timme, under the direction of Patrick Frank. Valuable assistance was also provided by Melissa Moye of the State Treasurer's Office, who reviewed the financial market discussion.

Sincerely,

Warren G. Deschenaux
Director

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cc: Karl S. Aro

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Understanding the Global Financial Crisis And Its Impact on Maryland

Introduction

We are in the midst of a global financial crisis the full magnitude of which is as yet unknown. Nevertheless, the source of this fiscal contagion is coming to be understood. Homeowners purchased properties that they could not afford. Loan originators offered mortgages that could not be repaid. Investment bankers bundled these loans into securities that were spread throughout the world bearing ratings that underestimated the risk. These in turn were repackaged and resold among financial institutions which relied on short term credit to maximize their returns. At the same time, these firms also offered a form of insurance against the risk of default to purchasers of these securities and to speculators. The result so far has been a radical restructuring of the financial landscape and a considerable loss of confidence in the economy and the financial system which supports it.

The purpose of this paper is to assist in understanding the instruments and actors which got us to this point, the landmark actions taken to address the financial crisis to date, and its implications for both the citizens and State government in Maryland.

Tools of the Trade

Recently, new financial instruments were created to finance residential mortgages. What were these instruments and how did their use contribute to the current crisis? This section discusses the operation of various financial tools instrumental to the problem – subprime mortgages, mortgage bonds, collateralized debt obligations (CDOs), credit swaps, and bond ratings.

Subprime Mortgages

Subprime mortgages are mortgage loans issued to individuals who are not able to meet the standard requirements of a conventional mortgage. Applicants may be disqualified for conventional financing due to poor credit history, no or insufficient down payment, absence of documented income history, or some combination of these and other factors. Due to these factors, lenders attach a higher risk of default to these mortgages. Accordingly, they bear a higher rate of interest than a comparable conventional mortgage.

The primary challenge in offering mortgages to buyers who do not qualify for traditional mortgages is how to make that loan both affordable for the borrower and profitable for the lender. As a result, subprime mortgages often have a hybrid structure consisting of a low

introductory interest rate that increases after a specified period. Introductory interest rates, or “teaser” rates, may also allow a buyer to make only interest payments, without paying any principal. These mortgages generally revert to a higher floating rate at the end of the two- to three-year introductory period.

The design of these loans allows borrowers to benefit from any appreciation in the value of their homes during the introductory period by refinancing under more favorable terms at the end of the introductory period. The lender benefits from this structure because the terms essentially force refinancing, limiting the risk of default to a short period. The risk of these mortgages with a “teaser” rate is that if housing prices do not appreciate, the borrower may not be able to refinance at the end of the introductory period.

Residential Mortgage Backed Securities

Investment banks developed Residential Mortgage Backed Securities (RMBS) to bundle loans and sell them. Investment banks would first purchase mortgages from loan originators. These mortgages would be separated into groups, called tranches. The debt is often serviced under a waterfall payment structure. With a waterfall structure higher-tiered creditors receive payments first and lower-tiered creditors receive payments after higher-tiered creditors have been paid. This structure allows the different tranches to receive different risk ratings based on the tier. If default rates remain low, higher risk tranches are safe; however, if default rates rise, those tranches are at risk.

Collateralized Debt Obligations

A Collateralized Debt Obligation (CDO) is a financial instrument created by a financial agency that purchases a portfolio of bonds, loans, or other assets and sells a security supported by the payments received from the portfolio. CDOs do not specialize in one type of debt but are often non-mortgage loans or bonds. Conventional CDOs are cash-based and use the underlying assets as collateral. CDOs can include other CDOs, instead of bonds. This is referred to as CDO-squared. With CDO-squared, there is a bond, which partially supports a CDO, which partially supports the CDO-squared. A CDO-squared can be repackaged again to create CDO-cubed.

The benefit that CDOs offer is that they spread risks. Since the CDO is supported by a number of assets, one asset defaulting has a limited effect on the CDO. The effect of the asset’s default is diluted even further in the CDO-squared and CDO-cubed. However, CDOs can be opaque since it can be unclear what underlying assets support which CDO-cubed. Because they are so opaque, these instruments can be even more difficult to value when the values of the underlying assets decline.

Credit Default Swaps

CDOs can trade risk through the use of Credit Default Swaps (CDS). CDS are a form of financial derivative that act as insurance on bonds. The seller of the swap guarantees the credit worthiness of the product for a fee. By doing this, the risk of default is transferred from the holder of the fixed income security to the seller of the swap.

CDS are highly leveraged instruments that can create a substantial notional liability for the seller. The notional liability is the total value of the leveraged position's assets. For example, if a CDS guarantees the credit worthiness of 250 CDOs trading at \$1,000, then the notional value underlying the contract is \$250,000 (250 x \$1,000). Should the underlying asset become worthless, the seller of the CDS would be liable for the full value of that asset. This could result in a liability that is many times the fee revenues realized when the CDS was sold. The risk is that a sudden and unexpected decline in asset values could result in substantial liabilities to the sellers of CDS.

Rating Agencies

Before securities are sold, rating agencies evaluate the likelihood that securities will default. Investors depend on the ratings of securities to indicate their overall level of risk. If adequately reviewed, this rating provides investors with an unbiased assessment of the risk by a third party. However, if rating agencies systematically underestimate risk, assets are riskier than the purchaser realizes, and the portfolio's value is more likely to decline. For subprime mortgages, rating agencies used recently developed statistical techniques and historic mortgage default data. (A greater number of defaults than projected by the rating agencies drives down the value of the underlying loan portfolio, as well as the market value of the security.)

How Mortgage Securitization Led to a Credit Crisis

At their best, new financial vehicles increased homeownership and spread the default risk. As long as housing prices were rising, the system worked. When the housing boom ended, the weaknesses of the system were exposed. The problems include:

- **Homeowner default:** Many homeowners could not afford their homes. As long as home values rose, they could refinance when their adjustable-rate mortgages re-set. Once housing values stopped rising, they could no longer finance and began to default.
- **Abrupt end in new loans:** When investment bankers realized that increasing numbers of homes were in default, they abruptly stopped issuing new subprime loans. This reduced the demand for homes even further and bankrupted some loan originators.
- **Understated risk:** CDOs were rated by rating agencies. These agencies evaluated the default risk and rated the CDOs based on the perceived risks. Recent reports suggest that

the techniques used understated the default risk, resulting in higher ratings than warranted. Relying on these defective ratings, many financial institutions had purchased risky securities that they otherwise would not have purchased. This led to a wide dissemination of losses when asset values were reduced.

- ***Possibility of substantial liabilities if asset values decline:*** Many of the new assets, such as CDS, can create a liability that is many times the value of the revenues generated from the sale if the value of the swapped asset declines. In an attempt to eliminate the risk of declining home values, many owners of RMBS purchased CDS. In addition, many investors bought CDS even though they did not own RMBS, in effect betting on defaults. The recent decline in home values has been so substantial that they created large liabilities for the sellers of CDS. As discussed later, the AIG crisis was attributable to liabilities resulting from CDS.
- ***Insufficient equity on balance sheets:*** To increase yields, financial firms took advantage of low short-term interest rates to borrow and reinvest the principal. In some cases, financial firms borrowed heavily and invested in high-yield mortgage-backed securities. When the value of their assets declined, there was insufficient equity on the balance sheets. In the most extreme cases, the firms became insolvent. Examples of this include Bear Stearns and Lehman Brothers, discussed later in the report.
- ***Opacity:*** One of the recent financial innovations is to link assets, as with a CDO-cubed, to, in theory, spread the risk. Many of these financial instruments, such as CDS, do not trade on open markets (they are private agreements between two parties) and are not regulated. Consequently, it is unclear who owns what and how much anybody is exposed to the decline in financial asset values. A number of firms have assured investors that they are solvent and healthy only to declare bankruptcy thereafter. Because these instruments are opaque, it is unclear how exposed different firms are and who might soon be insolvent.

Market Meltdown

An increase in defaults of subprime mortgages was first observed by the capital markets. In June and July of 2007 many assets backed by subprime RMBS were downgraded by rating agencies. Defaults and lowered ratings caused the values of these mortgage-backed securities to decline. This had a particularly large impact on the many investors who borrowed short-term to fund purchases of subprime RMBS investments. Leveraged financial institutions that typically refinanced on a monthly basis were unable to secure financing, which resulted in many requiring emergency cash infusions to ensure solvency.

As the market for CDOs evaporated and the widespread nature of the problems came to light, many major investment banks and hedge funds reported substantial losses relating to subprime RMBS. Industry-wide losses affected not only markets for CDOs but all inter-bank

lending. Banks became less willing to provide funding to other banks, instead stockpiling cash to protect their own balance sheets and cover future losses. The result was a sharp increase in inter-bank lending rates and the liquidity in these markets diminished.

Liquidity is characterized by the ability to bring an asset into the market without affecting its price and ability to convert that asset into cash quickly. A high level of liquidity usually requires a high level of market activity. Insofar as the current financial climate is characterized by steep declines in asset values and a reluctance of institutions to lend to one another, it is fair to characterize this as a liquidity crisis. Because liquidity plays such a central role in the economy (for businesses as well as individuals), this liquidity crisis affects the entire economy. The next section of the report addresses the actions taken by the Federal Reserve and U.S. Department of the Treasury to end this crisis.

The Federal Reserve's Response

The primary duty of the Federal Reserve, created in 1913, is the execution of monetary policy to fulfill the dual mandate of promoting low inflation and full employment. Another duty that has become prominent is the responsibility to act as a lender of last resort to the financial system when capital cannot be adequately raised in private markets. The Federal Reserve has been heavily involved in providing liquidity for distressed institutions and market liquidity during the current financial turmoil that began in August 2007.

Traditional Federal Reserve System Tools to Provide Liquidity

Traditional Federal Reserve policy options to prevent systemic liquidity shortages include open market operations and discount window lending. Open market operations are the Federal Reserve's principal tool for implementing monetary policy and are carried out through the purchase and sale of U.S. Treasury securities. The selling and buying of U.S. Treasury securities largely determines the federal funds rate – the interest rate at which depository institutions lend to one another on an overnight basis. Changes in the federal funds rate trigger a chain of events that affect other interest rates, foreign exchange rates, the amount of money and credit, and, ultimately, a range of economic variables, including employment, output, and prices of goods and services. Altering the federal funds rate also influences the balances that depository institutions hold at Federal Reserve Banks (bank reserves). When the Federal Reserve buys U.S. Treasury securities, it increases the supply of reserves in the market and liquidity in the banking system, which under normal circumstances should make more banks willing to lend.

Banks are required to hold a percentage of their deposit liabilities as reserves. Reserve requirements are satisfied by a bank's vault cash and end-of-day balances maintained at the Federal Reserve. Until recently, banks did not receive interest payments on the money kept in reserve, so they typically would try to keep reserves close to the minimum amount required. In a properly functioning market, banks with excess capital lend at the federal funds rate to those banks that require funds. As the financial crisis intensified, however, inter-bank lending

essentially collapsed as banks attempted to shore up balance sheets that were taking on large subprime mortgage related losses and were hesitant to loan money to any bank given difficulty in determining the extent of subprime losses at each bank. As discussed previously, given incomplete disclosure and lack of transparency over losses, banks holding excess reserves have often been unwilling to lend it for other than extremely short periods and then only against the highest quality collateral.

On a typical day, the Federal Reserve might need to buy or sell a couple of billion dollars of U.S. Treasury securities to keep the federal funds rate within an acceptable range of its target. As financial markets deteriorated, the Federal Reserve needed to inject much larger amounts to maintain liquidity. The Federal Reserve purchased \$24 billion of U.S. Treasury securities on August 9, 2007, after the federal funds rate approached 6%, well above the intended rate of 5.25%. The next day, the Federal Reserve purchased an additional \$38 billion in an effort that was announced to provide liquidity to facilitate the orderly functioning of financial markets. The Federal Reserve also initiated a series of repurchase agreements beginning in March 2008 that were designed to inject up to \$100 billion in liquidity. In addition to these efforts, the Federal Reserve aggressively acted from September 2007 to April 2008 to reduce the federal funds rate from 5.25% to 1.50%.

The Federal Reserve can also provide liquidity to member banks directly through discount window lending. The discount window is an instrument of monetary policy that allows eligible institutions to borrow money, usually on an overnight basis, to meet temporary shortages of liquidity caused by internal or external disruptions and helps promote stability of the payment system by supplying liquidity during times of systemic stress. In August 2007, the Federal Reserve extended the discount window lending term to a renewable term of as long as 30 days. In addition, the Federal Reserve slashed the discount rate from August 2007 to the present from 6.25% to 1.75%.

Although the discount window was designed to provide liquidity during a time of crisis, for a bank to use the discount window could be seen as a sign of weakness as it implied that market participants were unwilling to lend to the bank. This could be particularly damaging since a bank could be undermined by a run based on unfounded, but self-fulfilling fears. For example, confidence in the United Kingdom's Barclays Bank eroded when the bank borrowed 1.6 billion pounds on an overnight basis from the Bank of England due to what was announced as a technical glitch in the bank's computerized settlement network. Commercial banks in the U.S. avoided using the discount window whenever possible and instead sought short-term funding through the markets. Although there was plenty of liquidity in overnight markets covered by the Federal Reserve, there was a shortage of funds at one-, three-, and six-month maturities, causing interest rates for these securities to rise steeply. The standard tools of the Federal Reserve did not adequately address this problem.

New Programs to Inject Liquidity

In response to the liquidity shortage, the Federal Reserve developed three new programs. They were designed to provide liquidity in short-term markets without any stigma that might

erode confidence in any bank seeking funds. As in many existing programs, the Federal Reserve accepted a wide range of collateral for these loans, including certain mortgage-backed securities. Liquidity is injected into the system by allowing banks to temporarily swap illiquid mortgage-backed securities for highly liquid U.S. Treasury securities. Increased Federal Reserve lending has increased its balance sheet while the percent of U.S. Treasury securities composing the portfolio has decreased. While this transfers risk to the Federal Reserve, most analysts believe that this change in the asset base poses a minimal risk as the Federal Reserve has limited collateral to what are considered the safest mortgaged-backed collateral and have structured loans to decrease risk (such as requiring overcollateralization).

The first program was the Term Auction Facility (TAF), which allows any depository institution eligible for discount window lending to participate in a new source of liquidity for banks, and was created in December 2007. In addition to providing an alternative source for liquidity without the stigma associated with the discount window the TAF provides longer loan maturities (currently up to 84 days). The Federal Reserve sets the amount of reserves it wishes to lend out with the interest rate determined by the auction. Lending through the TAF has typically dwarfed the amount being loaned through the discount window though discount window lending has increased within the last month. For the three auctions held in September, the Federal Reserve provided \$150 billion of the \$214.43 billion in lending sought by 176 bids.

On March 16, 2008, the Federal Reserve announced a second program which provided direct lending for primary dealers through a structure similar to the discount window program for depository institutions. Primary dealers are the 17 large financial institutions who are current counterparties with which the Federal Reserve undertakes open market operations. This overnight lending is designed to providing financing to participants in the securitization markets. The Primary Dealer Credit Facility (PDCF) is seen by some analysts as a major departure from past policy as it is the first time that financial institutions that are not members of the Federal Reserve System (depository institutions) have been allowed to borrow directly from the Federal Reserve on a routine basis.

Finally, the Federal Reserve has allowed primary dealers to swap Treasuries of different maturities or attributes with the Federal Reserve on an overnight basis to help meet dealers' liquidity needs. In March 2008, the Federal Reserve expanded its securities lending program under the new Terms Securities Lending Facility. Under this program, the Federal Reserve will lend up to \$200 billion of U.S. Treasury securities to primary dealers for a term of 28 days and will accept as collateral other securities including federal agency debt, federal agency residential mortgage-backed securities, and non-agency mortgage-backed securities with AAA rating.

Efforts to provide liquidity are ongoing. On October 6, 2008 (while this report was being written), the Federal Reserve announced two additional actions designed to promote liquidity. First, the Federal Reserve began paying interest on deposit institutions' required and excess reserve accounts. This is expected to provide the Federal Reserve with greater scope to use its lending programs to address liquidity problems and allow it to maintain the federal funds rate closer to its established target. Second, the Federal Reserve substantially increased the size of TAF auctions. Each regular auction will be increased to \$150 billion each in addition to two

auctions that will be conducted in November to extend credit over year end. This expansion will increase the total potential maximum amount of TAF loans outstanding to \$900 billion.

Although these Federal Reserve programs have injected large amounts of liquidity in the market, this has not been sufficient. Earlier in 2008, major financial institutions have been threatened with insolvency, which cannot be cured with loans no matter how favorable the terms. This has required additional federal interventions as discussed below.

2008 Major Interventions

In addition to actions to increase liquidity the federal government has intervened in the collapse of three major institutions in 2008. In each case, a federal agency provided short-term financing for a large financial firm that was unable to receive financing from private financial institutions. These interventions have been in reaction to market developments and have been on a case-by-case basis.

These interventions have been directed by either the Federal Reserve or the U.S. Treasury. The Federal Reserve in two instances cited its general authority, which had not been used in about 70 years, to loan money in unusual and exigent circumstances provided five members of the Board of Governors of Federal Reserve agree. The U.S. Treasury, in its intervention in Freddie Mac and Fannie Mae, cited its authority granted under the Housing and Economic Recovery Act of 2008. The ultimate costs are uncertain because the assistance has taken different forms (such as direct monies, loan guarantees, lines of credit, and preferred stock purchases) and secured significant equity considerations for the federal government. In the Federal Reserve and U.S. Treasury's judgment, these actions were necessary because of concerns relating to the potential increased deterioration of financial markets. Critics have pointed out that these interventions may encourage more risk taking in the future.

Bear Stearns

Bear Stearns, once one of the largest global investment banks, was also a leader in the underwriting of mortgage bonds and had extensive exposure to losses related to the subprime mortgage market. In the summer of 2007, two of its hedge funds that invested heavily in CDOs were on the verge of collapse as investor and lender confidence was shaken after the announcement of substantial losses due to the deterioration in the subprime mortgage market. The hedge funds illustrated the appetite for leveraging at the firm, which at one point had \$11.1 billion in tangible equity capital supporting \$35 billion in assets. For example, the second of the hedge funds to fail (Bear Stearns High-Grade Structured Credit Enhanced Leveraged Fund) was funded with \$600 million in investments, mostly \$40 million of Bear Stearns funds, and \$6 million in bank and brokerage firm loans. In other words, Bears Stearns borrowed 14 times more than it invested in the fund. Because it was highly leveraged, Bear Stearns creditors were concerned that deteriorating market conditions could wipe out the firm's equity fairly quickly. Consequently, creditors denied it not only unsecured financing, but short-term secured financing.

As a result, Bear Stearns agreed to be acquired March 24, 2008, by JP Morgan Chase for \$2 a share (subsequently increased to \$10). Less than a year prior to the purchase, the firm's stock had sold for \$170 a share.

As part of the agreement, the Federal Reserve lent \$28.82 billion to a Delaware limited liability company (LLC) that it created to purchase financial securities (mostly mortgage-backed securities) from Bear Stearns. The renewable ten-year loan, with an interest rate equal to the prime credit rate, will be repaid by the LLC using funds raised by the sale of assets. JP Morgan also extended a \$1.15 billion subordinated note with an interest rate equal to 4.5% above the prime credit rate to the LLC. The ultimate cost to the Federal Reserve is unclear.

Fannie Mae and Freddie Mac

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are government sponsored entities (GSEs) (shareholder-owned corporations with government charters) that have played a critical role in supplying mortgage credit throughout the country. As part of Fannie Mae's conversion to a GSE, Congress created Freddie Mac to provide some level of competition and end the virtual monopoly in the secondary mortgage market.

Freddie and Fannie buy home mortgages from original lenders, repackage them as mortgage-backed securities that are either sold to investors or institutions or held in their own investment portfolios. The secondary mortgage market has expanded the availability and lowered the price of mortgages by eliminating the need for mortgage originators to keep loans on their own books and instead provides cash infusions that enable originators to make additional loans. The GSEs guarantee timely payment of principal and interest of the mortgages in their mortgage-backed securities. They became very large, owning or guaranteeing more than \$5 trillion in U.S. home loans, roughly half of the U.S. total.

Turmoil in the housing and credit market that began in 2007 put extreme financial pressure on the GSEs, which were leveraged versions of banks as they kept capital reserves close to the regulatory minimum. The value of their mortgage assets fell while the debt taken on to purchase those assets remained unchanged. Usual methods of raising capital, such as selling assets or using retained earnings were not available as selling additional assets would have further depressed the value of their assets and because both firms had not been profitable since 2006. In July 2008, both firms' share prices plunged sharply, and credit became increasingly difficult to obtain.

Federal auditors determined that the GSEs could not continue to operate safely and soundly and fulfill their critical public missions without significant action to address financial weaknesses. On September 7, 2008, the Federal Housing Finance Agency (FHFA) placed Fannie Mae and Freddie Mac into conservatorship, a form of bankruptcy.

The U.S. Treasury's plan to provide financing is accomplished through three funding mechanisms:

- Have the two GSEs sign contracts to issue new senior preferred stock to the U.S. Treasury, which has agreed to purchase up to \$100 billion of stock from each. If necessary, the U.S. Treasury agreed to contribute cash in the amount equal to the difference between each company's liabilities and assets. In return, the federal government received warrants to purchase common stock up to 79.9% of each company;
- Purchase GSE's mortgage-backed securities as needed to improve the availability and affordability of mortgage credit. There are no specific limitations to these purchases, but they are subject to the statutory limit on the federal government's debt.; and
- Create a GSE credit facility secured by mortgage backed securities pledged as collateral to provide liquidity if the companies have difficulty borrowing.

American International Group

American International Group, Inc. (AIG), one of the world's largest insurers with 116,000 employees worldwide and, at its peak, a market value of \$239 billion, provides a diverse range of insurance and financial services products through its subsidiaries. AIG found itself on the verge of bankruptcy because of mounting losses from investments made by its financial products division tied to subprime home mortgages and also from the insurance it provided to others who invested in mortgages (CDSs). AIG's notional CDS exposure was immense, \$441 billion in June including \$58 billion related to subprime mortgage securities which were generating huge mark-to-market losses. (Mark-to-market accounting requires that assets be valued at current market prices. The implication is that if the sales price of an asset declines rapidly, this is immediately reflected in the balance sheet.) An estimated \$307 billion of these contracts could be tied to ensuring the quality (and regulatory capital levels) of assets held by European and American banks. AIG's ability to raise cash was severely limited by its plummeting stock price, widening yields on its debt, and difficult capital market conditions in general. Its ability to meet commitments quickly deteriorated after credit-rating agencies downgraded the company. After the Federal Reserve's effort to broker private financing fell through, the Federal Reserve determined that a disorderly failure of AIG would "add to already significant levels of financial market fragility and lead to substantially higher borrowing costs, reduced household wealth and materially weaker economic performance."

On September 16, 2008, the Federal Reserve announced it had reached an agreement to stabilize AIG through a secured two-year line of credit with a value up to \$85 billion at an annual interest rate of about 11.5%. This full amount has now been drawn down, and the Federal Reserve has committed an additional \$37.8 billion in exchange for collateral. In return, the federal government received options to purchase up to 79.9% of equity in AIG and the right to remove senior management. The stabilization is designed to prevent further contagion and allow AIG time to dispose of toxic mortgage-based assets.

In announcing the takeover, the federal government appeared to draw a distinction between saving AIG and allowing Lehman Brothers, which also sought government intervention in September 2008, to fail. First, government officials and private firms had been developing

plans after Bear Stearns to contain the fallout should another major investment bank collapse. This was not possible with AIG given its sudden and unexpected collapse coupled with its sheer size and complexity as an insurance company, instead of an investment bank. Second, the impact of AIG's failure would likely have been greater as its commitments and obligations were greater in scale and reach. For example, its short-term debt is held by institutions all over the world, and its sudden collapse could have caused substantial losses that would further erode investor confidence in money-market mutual funds. Some analysts also believe that the federal government, after already being involved in rescuing Fannie Mae, Freddie Mac, and Bear Stearns, did not want to be perceived as bailing out every company that collapsed due to changing market conditions.

The Emergency Economic Stabilization Act of 2008

The Emergency Economic Stabilization Act of 2008 (EESA) grants new authorities to the U.S. Treasury in an effort to restore liquidity and stability to the financial system of the United States. The U.S. Treasury is granted broad authority to establish a Troubled Asset Relief Program (TARP) for the purpose of purchasing and insuring troubled assets. The Act also provides for a temporary increase in federal deposit insurance coverage. Also included in the Act are provisions not directly related to the current credit crisis. Many of these provisions modify or extend a number of expiring tax provisions, including the extension of relief from the alternative minimum tax for 2008.

Troubled Asset Relief Program

In response to illiquidity in credit markets and to guard against the insolvency of many financial institutions, the EESA grants broad authority to the U.S. Treasury to establish TARP to purchase, insure, hold, and sell a wide variety of financial instruments considered to be troubled assets. Troubled Assets are specified to include residential or commercial mortgages and any securities, obligations, or other instruments that are based on or related to mortgages issued on or before March 14, 2008. The definition of troubled assets may be expanded to include other financial instruments that the Secretary of the U.S. Treasury and the Chairman of the Federal Reserve System deem to be necessary to promote financial stability.

The U.S. Treasury is responsible for developing guidelines for the implementation of TARP and is required to consult with numerous federal agencies (Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Comptroller of the Currency, Director of the Office of Thrift Supervision, and Secretary of Housing and Urban Development) in exercising this authority. The authority granted under the Act is initially set to expire December 31, 2009, but may be extended. The Act authorizes \$700 billion for the purchase and insurance of troubled assets. This includes \$250 billion that is immediately authorized and provisions to increase this amount by \$100 billion if the President submits written notification to Congress, and by \$350 billion if the President submits a report detailing the use of the remaining \$350 billion.. This limit refers to the net exposure, the purchase price of all outstanding at any

one time. Cumulative purchases made by the U.S. Treasury may exceed this limit as assets acquired under this authority are sold.

The Act also enables the U.S. Treasury to establish a troubled asset insurance fund to provide insurance for troubled assets, including mortgage-backed securities. The U.S. Treasury may charge risk-based premiums to create reserves sufficient to meet anticipated claims, based on actuarial analysis. The \$700 billion limit would be reduced by the excess of obligations to net premiums, if any, under this insurance program.

To purchase troubled assets the U.S. Treasury is authorized to designate financial institutions as agents of the federal government and may hire asset managers to purchase, hold, and sell troubled assets, as directed by the Secretary of the U.S. Treasury. In purchasing troubled assets, the U.S. Treasury may make use of market mechanisms, such as auctions or reverse auctions or may purchase assets through direct negotiation with individual institutions. The Treasury is required consider the long-term viability of an institution in determining whether to directly purchase assets under TARP. All investments in TARP must include the following considerations:

- the interests of taxpayers;
- minimizing the impact on the national debt;
- providing stability to the financial markets;
- preserving home ownership;
- the needs of all financial institutions regardless of size or other characteristics; and
- the needs of local communities.

To ensure that taxpayers are able to recoup any net losses the government experiences on the TARP transactions, the President is required to submit a proposal to offset such costs after five years. The Act also includes provisions requiring financial institutions that receive assistance either grant the U.S. Treasury a warrant giving the right to receive common stock, preferred stock, or a senior debt instrument with a reasonable interest rate. In the event that these institutions liquidate, all warrants granted to the Treasury convert to Senior Debt and will be repaid prior to any other shareholders receiving payment.

The U.S. Treasury has already announced the first solicitation for financial agents to manage the purchase of troubled assets. This solicitation is for three investment categories:

- custodian, accounting, auction management, and other infrastructure services;
- securities asset management services; and

- whole loan asset management services. In addition to hiring asset managers the U.S. Treasury will likely hire bankers, lawyers, and accountants to manage the program.

To restore liquidity and ensure the solvency of major institutions, the Secretary of the U.S. Treasury has indicated that Treasury is considering an option similar to plans undertaken by the United Kingdom, Iceland, and Italy. The Treasury asserts that TARP gives the department the authority to provide a direct injection of capital into troubled banks. The capital injection would likely come by purchasing shares of stock from troubled companies. Providing cash infusions would improve the solvency of many firms and in turn encourage firms to resume inter-bank lending. The media reports that the Treasury is examining this option and action may be imminent.

In addition to providing assistance to financial institutions, TARP directs the U.S. Treasury to take steps to maximize assistance for homeowners. These steps include:

- encouraging the servicers of underlying mortgages to take advantage of the Hope for Homeowners Program under Section 257 of the National Housing Act;
- authorizing the U.S. Treasury to use loan guarantees and credit enhancements to facilitate loan modifications to prevent avoidable foreclosures. The U.S. Treasury may allow term extensions, rate reductions, principal write-downs, and other modifications;
- coordinating with the Federal Housing Finance Agency, the FDIC, the Federal Reserve board, and other federal entities that hold troubled assets to implement measures to reduce the number of foreclosures. These measures may include working with loan servicers to encourage loan modifications.

In an effort to curb excessive pay for executives at troubled financial institutions, the bill provides guidance on executive pay and corporate governance. For institutions that the U.S. Treasury buys assets directly, the institution must observe standards limiting incentives, allowing clawback and prohibiting golden parachutes to executives. When the Treasury buys assets at auction, an institution selling more than \$300 million in assets is subject to additional taxes, including a 20% excise tax on golden parachute payments triggered by events other than retirement, and tax deduction limits for compensation limits above \$500,000.

To ensure proper oversight, the Financial Stability Oversight Board is established to review and make recommendations on policies adopted under TARP. The Board is to ensure that policies implemented protect taxpayers, are in the economic interest of the United States, and are in accordance with the Act. The Act also creates a Congressional Oversight Panel to review the state of the financial markets, the regulatory system, and the use of authority granted under TARP. The panel must report to Congress every 30 days and publish a special report on regulatory reform prior to January 1, 2009. In addition to these reports, the CBO and OMB must report cost estimates and related information to Congress and the President, and these cost estimates must be included in the President's annual budget submission to Congress.

Federal Deposit Insurance Corporation

The Federal Deposit Insurance Corporation (FDIC) is an independent agency of the United States government that protects against the loss of insured deposits if an FDIC-insured bank or savings association fails. The National Credit Union Share Insurance Fund assures the same protection against the loss of deposits at federal credit unions and other participating credit unions. Both insurance funds guarantee deposit accounts, including checking and savings accounts, money market deposit accounts, and certificates of deposit (CDs). The EESA increases the insurance limit for each owner from \$100,000 to \$250,000 per each bank or credit union.

Other Measures in the Act

In addition to establishing TARP and altering FDIC, the EESA includes other provisions not directly related to financial stability. The Energy Improvement and Extension Act of 2008 extends existing incentives and offers additional incentives for the production of energy from renewable resources, energy conservation, and transportation related conservation. These incentives include a tax credit of up to a \$7,500 tax credit for plug-in electric vehicles. Additionally, the Act also extends relief from the alternative minimum tax for 2008 and provides tax relief for areas of the country affected by severe storms earlier this year.

The Implications of the Recent Financial Crisis

The financial crisis has already affected the economy. This section examines the effects on the national economy, State economy, subprime housing market, and investors.

National Economic Impacts

Economists have identified four ways in which the subprime mortgage crisis and bursting of the housing bubble could negatively impact the broader economy: reduced housing investment; reduced consumer spending as household wealth declines; financial market contagion which can hamper business investment and consumer spending; and more negative consumer and business confidence about the future. Although the first two impacts will likely be a significant drag on the economy, the last two impacts could pose the most serious economic risk.

Reduced Housing Investment

Investment in residential housing increased the growth of the national economy from mid-2003 through 2005 with the peak impacts of a 0.5% annual increase in 2003 and 2004. As the housing market bubble burst, home sales and construction began to falter. Real residential investment has decreased by a little less than 40% or \$232 billion on a quarterly basis since its peak in the third quarter of 2005. The direct effect of this fall in residential investment reduced

real GDP growth by about 1% in 2007 and will continue to have a drag, though smaller in magnitude, on the national economy in 2008.

Reduction in Consumer Spending Wealth Effect

Economic theory suggests that consumption depends on current household income and wealth but also expectations of future income and wealth. Analysts generally agree that an increase in housing wealth due to higher real home prices permanently raises real consumer spending by an annual amount that is a fraction of the increase in housing wealth. Increased consumption will typically be spent over many years rather than immediately.

In spite of the general agreement that wealth affects spending, uncertainty exists about precisely how much spending changes when wealth changes and the impact of changes in housing wealth might be different from changes in financial wealth. For example, some economists believe that a decrease in housing wealth has a greater impact on consumption since housing wealth is more evenly spread than financial wealth. Most estimates of the wealth effect in the United States are within a range of 2 to 7 cents of extra spending annually per extra dollar of housing wealth. The increase in real home prices between mid-1997 and mid-2006 added an estimated \$6.5 trillion to consumer wealth and was estimated to increase consumer spending by an additional 1.4% to 5% annually, which is quite a broad range.

In addition to this permanent effect on consumption, a rise in home prices could have a temporary impact on consumer spending through the use of home equity loans, lines of credit, and cash out refinancing. Homeowners withdrew a net housing equity amount of \$735 billion in 2005 and \$564 billion in 2006.

The Congressional Budget Office recently estimated that a 10% decline in home prices would dampen the annual growth in real GDP through reduced consumption by between 0.4% and 1.4%. CBO also noted that the impact could be greater to the extent that consumers were basing current spending decisions on excessively optimistic expectations of future house appreciation, and a sharp slowdown in mortgage equity withdrawal had a significant adverse effect on consumption.

Contagion in Financial Markets

As previously discussed, problems in the subprime mortgage have led to a contraction in other credit markets including the broader mortgage market, commercial paper, and consumer lending. This contraction can include inadequate supply due to investor and lending retrenchment as well as the inability to acquire credit as banks tighten lending standards or acquiring credit on more unfavorable terms including shorter maturities and higher interest rates.

The most recent Federal Reserve Survey on bank lending practices show that a majority of banks reported having tightened their lending standards and terms on all major loan categories over the previous three months. In addition, a majority of banks expect to tighten credit standards on all major loan categories in the second half of this year; and smaller, though

substantial, net fractions of respondents expected their banks to tighten standards in the first half of 2009. For example, 60% of domestic banks have tightened lending standards on commercial and industrial loans to large and middle-market firms over the past three months (65% for loans to small firms), and 80% of banks have increased the interest rates charged to large- and middle-market firms (70% for small firms). Banks have also reported tightening standards and increasing interest rates charged on a wide array of consumer loans. Some analysts have determined that tightening lending standards will cause a decrease in investment that will manifest itself most prominently in three quarters, which in this case would be summer 2010.

Banks have an important role in the efficient allocation of capital. In particular, they serve as intermediaries between people with income they want to save and those who have profitable investment projects but need to borrow to invest. When banks become insolvent or nearly so, they are less able to serve this function. Financing constraints become more prevalent leading to the forgoing of profitable investment products and reduced production and employment. Although investment makes up a relatively small portion of GDP, it is the most volatile component. When expenditure on goods and services falls during a recession, much of the decline is due to a drop in investment spending. For example, during the U.S. recession of 1982, investment spending fell \$152 billion in the U.S., accounting for more than the entire fall in real GDP (\$105 billion).

Another example of tightening credit is commercial paper, which is a common source of short-term financing for firms with high-quality debt. The commercial paper market has been under considerable strain in recent weeks as money market mutual funds and other investors, themselves often facing liquidity pressures, have become increasingly reluctant to purchase commercial paper, especially at longer-dated maturities. As a result, the volume of outstanding commercial paper has shrunk, interest rates on longer-term commercial paper have increased significantly, and an increasingly high percentage of outstanding paper must now be refinanced each day. A large share of outstanding commercial paper is issued or sponsored by financial intermediaries, and their difficulties placing commercial paper have made it more difficult for those intermediaries to play their vital role in meeting the credit needs of businesses and households. The volume of total commercial paper outstanding tumbled \$94.4 billion, the largest decline on record, in the week ending October 1, 2008. This decrease was primarily focused on banks and insurers, as financial paper accounted for two-thirds of the decrease. Nonfinancial commercial paper, used by firms to finance receivables, inventory, and payroll, fell by the largest amount in a decade in the week ending September 17, 2008, but has recently stabilized.

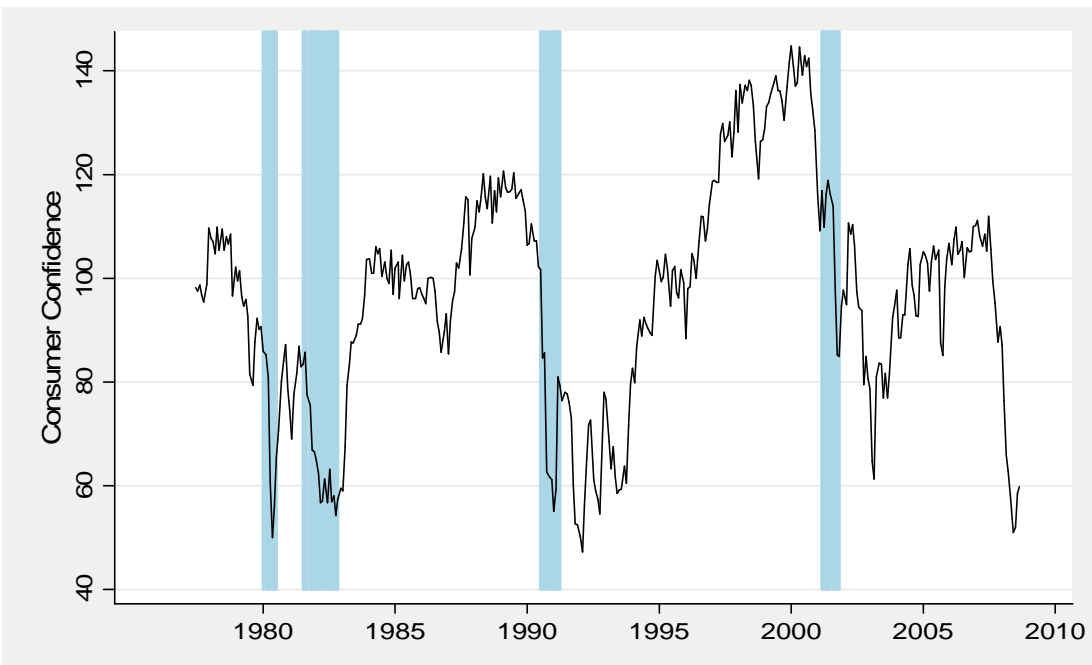
Maryland businesses and consumers face higher cost of borrowing, more unfavorable terms, and inability to acquire credit. This impact will not be restricted to those with exposure to the subprime mortgage market and those with poor credit histories.

Erosion of Consumer and Business Confidence

As mentioned previously, expectations about future income and wealth are one the major determinants of current consumer consumptions. Consumption comprises about two-thirds of

the U.S. economy. Diminishing expectations by consumers and businesses, which are represented in various surveys, is typically a signal that an economy-wide slowing is impending. Consumer spending on discretionary items and durables such as appliances and automobiles are thought to be particularly sensitive to consumer sentiment. **Exhibit 1** illustrates the monthly change in consumer confidence since 1977 and how confidence has changed during the last four recessions.

Exhibit 1
U.S. Consumer Confidence and Recessions
June 1977 - September 2008



Sources: U.S. Conference Board, National Bureau of Economic Research

Consumer confidence deteriorated rapidly beginning in August 2007 and is now at a level consistent with previous recessions. Although it rebounded slightly in September, this does not reflect the credit crisis and recent sharp decreases in financial assets that are likely to keep consumer confidence from rising further.

Businesses have also shown a similar erosion of confidence within the last year and in particular the last few weeks. The financial crisis has also undermined global business confidence in a manner that some analysts assert is consistent with a global recession. Businesses in the United States are most pessimistic as reflected by very few believing that conditions will improve in next six months and very soft hiring intentions. Eroding business confidence will likely depress employment and wage growth as well as investments in software

and equipment. A global recession resulting from the financial crisis would dampen economic growth further by decreasing demand for exports which had been fueling economic growth as of late.

Impact on the Maryland Economy and State Government

Falling home prices and a deceleration in the growth in housing stock will have several direct impacts on Maryland workers and investors in the construction, financial, real estate, and related industries. A drop in the demand for housing coupled with subprime losses has led to business failures and reduced earnings for companies which will in turn depress wage and salary growth in these industries.

Although Maryland's economy is less dependent on the finance and construction industries than other states; real estate, finance and insurance, and construction industry wages comprise about one-fifth of all wages paid in Maryland. The construction industry, the largest of the three, employs about 188,000 Marylanders. Output in the industry has contracted by about 20% through the end of 2007. So far, job losses as reflected in official statistics have been modest, about 1,200 or less than 1% year-to-date. However, the data might be revised to reflect greater losses and growth in the near-term will be anemic or more likely negative. That construction earnings have contracted by about 4% from their peak suggests greater job loss than currently reflected. Job losses in the finance industry have been more pronounced. Credit intermediation jobs have decreased by about 5,000 from peak 2006 employment levels. Though job losses within these industries are substantial and will hurt many individuals, they are relatively small to the size of the Maryland labor force. More jobs are expected to be lost as a result of financial crisis' impact on the broader economy.

Losses in the job market, slowing individual and business income growth, coupled with reduced consumer and business sentiment should negatively impact many of the State's revenues. More modest income growth and a slowing economy is expected to dampen corporate and business revenues and profits leading to a reduction in corporate and personal income taxes as well as business-related taxes such as franchise taxes and filing fees. Banks have become an increasingly important source of corporate income taxes. The net operating income of Maryland-based banks under the aegis of the FDIC decreased from \$1.36 billion in calendar 2006 to \$835.8 million in calendar 2007 and plunged in the first half of calendar 2008 to \$144.5 million. Job losses, slower wage and salary growth, and falling capital gains realized from both home sales and equities will further dampen personal income tax revenues. Capital gains are an important, but volatile, source of personal income tax revenues. Total capital gains decreased by about one-half in tax year 2001 and by about one-third in 2002 then increased in 2003 and 2004 by 41% and 72%, respectively. State and local tax revenues generated from capital gains from non-business sales of residential real estate was \$125 million lower in tax year 2007 compared to two years ago.

While falling home values depress property assessments, property tax revenues are unlikely to be affected much in the near term because collections are mitigated through the combination of phased-in assessments and assessment caps (such as the Homestead Tax Credit).

A more immediate effect will result from the decrease in home sales, which will also affect State transfer tax revenue receipts. For example, actual collections declined from \$270 million in fiscal 2006 to \$153 million in fiscal 2008. Local government tax revenues will also suffer from weak local income tax revenues, decreased recordation and local transfer taxes and more minor revenues sources including the hotel and motel and admissions and amusement taxes.

Consumption-based tax collections will also be negatively impacted. About two-thirds of sales tax revenues are from consumer spending which will be negatively impacted from slower income growth resulting from slower wage and investment income, decreased financial and housing wealth, decreased consumer confidence, and decreases in credit-sensitive durables. Sales tax revenues will also decrease due to a decrease in construction and capital goods related purchases. Consumption reductions will likely be largest on big-ticket items that can be delayed as well as more discretionary items and products that are impacted by both the slowing economy and financial crisis. For example, tightening credit, reduced consumer confidence, rising fuel prices, and a reduction in the ability to tap home equity have combined to reduce the total number of vehicles sold and turned consumer taste away from more expensive vehicles. New automobile sales in the State are at a ten-year low while titling tax revenues have seen a real reduction of \$169 million since from fiscal 2004 despite an increase in the titling tax that was in effect for half of fiscal 2008. Retail and food service sales increased by about 2% in the first half of 2007 compared with the first half of 2008. Sales by businesses that are impacted by the housing market and more sensitive to a drop in consumer sentiment are under additional pressures. For example, sales at home furnishing stores decreased in the first half of 2008 by nearly 7%.

A slowing economy will also impact State expenditures through increased outlays related to income-sensitive programs such as Medicaid and Temporary Cash Assistance (TCA). TCA caseloads have already increased and a deficiency is projected for fiscal 2009. The department will be reviewing the impact of a slowing economy as a part of the annual budget review process for the Spending Affordability Committee.

The State economy, which grew sluggishly in 2007, appears to have begun to contract this summer. Most signs indicate that the impact of the financial crisis on the State will be worse before it is better as reflected in the State's economy and government finances. This is addressed in the department's briefing for the Spending Affordability Committee.

Finally, the liquidity crisis is affecting bond markets. The State regularly issues bonds to support capital projects. These bonds include General Obligation bonds, which support education, public safety, and other projects, as well as transportation bonds, which support highway, transit, and other transportation projects. Since the liquidity crisis began, the interest rates paid by State and municipal governments has increased. The Delphis Hanover Corporation reports that the cost of AAA-rated 10-year bonds yields increased from 3.67% on September 12 to 4.15% on October 3. Many issuers are canceling bond sales. From September 2007 to September 2008, the total value of new State and local bond issuances declined 39%, and the number of sales declined by 34% (according to Thomson Reuters). By the time Maryland sells its next GO bonds in February or March 2009, the credit crisis will probably be over. However,

this financial crisis has reduced the number of investment banks, so market conditions may be quite different at the next bond sale.

Maryland Subprime Mortgage Market

Data from the New York Federal Reserve indicate that there were 59,200 subprime mortgages in Maryland in August 2008. **Exhibit 2** shows that by most measures Maryland subprime mortgages are slightly more risky and are currently experiencing higher rates of delinquency. A little more than one-quarter of Maryland subprime mortgages are considered high risk loans where the borrower has a low credit score (FICO) and had a low or no down payment (high loan-to-value).

Exhibit 2 Maryland and U.S. Subprime Loan Characteristics August 2008

	<u>MD</u>	<u>U.S.</u>
Total Subprime Loans	59,200	2,919,600
Loan Types		
Interest Only	13.8%	11.5%
High LTV/Low FICO	26.2%	24.6%
Low/No Documentation	32.0%	32.9%
Pre-payment Penalty at Origination	25.9%	66.2%
Loan Delinquencies		
Current	55.6%	57.3%
30-89 Days Late	17.5%	15.5%
90+ Days Late	12.3%	9.7%
In Foreclosure or REO	14.6%	17.6%
Adjustable Rate Mortgages		
Percent of All Subprime Loans	66.5%	62.9%
Already Reset	46.4%	59.9%
Resetting next 12 months	36.4%	30.5%

Source: FirstAmerican CoreLogic, accessed from New York Federal Reserve

Statewide, 1.7% of all mortgage loans were in foreclosure at the end of the second quarter of 2008. About 8,650, or almost 15%, of all Maryland subprime mortgages are in foreclosure or the lender has taken legal title of the property. Additional foreclosures are likely as 90-day delinquencies remain high. The percent of subprime mortgages that are current has decreased by 7.5% to a little more than one-half. Approximately 46% of Adjustable Rate Mortgages (ARM) has already reset to a higher interest rate (which will increase payments) and another 36% will reset in the next 12 months increasing monthly payments.

About three quarters of the total foreclosure events (20,000) in the first half of 2008 have occurred in the State's five most populous jurisdictions of Prince George's County (about one-third), Montgomery County (15%), Baltimore City (13%), Baltimore County (8%) and Anne Arundel County (7.5%). Foreclosure rates are highest in Prince George's, Charles, Frederick, and Calvert counties and Baltimore City. On a positive note, refinancing will be facilitated as significantly fewer Maryland subprime mortgages (12.4%) currently have a pre-payment penalty in force compared to the national average (28.3%).

Effect on Investors

Recent financial turmoil has affected more than just the value of homes. Most economic indices and assets have suffered. As a consequence, the portfolios of most individual investors have declined. The most commonly used measure of stock values is the Dow Jones Industrial Average (referred to as the Dow). Partly in response to the recent turmoil, this index declined 18.1% from August 29, 2008, to October 7, 2008. Investors that had invested in a portfolio that mimics the Dow would have had that portfolio lose 18.1% of its value.

One recent trend is workers' increasing reliance on defined-contribution (such as 401(k) plans) pension plans instead of defined-benefit plans to support their retirement. This increasing use of defined-contribution plans transfers the risk associated with changes in asset values from the organization sponsoring the plan to the individual investing in the defined contribution plan. An example of such a plan is the State's Supplemental Retirement Plan (MSRP). Most State employees investing in this plan have seen the value of their investments decline in the last month. The MSRP advises that approximately 45% of these investments are in balanced, bond, or money market funds, instead of stocks. Using losses in the Dow as a basis, DLS reckons that MSRP investments declined 7.7% from August 29 to October 7.¹ The MSRP advises that investments declined 12% from December 31, 2007, to September 30, 2008.

¹ From December 31, 2007, to June 30, 2008, the Dow lost 15.4% of its value while MSRP assets 6.6% of their value. If this relationship holds, then MSRP losses are approximately 42.8% of Dow losses. Insofar as the Dow lost 18.1% of its value from August 29 to October 7, a corresponding loss to MSRP assets would be 7.7%

Conclusion

The financial crisis appears to be both broad and deep. The crisis has affected not just major financial institutions, some of which are bankrupt (Lehman Brothers), have been taken over by the government (AIG), or merged (Merrill Lynch) but also the broader economy, which has experienced a decline in almost all measures. At this point it is unclear how long the crisis will last and what further actions will be taken to end the crisis. To date the federal government has provided liquidity through its traditional open market operations as well as new auction programs. The federal government has also taken over bankrupt private institutions to prevent further declines in asset values. The U.S. Congress has also passed legislation that allows the U.S. Treasury to purchase and ensure financial assets. Media reports suggest that the U.S. Treasury may purchase equity shares in banks. If the crisis continues, additional action may be taken. At this point it is unclear how or when this will end.