

Testimony of

Joseph R. Mason  
Associate Professor  
Drexel University

To the Subcommittee on Capital Markets, Insurance, and Government Sponsored  
Enterprises, Committee on Financial Services  
United States House of Representatives

Hearing on the Role of Credit Rating Agencies in the Structured Finance Market

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Mr. Chairman, Ranking Member Pryce and members of the Committee, thank you for the opportunity to be here today. I am pleased to appear before you to discuss the role of credit rating agencies in the structured finance market. I will also discuss some possible legislative options for addressing these concerns.

I am Joseph Mason, an Associate Professor of Finance at Drexel University and Senior Fellow, the Wharton School, and these are my personal views. Before joining Drexel University, I spent three years at the Office of the Comptroller of the Currency studying structured finance, and have since advised bank and securities market regulators as well as many industry groups on the press on recent difficulties with structured finance. I am also an expert in the economic dynamics of financial panics and crises, of which the most recent market difficulties are a shining example.

Many are tempted to characterize the current market conditions as a bursting of a classic asset bubble. The central question, however, is not that of whether recent market conditions were a bubble, but why markets are in their current state of turmoil despite very favorable Federal Reserve rate cuts and a variety of other measures.

The answer lies in the branch of economics having to do with how investors react to information differences. The foundation of this branch of research lies in the work of 2001 Nobel Laureate George A. Akerlof. The problem introduced by Akerlof is, very simply, that some people may know something that others do not. As a result, those that do not know (or think they do not know) may impose a discount on information coming from others. Akerlof introduced the idea with the example of buying a used car. The

buyer is prone to discount information about the quality of the car, and therefore the seller will not be able to sell the car for its true worth. The difference between the price paid and price the car is really worth (if the buyer knew the truth about the car) is the “lemons discount.”

Lemons discounts are common in credit markets. When something happens in markets or the economy that demonstrates an increase to the amount of information that is unknown, i.e., an asset price shock, it is rational for market participants to raise the standard lemons discount. If market participants only know that there has been shock to asset values, but cannot discern which banks or investment funds are principally affected, they rationally apply the higher lemons discount to all banks and investment funds indiscriminately. If lemons discounts rise significantly, the price differences that result may cause liquidity problems. If they rise further, the price differences may become so large that markets may cease to function altogether.

Market participants recently discovered that someone else knew a lot more than they did. Investors, therefore, rationally apply the higher lemons discount to all banks and investment funds indiscriminately. Hence, investors need more information about the value and the holdings of structured products. No Fed funds rate cut, increased agency mortgage limit, FHA program, or even (as in the UK) blanket deposit insurance coverage, will resolve that information problem. Rather, the solution lies in changes to the manner in which information about structured finance investments is gathered by accountants and regulators and disseminated to market participants by ratings agencies and markets. Today’s hearings on the role of credit rating agencies are a good start in gathering information that can be used to make meaningful improvements to market transparency and liquidity that will reduce information problems that cause financial crises.

## **1. Understanding how Conflicts of Interest in NRSROs Contribute to Information Differences**

NRSROs have replied to recent downgrades on residential mortgage backed securities (RMBS) and collateralized debt obligations (CDOs) and subsequent hedge fund failures and market turmoil by maintaining that accurately accounting for risk is not their job and that they are protected by the right of free speech. They point to disclaimers in their ratings that make it clear that they are paid by the companies they rate and that ratings are statements of opinion, not recommendations.

Clearly there is conflict of interest in arrangements where credit NRSROs are paid by those they rate. Savvy investors should know better than to invest only on the basis of a rating, but such admonitions ring hollow. NRSROs do more than opine; they play an active role in structuring RMBS and CDOs. They also serve as key sources of information about securitization performance and often enumerate measures that issuers must take to maintain ratings in troubled securitizations.

More importantly, unlike typical market actors, NRSROs are more likely to be insulated from the standard market penalty for being wrong, namely the loss of business. The fact

is, issuers *must* have ratings, even if investors do not find them very accurate. That fact reflects the unique power that the government has conferred on NRSROs to act as regulators, not mere opinion providers. Portfolio regulations for banks, insurance companies and pension funds set minimum ratings on debts these intermediaries are permitted to purchase.

Giving NRSROs more power actually reduces the value of their ratings by creating a strong incentive for grade inflation and making the meaning of ratings harder to discern. Regulated investors encourage NRSROs to understate risk so that the menu of high-yielding securities available to them is larger. The regulatory use of ratings thus has changed the constituency demanding a rating from free-market investors interested in a conservative opinion to regulated investors looking for an inflated one.

Grade inflation has been concentrated particularly in structured finance products, where the demand is especially driven by regulated intermediaries. In 1994, economists Richard Cantor and Frank Packer, then of the New York Fed, pointed out that grade inflation was occurring and that it was driven by the least reputable NRSROs. In fact, those agencies were already pushing more heavily into structured finance than Moody's and Standard & Poor's, rating deals that the two main agencies did not. Moody's and S&P eventually joined the others in what turned out to be a lucrative product area, which now accounts for roughly half of NRSROs' fees.

Although there is evidence that Moody's and S&P remain relatively conservative when rating structured products, it is clear that even Moody's has allowed its ratings scale for securitized products to become inflated. Bloomberg Markets reported in July that: "Corporate bonds rated Baa, the lowest Moody's investment grade rating, had an average 2.2 per cent default rate over five-year periods from 1983 to 2005, according to Moody's. From 1993 to 2005, CDOs with the same Baa grade suffered five-year default rates of 24 per cent, Moody's found." In other words, long before the current crisis, Moody's was aware that its Baa CDO securities were 10 times as risky as its Baa corporate bonds.

While not structured finance, municipal bonds face a similar effect. According to Moody's 2007 study on the differences between the ratings scales, a state general obligation bond rated A1 by Moody's is really equivalent to a Aaa-rated investment on Moody's "Global Scale," which equates to a five-year Baa default rate of 0.097%, or about 1/250<sup>th</sup> that of CDOs.<sup>1</sup>

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1. Christine Richard and Darrell Preston, *Bond Insurance Charade Costs U.S. Taxpayers \$2.5 Billion a Year*, BLOOMBERG NEWS, Oct. 5, 2006. The result of the penalty is that municipal bond issues are often required to buy bond insurance they do not need, since they are already equivalent to the highest-rated corporate or global equivalents. Furthermore, bond insurance does little to help pay out on bonds that receive the full faith and credit backing of the state government. As a result, some states bail out bonds even when they have paid dearly for bond insurance to cover just that eventuality. Right now, money is being diverted from school districts in Texas because the state officials are reluctant to collect on insurance purchased from MBIA at a price of \$11 million to date. In Louisiana, Treasurer John Neely Kennedy wrote Governor Kathleen Blanco a letter after Hurricane Katrina saying the state couldn't let any of its borrowers default and wouldn't take money from insurers, because either could lower the state's (artificially deflated and overly sensitive) credit rating.

Given the different and shifting meanings of Baa and other ratings as measures of risk, and given the high rate of financial innovation and the lack of transparency inherent in multi-layered structured finance deals, it is not surprising that investors underestimated risks so badly leading up to the recent crisis. The situation is bound to get worse when ratings also set the standard for acceptable investments by banks who do not build their own internal credit rating model under the soon-to-be-implemented Basel II standards.

The solution is for regulators to reclaim the regulatory power that has been transferred to NRSROs. One drastic solution is to reform existing regulations to avoid the use of letter grades in setting standards for permissible investments by regulated institutions. In the absence of letter grades, banks and their regulators would look at the underlying risks of investments, not ratings. Such a solution, however, has been largely dismissed as overly complex and expensive.

A more reasonable solution is to apply soon-to-be-implemented Basel II internal ratings-based (IRB) surveillance standards beyond banks, to credit rating agencies. Such a solution makes sense because the default risk measurement standard for banks that do not develop their own IRB models (that is, most banks in the U.S.) is the NRSROs. But the NRSRO models are not subject to the same surveillance and supervision as the bank internal models. It makes perfect sense, therefore, to apply the same supervision to the credit rating agency models that will be awarded further regulatory responsibility (and value) through Basel II implementation. Bank supervisors, through extensive Basel II negotiations, have already devised means and standards for supervising internal bank credit models to allow the largest banks to develop their own risk-grading capabilities in-house and have ready capabilities to extend surveillance to NRSRO models immediately.

## **2. The Timeliness of Recent Decisions by NRSROs to Downgrade Ratings of Many Residential Mortgage-backed Securities and Collateralized Debt Obligations in the Wake of the Recent Credit Crunch**

Recent NRSRO downgrade decisions were late because the present ratings system only rates bonds for regulatory purposes, not investors. Hence, NRSROs set ratings initially in order to meet regulatory ratings cutoffs and rarely review their work thereafter. Where models are changed as a result of ratings “mistakes,” the models are only applied prospectively, not retrospectively. NRSROs sell tools to investors to evaluate credit risk in rated deals after origination, and therefore effectively profit from selling one product to arbitrage regulatory requirements and another product to sort out the difference.

NRSROs initially misrated structured finance deals because their models are constructed for corporate obligations, not structured finance. Residential mortgage-backed securities (for instance) are constructed on the basis of static pools of new mortgages that only demonstrate their performance over time (a process known as seasoning). It is, therefore, difficult – if not statistically impossible – to statistically predict mortgage pool performance at deal inception. Only after a pool is adequately seasoned (roughly two years) does the pool contain sufficient history to support statistical analysis that can be

used to predict performance in a manner the leads to stable ratings. It is not surprising, therefore, that many recent downgrades were applied to pools constructed from 2005 and 2006 vintages.

Indeed, when S&P analysts were asked in a conference call regarding the downgrades why the securities had not been downgraded earlier, they replied, because, "...it takes time for the deals to demonstrate their performance."<sup>2</sup> The question, then, becomes how the deals were rated in the first place and why they were not monitored more closely for rating stability.

While there cannot be more data at the beginning of the deal, it is possible (nay, crucial) to systematically refresh ratings early in the life of a structured finance deal using the rich data set contained in the monthly servicer's report. There is no need for a similar function for standard corporate bonds.

Of course, because of the conflicts of interest outlined above, it must again be realized that the NRSROs were pressed to produce ratings for the structured products only at issue. NRSROs are not paid to review their work for purposes of rerating or for purposes of applying new risk modeling procedures in the event of widespread mistakes. Rather, they make money doing so through selling investor products that allow investors to estimate those effects, themselves. As discussed further below, while NRSROs issue criteria for initially rating securities, they do not issue criteria for reviewing and rerating securities.

### **3. Other Issues: Reaging and Modification in Structured Finance Arrangements**

Without monitoring during the life of a structured finance deal, the pool can manipulate the borrowers to maintain cash flows to investors. While those manipulations work in the short term, they mask a potential fraud on borrowers and investors alike.

The source of those manipulations is reaging policy, which has historically been a problem in the banking sector. Since subprime mortgage lending has now moved substantially outside the banking sector, however, the problem has spread industry-wide. Reaging policy has to do with when it is prudent to consider a once-delinquent borrower current again. Reaging is problematic because a lender that requires three consecutive on-time payments in order to reclassify borrowers as current will carry a lot more delinquencies on its books than a lender that requires only one on-time payment in order to reclassify borrowers as current. Modification policies can help pull delinquencies down even further by assisting the borrower in making that one on-time payment. Hence, it is not surprising that reaging policy remains of great concern to investors throughout the mortgage industry, including mortgage lenders, servicers, and MBS.

In their reluctance to adequately monitor structured finance ratings, therefore, NRSROs have been complicit in allowing pools to use practices that can potentially harm consumers to manipulate cash flows on behalf of RMBS investors.

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2. CONFERENCE CALL, Standard & Poor's, Jul. 10, 2007, at 00:22:20.

#### **4. Reviewing the Role of the Nationally Recognized Statistical Rating Organizations in Developing New Debt Products**

While the NRSROs do not play a formal role in the development of new debt products, in structured finance the integrity of the financial engineering plays a crucial role in establishing the credit risk of the investment securities issued by the securitizing trust. I have repeatedly asserted, therefore, that the current crisis is one of financial engineering, rather than subprime loans. Let me explain.

Structured finance can be used to fund a variety of different collateral of varying levels of risk. Higher-risk collateral will simply require security structures with a higher volume of risky investment securities (non-investment grade bonds and equity). Through the development of securitization markets, therefore, I have witnessed deal structures with as little as roughly one percent or less of risky investment securities in the structure (for instance, prime, conforming, mortgages with government-sponsored credit insurance) and deal structures with as much as roughly sixty percent risky investment securities in the structure (for instance, charged-off credit card receivables). The point is that the amount of risky investment securities in the funding structure varies directly with the risk of the underlying collateral.

Other features of the funding structure vary with characteristics of the underlying collateral, as well. Underlying collateral types that are very homogenous and have a long history in credit markets (for instance, prime, conforming, fixed-rate, 30-year mortgages, at less than 80% LTV or with government guarantees) present a great deal of data that can be used to infer performance. Other collateral types that are very heterogeneous and/or do not have a long history of demonstrated performance (for instance, credit cards or subprime mortgages) are more difficult to analyze. Statistically, that difficulty translates into greater error in performance forecasts.

Because of the greater statistical error, collateral types that are very heterogeneous and/or do not have a long history of demonstrated performance cannot be expected to allow as fine a “slicing and dicing” of risk as collateral types that are very homogenous and have a long history in credit markets. When new collateral types are securitized, therefore, they are typically limited to simple funding structures. Even mortgages, when first securitized, relied upon simple pass-through structures with a single class of securities. The same is true in credit card and automobile loan markets.

As financial engineers become familiar statistically with new collateral types, deal structures can become more complex. For instance, as more became known statistically about mortgage performance, mortgage-backed securities evolved with more tranches that paid investors in a waterfall, and then, later, included sophisticated elements like interest-only and principal-only strips and planned amortization class (PAC) bonds.

But there are limits to deal complexity. Mortgages are a special case, in that the types of mortgages that supported the most complex structures were historically those very

homogenous prime, conforming, fixed-rate, 30-year mortgages, at less than 80% LTV or with government guarantees. Credit cards and automobile loan securitizations did not develop as much complexity as mortgages, primarily due to the riskier nature of the collateral and the more diverse kinds of loans.

While credit cards and automobile loans can be securitized with as little as five to ten percent of risky investment securities in the structure, compared to as little as one percent or less for prime, conforming, mortgages, the heterogeneity and risk limited the degree to which credit cards and automobile loans could support the more sophisticated deal structures. Hence, even today, credit cards and automobile loans limit themselves to just a few waterfall tranches, while prime conforming mortgages can utilize up to fifty waterfall tranches and very sophisticated elements like interest-only and principal-only strips and planned amortization class (PAC) bonds.

Home equity loan securitization structures were similarly constrained in the late 1990s. At some time following the subprime home equity loan crisis in the late 1990s and early 2000s, when subprime first lien mortgages gained popularity, home equity loan trusts started to include newer subprime first lien loans and substantially increase complexity of the array of securities used to fund the deal. Now, it is common for the “home equity” class of collateral to include subprime first lien mortgages of types ranging from fixed-rate 30-year mortgages to interest-only ARMs and everything in between (hence the quotes around the latter reference to the “home equity” collateral type for the latter period). Hence, the newer “home equity” deals had a great deal more collateral heterogeneity and a great deal less historical performance that rating agencies could use to estimate statistical performance.

The NRSROs, however, overlooked the crucial – and well-known – characteristics of collateral risk and heterogeneity and the need for a solid base of historical performance statistics and continued to support the rapidly growing sector by rating complex (and lucrative) security structures as if the collateral were typical prime conforming mortgages. Furthermore, since each security is quoted and reported independent of the rest of the securities in the structure, it was difficult for investors to see the complexity building over time.

The point is that new and complex debt products need simple funding structures, but the NRSROs simply rated the new instruments like old corporate debt. The next section shows, even worse, that while the NRSROs sold tools to investors to adjust for the risk of the new products, they did not adjust their ratings models to account for that same risk until very recently.

## **5. The Transparency and Consistency of NRSRO Criteria for Evaluating Structured Products**

While the statistical techniques used by the NRSROs are transparent, the ratings criteria (the variables incorporated into the statistical techniques) are not disclosed up to a level of replicability. Without disclosure, even to a regulatory authority, NRSRO models are

black boxes. Hence, it came as a surprise when Moody's revealed that their ratings models lacked many key variables needed to properly evaluate non-prime loan products.

In one of the more striking recent reports, Moody's commented in that "the data fields essential for running the model were established when the model was first introduced in 2002. Since then, the mortgage market has evolved considerably, with the introduction of many new products and an expansion of risks associated with them."<sup>3</sup>

The report characterized the need for additional data as broken into three categories: Primary; Highly Desirable; and Desirable. Of "Primary" importance to Moody's was an indicator that a loan was an option ARM, meaning that as of April 2007 Moody's had not been gathering data on one of the key risky subprime loan products that led to recent market difficulties.

The NRSROs do not seem to demonstrate a responsibility toward maintaining timely relevance in their ratings function. Moody's Investor Service, Code of Professional Conduct 6 (June 2005), stipulates that "Moody's has no obligation to perform, and does not perform, due diligence with respect to the accuracy of information it receives or obtains in connection with the rating process. Moody's does not independently verify any such information. Nor does Moody's audit or otherwise undertake to determine that such information is complete. Thus, in assigning a Credit Rating, Moody's is in no way providing a guarantee or any kind of assurance with regard to the accuracy, timeliness, or completeness of factual information reflected, or contained, in the Credit Rating or any related Moody's publication."

Similarly, "Fitch shall have no obligation to verify or audit any information provided to it from any source or to conduct any investigation or review, or to take any other action, to obtain any information that the issuer has not otherwise provided to Fitch." Given NRSRO's importance to regulating risk in pension funds and banks, it is surprising that agencies are not expected to seek out more information than provided to them by issuers or to verify even the non-financial data provided them by issuers.

Ratings models also rely crucially upon key assumptions about economic growth and other baseline factors. Rarely are those key assumptions revealed, save for occasions on which NRSRO officials are directly and repeatedly queried for such inputs. Moody's only stipulates that, "generally, in absence of key information, assumptions are utilized." Given that ratings entail expected default, those assumptions are, by necessity, forward-looking. As such, ratings should change with expectations, not past demonstrated history. Furthermore, given that the NRSROs are examining downside risk the NRSROs would be expected to err on the conservative side.

It is unclear, however, how conservative NRSRO assumptions are in practice. Discussions with NRSRO employees occasionally reveal tantalizing insights into the model inputs and assumptions. For example, on a April 2007 webcast and conference call

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3. Moody's, REVISED US MORTGAGE LOAN-BY-LOAN DATA FIELDS, Apr. 3, 2007.

titled “Subprime Mortgage Distress Effect on CDOs,”<sup>4</sup> Fitch staff were asked about the home price assumptions they are assuming. After several related questions, a Fitch respondent stated that they assumed a mid-single digit home price appreciation. This is in stark contrast to Fitch’s own fourth-quarter median home price data for 2005 and 2006 which “...confirms a national home price correction has been under way, with the U.S. median home prices down 2.7%.”<sup>5</sup> Hence, Fitch appears to have been using very aggressive growth assumptions in their ratings models while their own research suggested markets had already turned.

Rating methods for CDOs containing structured finance products compound the previous errors. Furthermore, most CDO rating models have until recently assumed zero correlation across CDO asset classes, which is obviously unrealistic when a CDO contains a preponderance of exposures to a single sector, like subprime mortgages.

While initial rating criteria are disclosed to the extent discussed above, no NRSRO has issued criteria for reviewing and rerating securities. The NRSROs sell tools used by investors to evaluate loans on the basis of information lacking from the NRSRO ratings models and adjust for the lack of ratings actions, but NRSROs do not seem to use those tools to review and rerate securities, themselves.

## **6. Assessing the Credit Quality of Complex Financial Instruments**

In discussing how well NRSROs assess the credit quality of complex financial instruments, it is important to discuss first the goals of that assessment exercise. Default is defined as a state in which the borrower is not paying principal and interest on a debt obligation. It takes one payment period to reveal that a borrower has missed a payment, but that does not mean the borrower is in default. The trustee may contact the borrower on investors’ behalf, have some discussions and negotiations, and perhaps reach an agreement about moving forward. Only after such discussions fail to produce a willingness and ability to pay will a corporate borrower be formally declared in default, on average 125 days after the last cash payment.<sup>6</sup>

Beyond that distinction, different NRSROs measure different characterizations of the default event. S&P and Fitch estimate the probability of the default event. Moody’s, in contrast, estimates the expected loss potential, that is, the probability of default multiplied by the expected loss given default. So while all NRSROs produce seemingly similar “ratings,” the end result of their ratings exercises yields statistically non-comparable results.

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4. Fitch Webcast: Subprime Mortgage Distress Effect on CDOs Tomorrow 09:30 am HK/SG Standard Time (Apr. 22, 2007).

5. *Fitch Reports on How the Housing and Mortgage Market Downturn Could Affect Municipal Credit*, BUSINESS WIRE, Apr. 25, 2007.

6. Robert R. Cangemi, Jr., Joseph R. Mason, and Michael S. Pagano, *How Much of a Haircut?: Options-based Structural Modeling of Defaulted Bond Recovery Rates*, Working Paper.

In a world of structured finance and re-securitization, the effect does not end with the initial rating decision. Ratings and rating changes have direct implications for cash flows because of deal “triggers” that maintain interrelationships among the investment securities in the deal. If security A is downgraded, that may result in Security B cash flows being diverted to security A, increasing risk to security B investors. Without transparent rerating criteria and active reevaluation of security A, however, the probability that security A will be downgraded is substantially reduced. Hence the structured finance world is writing deal triggers that rely on securities being rerated when the NRSROs do not issue clear rerating criteria and, indeed, rerating is rare. Because rating changes determine credit risk related securities and NRSROs wield discretion over ratings changes, NRSROs, rather than economics, dictate the manifestation of credit risk for those securities.

The effect extends well beyond the initial securitization in a world of re-securitization, CDOs, and CDOs-squared. With downstream securitizations deriving value from upstream securitizations, delayed rerating of the initial securitizations disrupts the entire structured finance market while investors await the ratings changes. According to Robert Selvaggio , Managing Director of the Risk Analysis Group at AMBAC, “To the extent the [NRSROs] ... are dragging their feet on changing the rating on subprime MBS, ... they are preventing the reallocation of cash flows to the senior tranches, to change the sequential structure on "AAA" and "AA" ABS CDOs. So they are actively harming the cash flow profile of this CDOs and are actively hurting ABS and CDOs, and something has to be done about it. They have to speed up the process of re-rating these CDOs.”<sup>7</sup>

Hence, NRSROs have another conflict of interest in that delaying rerating securities can alleviate the task of rerating other downstream re-securitized securities in resecuritizations, CDOs, and CDOs-squared.

## **7. The Implementation of the Credit Reform Act of 2006**

The Credit Reform Act of 2006 raised hopes that the industry would (1) fully adhere to the International Organization of Securities Commissions (IOSCO) code of conduct and (2) provide for entry of new NRSROs to encourage the development of business practices were less exposed to existing conflicts of interest. Neither has happened.

The IOSCO Code explains that “...the CRA should adopt, implement and enforce written procedures to ensure that the opinions it disseminates are based on a thorough analysis of all information known to the CRA that is relevant to its analysis according to the CRA’s published rating methodology.”<sup>8</sup>

Recall, however, that Moody’s Investor Service, Code of Professional Conduct 6 (June 2005), stipulates, “Moody’s has no obligation to perform, and does not perform, due diligence with respect to the accuracy of information it receives or obtains in connection

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7. *Comments at Professional Risk Manager's Industry Association* at the Harvard Club, Sep. 20, 2007.

8. Committee of European Securities Regulator’s *Report to the European Commission on the Compliance of Credit Rating Agencies with the IOSCO Code* - Ref: CESR/06-545 at 13.

with the rating process. Moody's does not independently verify any such information. Nor does Moody's audit or otherwise undertake to determine that such information is complete. Thus, in assigning a Credit Rating, Moody's is in no way providing a guarantee or any kind of assurance with regard to the accuracy, timeliness, or completeness of factual information reflected, or contained, in the Credit Rating or any related Moody's publication."

It is not clear whether NRSROs' decisions to recuse themselves of the responsibility to verify information provided by an issuer fully meets the IOSCO standard. Nor is it clear whether such conduct meets even the standards the agencies are expected to meet as "investment advisors" under the 1940 Act. A June 2003 memorandum from Annette L. Nazareth, Director, Division of Market Regulation, United States Securities and Exchange Commission, to William H. Donaldson, Chairman, Securities and Exchange Commission, noted, "The Commission has emphasized that, NRSROs, as registered investment advisers under the Investment Advisers Act of 1940, have a special duty to base their opinions upon current and adequate information."<sup>9</sup>

It is also not clear that recent delays in rating actions do not also violate the IOSCO code, Section 2.1: which reads that agencies should "...not forbear or refrain from taking a rating action based on the potential effect (economic, political, or otherwise) of the action on the [credit rating agency], an issuer, an investor, or other market participant."

As for market entrants, while several NRSROs have repeatedly applied for NRSRO status since before the Act, none has been approved as a result of implementation of the Credit Reform Act of 2006. Hence, it does not seem that the Act has had substantial influence on the industry.

## **8. Conclusion and Policy Recommendations**

U.S. authorities have a track record of generally ignoring the structured finance sector. While technically violating FAS140, during the early- and mid-1990s, regulators routinely looked the other way while lenders provided recourse to their securitizations.<sup>10</sup> Such actions provided little incentive for issuers to be more conservative about the legal and financial structures that defined risk in the arrangements.

Similarly, authorities consistently ignored repeated crises that arose from inadequate legal or financial structures. Funding crises arising in credit cards (1998), home equity lending (1999), and other receivables like aircraft leases and 403-b mutual fund fees (2001) were deemed too small to be of concern. The US Securities and Exchange Commission examined RMBS markets four times between 1998 and 2007, each time claiming no significant concerns with transparency. Authorities have therefore been

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9. June 4, 2003, at 4.

10. For examples from credit cards, see Eric Higgins and Joseph Mason. *What is the Value of Recourse to Asset Backed Securities? A Study of Credit Card Bank ABS Rescues*. JOURNAL OF BANKING AND FINANCE, Apr. 2004, at 857-874.

consistently reluctant to examine market dynamics at incipient stages of development to infer larger-scale risks, which has turned out to have been a fatal oversight.

In the meantime, structured finance grew to fund approximately 70% of consumer credit. Lack of attention to the rapidly-growing structured finance market created the opportunity for NRSROs to cultivate conflicts of interest and inefficiencies in the ratings process. Currently, much needs to be done to effectively increase transparency and liquidity in what is now a crucially important structured finance sector. Ensuring ratings are both valid and transparent and that they are changed promptly over time with credit quality will begin to reduce information differences, prospectively.

It is crucial to enforce existing regulations toward NRSRO ratings models and applications to resolve the vast information problems in today's markets. I cannot stress firmly enough: no Fed funds rate cut, increased agency mortgage limit, FHA program, or even (as in the UK) blanket deposit insurance coverage, will resolve the information problems. Existing securities need to be re-rated so that investors can get on with evaluating risk and making appropriate investment decisions in today's markets while regulators and legislators develop a unified approach to structured finance that can carry markets into the future without unnecessary interruptions.

## Joseph R. Mason

231 Dogwood Lane  
Berwyn, PA 19312  
*joseph.r.mason@gmail.com*  
(610) 805-9083 ph

LeBow College of Business  
Drexel University  
Philadelphia, PA 19104  
(215) 895-2944 ph

### AREAS OF INTEREST:

- Risk Management
- Financial Engineering
- Government Regulation of the Financial Sector

My research focuses primarily on investigating liquidity in thinly-traded assets and illiquid market conditions. Current research projects analyze default risk, including both immediate and cross-default risk, and default resolution costs in the contexts of asset-backed securities, defaults, and failures in systemic and non-systemic environments.

### PROFESSIONAL EMPLOYMENT:

#### *Academic Appointments:*

- 2004-pr. Associate Professor of Finance, **Drexel University LeBow College of Business.**  
1998-04 Assistant Professor of Finance, **Drexel University LeBow College of Business.**  
1997-98 Adjunct Assistant Professor of Finance, **Georgetown University School of Business.**

#### *Concurrent and Non-academic Appointments:*

- 2005-pr. Senior Fellow, **The Wharton School.**  
2005-07. Visiting Scholar, **Federal Deposit Insurance Corporation.**  
2004-05. LeBow Research Fellow, **Drexel University LeBow College of Business.**  
2002-05. Visiting Scholar, **Federal Reserve Bank of Philadelphia.**  
2000-05. Sloan Fellow, **Wharton Financial Institutions Center.**  
1995-98 Financial Economist, Bank Research Division, **Office of the Comptroller of the Currency.**

### EDUCATION:

Ph.D., 1996, **UNIVERSITY OF ILLINOIS**, Champaign, IL.  
M.S., 1992, **UNIVERSITY OF ILLINOIS**, Champaign, IL.  
B.S., 1990 **ARIZONA STATE UNIVERSITY**, Tempe, AZ.

### RESEARCH GRANTS:

- 2005-06 Drexel University *Research Sabbatical Award*  
2004 LeBow College of Business *Research Support Grant*  
2001 LeBow College of Business *Summer Research Grant.*  
1994-99 *National Science Foundation (NSF) Grant #SBR 9409768* (with Charles W. Calomiris, Columbia University and National Bureau of Economic Research).  
1993 Federal Reserve Bank of St. Louis, *Research Support Grant.*  
1993 University of Illinois at Urbana-Champaign Office of Research, *Research Support Grant.*

**ACADEMIC ARTICLES:**

- “Herding Behavior in Chinese Stock Markets: An Examination of A and B Shares,” (with Tom Chiang, Edward Nellling, and Lin Tan). *Pacific-Basin Finance Journal* (forthcoming).
- “A Real Options Approach to Bankruptcy Costs: Evidence from Failed Commercial Banks during the 1990s.” *Journal of Business*, July 2005 (79:3), pp. 1523-53. This paper is a revised version of Wharton Financial Institutions Center Working Paper # 02-20. This paper was listed in the Social Science Research Network's *Top Ten Recent Download* lists for Banking & Financial Institutions, Corporate Finance, and Derivatives, November 2002. An earlier version also circulated on the Social Science Research Network as “What Do We Know about Bankrupt Firm Liquidation Rates? Evidence from Commercial Bank Liquidations during the 1930s and 1990s.”
- “Bank Asset Liquidation and the Propagation of the Great Depression,” (with Ali Anari and James Kolari). *Journal of Money, Credit, and Banking*, August 2005 (37:4), pp. 753-773. This paper is a revised version of Wharton Financial Institutions Center Working Paper # 02-35. This paper was listed in the Social Science Research Network's *Top Ten All Time Download* and *Top Ten Recent Download* lists for Banking & Insurance Abstracts, October 2002, and the *Top Ten Recent Download* list for Economic History, November 2002.
- “Credit Card Securitization and Regulatory Arbitrage,” (with Charles Calomiris). *Journal of Financial Services Research*, August 2004 (26:1), pp. 5-27 (lead article). This paper is a revised version of Federal Reserve Bank of Philadelphia Working Paper no. 03-7, April 2003.
- “What is the Value of Recourse to Asset Backed Securities? A Study of Credit Card Bank ABS Rescues,” (with Eric Higgins). *Journal of Banking and Finance*, April 2004 (28:4), pp. 857-874. This paper is a revised version of Federal Reserve Bank of Philadelphia Working Paper no. 03-06, April 2003.
- “Fundamentals, Panics and Bank Distress during the Depression,” (with Charles Calomiris). *American Economic Review*, December 2003 (93:5), pp. 1615-1647. This paper is a revised version of NBER Working Paper no. 7919, September 2000. This paper was listed in the Social Science Research Network's *Top Ten Recent Download* list for Economic History, January 2003.
- “Too-big-to-fail, Government Bailouts, and Managerial Incentives: The Case of Reconstruction Finance Corporation Assistance to the Railroad Industry during the Great Depression,” (with Daniel Schiffman). In *Too-Big-To Fail: Policies and Practices in Government Bailouts*, Benton E. Gup, ed. Westport, CT: Greenwood Press, 2003, pp. 49-75.
- “How to Restructure Failed Banking Systems: Lessons from the U.S. in the 1930s and Japan in the 1990s,” (with Charles Calomiris). In *Privatization, Corporate Governance and Transition Economies in East Asia*, Takatoshi Ito and Anne Krueger, eds. Chicago: University of Chicago Press 2004, pp. 375-420.
- “Consequences of U.S. Bank Distress during the Great Depression.” (with Charles Calomiris). *American Economic Review*, June 2003 (93:3), pp. 937-947.
- “The Political Economy of RFC Assistance during the Great Depression.” *Explorations in Economic History*, April 2003 (40:2), pp. 101-121.
- “Do Lender of Last Resort Policies Matter? The Effects of Reconstruction Finance Corporation Assistance to Banks.” *Journal of Financial Services Research*, September 2001 (20:1), pp. 77-95.
- “Reconstruction Finance Corporation Assistance to Financial Institutions and Commercial & Industrial Enterprise in the US Great Depression, 1932 – 1937.” In *Resolution of Financial Distress*, Stijn Claessens, Simeon Djankov, and Ashoka Mody, eds. Washington: World Bank Press, 2001, pp. 167-204.

“Demographics and Personal Bankruptcies.” *Research in Banking and Finance*, November 2000 (1:1), pp. 229-257.

“Contagion and Bank Failures during the Great Depression: The Chicago Banking Panic of June 1932,” (with Charles Calomiris). *American Economic Review*, December 1997 (87:5), pp. 863-884. This paper is a revised version of NBER Working Paper no. 4934, November 1994.

#### **OTHER PUBLICATIONS:**

“Causes of U.S. Bank Distress during the Great Depression,” (with Charles Calomiris). *Financial Crises: The International Library of Critical Writings in Economics*. Franklin Allen, ed. London: Edward Elgar Publishers 2007 (forthcoming).

“Credit Card Securitization, Recourse, and Regulatory Arbitrage,” (with Eric Higgins and Charles Calomiris). *Bank Structure and Competition Conference Proceedings*. Chicago: Federal Reserve Bank of Chicago, May 2003, pp. 471-492.

“A Real Options Approach to Bankruptcy Costs: Evidence from Failed Commercial Banks during the 1990s.” *Bank Structure and Competition Conference Proceedings*. Chicago: Federal Reserve Bank of Chicago, May 2002, pp. 108-128

“Causes of U.S. Bank Distress during the Great Depression,” (with Charles Calomiris). *Bank Structure and Competition Conference Proceedings*. Chicago: Federal Reserve Bank of Chicago, May 2001, pp. 530-554.

“Contagion and Bank Failures during the Great Depression: The Chicago Banking Panic of June 1932,” (with Charles Calomiris). In *The Regulation and Supervision of Banks*. Maximilian J. B. Hall, ed. London: Edward Elgar Publishers 2000.

“The Speed of Bank Liquidation and the Propagation of the U.S. Great Depression,” (with Ali Anari and James Kolari). *Bank Structure and Competition Conference Proceedings*. Chicago: Federal Reserve Bank of Chicago, May 2000, pp. 320-345.

*High-LTV Lending: Problem or Cure?* (with Charles Calomiris). Washington: American Enterprise Institute, 1998. Also excerpted in *Journal of Lending & Credit Risk Management*, September 1998, pp. 39-43.

“Contagion and Bank Failures during the Great Depression: The Chicago Banking Panic of June 1932,” (with Charles Calomiris). *Bank Structure and Competition Conference Proceedings*. Chicago: Federal Reserve Bank of Chicago, May 1995, pp. 110-122.

#### **WORKING PAPERS AND WORK IN PROGRESS:**

##### Economic and Financial Distress:

“How Much of a Haircut? Options-Based Structural Modeling of Defaulted Bond Recovery Rates,” (with Robert Cangemi and Michael Pagano). Wharton Financial Institutions Center Working Paper #06-18, August 2006.

“Real and Financial Effects of Bank Failures in the Great Depression,” (with Charles Calomiris).

“Rational Divestiture in Real Options-based Liquidation Cycles: Evidence from Failed Bank Assets in the Great Depression,” (with Charles Calomiris).

“Bank Panics and Liquidation Cycles,” (with Scott Redenius).

##### Asset-Backed Securities

“Mortgage Loan Modification: Promises and Pitfalls,” Criterion Economics Working Paper, September 2007.

“Where Did the Risk Go? How Misapplied Bond Ratings Cause Mortgage Backed Securities and Collateralized Debt Obligation Market Disruptions,” (with Joshua Rosner). Hudson Institute Working Paper, May 3, 2007.

“How Resilient Are Mortgage Backed Securities to Collateralized Debt Obligation Market Disruptions?” (with Joshua Rosner). Hudson Institute Working Paper, February 15, 2007.

“Deriving Credit Portfolio Correlation Properties from Large Asset-backed Security Pools,” (with Eric Higgins). Drexel University Working Paper, February 2006.

“The Frequency and Severity of Ratings Changes in Retail ABS,” (with Eric Higgins).

#### Profit and Cost Efficiency

“Is Bank Efficiency Cyclical? The Relationship between Economic and Financial Market Conditions and Bank Performance.” (with Yi-Kai Chen and Eric Higgins) Drexel University Working Paper, January 2005.

“Economies of Scale in the Banking Industry: The Effects of Loan Specialization.” (with Yi-Kai Chen and Eric Higgins) Drexel University Working Paper, December 2004.

#### Other Topics

“Resolving the Puzzle of the Underissuance of National Bank Notes.” (with Charles Calomiris). Federal Reserve Bank of Philadelphia Working Paper #05-19. Previously NBER Working Paper 10951, December 2004. (Submitted to Journal of Money, Credit, and Banking April 2006).

“Reserve Supply and Demand in the National Banking Era,” (with Charles Calomiris and David Wheelock).

“Corporate Governance in Failed Banks,” (with David Becher).

“Disparate Impact in Mortgage Prepayment Rates: Evidence from FHA Mortgage Data,” (with Charles Calomiris).

#### **BOOK REVIEWS:**

Review of “International Financial History in the Twentieth Century: System and Anarchy,” by Marc Flandreau, Carl-Ludwig Holtfrerich, and Harold James, eds. EH.net. February 2004.

Review of “Capital Flows and Crises,” by Barry J. Eichengreen. EH.Net. August 2003.

Review of “The Banking Panics of the Great Depression,” by Elmus Wicker. *Economica*, February 1998.

Review of “Reform of the Federal Reserve System in the Early 1930s: the politics of money and banking,” by Sue C. Patrick. *Journal of Economic History*. September 1994, pp. 724-5.

#### **OTHER PUBLICATIONS:**

“Savings Banks.” Dictionary of American Economic History, Charles Scribner's & Sons: Boston, 2002.

“American Banks during the Great Depression.” Federal Reserve Bank of St. Louis *Review*. May/June 1998.

“The Effects of Branching on Illinois Banks.” *Illinois Business Review*. Winter 1994.

“A Guide to Monthly Retail Sales Statistics.” *Illinois Business Review*. Fall 1992.

#### **PROFESSIONAL CONFERENCE AND INVITED PRESENTATIONS:**

American Finance Association (1996, 1997, 1998, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007)

Financial Management Association (1996, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2007)

Eastern Finance Association (1997, 2002, 2003)

Southern Finance Association (1998, 2003, 2005)

Federal Reserve System Conference, New Orleans, LA, Federal Reserve Bank of Atlanta (2008)

Credit Magazine "Credit Interactive" Conference, London (Keynote Speaker and Panelist) (2007)

Federal Reserve Bank of New York Central Bankers' Seminar (2007)

George Mason University Conference on Subprime Lending and its Aftermath (2007)

Risk Magazine "Risk Interactive" Conference, New York (2007)

Conde Nast Investors Breakfast, New York, (2007)

The Deal Magazine-Risk and Financial Markets Conference, New York, (2007)

Bond Club of Philadelphia (Keynote Speaker) (2007)

George Washington University Credit Research Center Conference on Subprime Lending (2007)

Financial Markets Conference, Sea Isle, GA, Federal Reserve Bank of Atlanta (2007)

Financial Development Conference, Federal Reserve Bank of Atlanta (2006)

XE Capital First Annual Investors' Conference (Keynote Speaker), London (2006)

Economics of Payments II Conference, Federal Reserve Bank of New York (2006)

Origins of Financial Markets Conference, University of Illinois, U-C (2006)

Bank Relationships, Credit Extension, and the Macroeconomy, (Conference organized by the German Institute for Economic Research (DIW Berlin), the Journal of Financial Intermediation (JFI), and the Federal Reserve Bank of Philadelphia), Berlin (2005).

Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago (1995, 2000, 2001, 2002, 2003)

Conference on Retail Credit Risk Measurement and Management, Federal Reserve Bank of Philadelphia (2003)

Harvard Law School Colloquium on Risk Based Capital (2002)

Wharton Financial Institutions Center Conference on Credit Risk Modeling and Decisioning (2002)

NBER Summer Institute (1995, 2000)

NBER East Asian Seminar on Economics (2001)

Cliometrics Society Annual Conference (1995, 2002)

Economic History Association (1999, 2000, 2001, 2006)

Annual Policy Conference, Federal Reserve Bank of St. Louis (1997)

High-LTV Mortgage Lending, American Enterprise Institute, Washington, DC (1998)

Special Risks Facing Credit Card Banks, American Enterprise Institute, Washington, DC (1998)

University of California-Berkeley (2000)

University of California-Irvine (2004)

Columbia University (1997)

University of Delaware (2000, 2003)

Drexel University (1998)

Federal Deposit Insurance Corporation (1997, 2004, 2005, 2006)

Federal Reserve Bank of Atlanta (2006)

Federal Reserve Bank of Chicago (1995)

Federal Reserve Bank of New York (2004)

Federal Reserve Bank of Philadelphia (2002)

Federal Reserve Bank of St. Louis (1995)

University of Illinois at U-C (2000, 1995)

Indiana University (1995)

Louisiana State University (2007)

North Carolina State University (1997)

Office of the Comptroller of the Currency (2000, 1998, 1995)

Rutgers University (2007, 2000, 1997)

Suffolk University (1998)

SUNY Binghamton (2005)

Temple University (2003)

Texas Christian University (2003)

Villanova University (2003, 2004, 2005)

World Bank Group (2000)

#### **UNIVERSITY SERVICE ACTIVITIES:**

LeBow College of Business, Curriculum Committee.

Department Representative, LeBow College of Business Undergraduate Assessment Committee.

Chair, LeBow College of Business Committee on Financial Engineering Program Development and Implementation.

Department Representative, Writing Intensive Curriculum Implementation Pilot Group.

Department Representative, Doctoral Curriculum Task Force.

### **PROFESSIONAL AND COMMUNITY SERVICE ACTIVITIES:**

Refereed for *Journal of Finance*; *Financial Management*; *American Economic Review*, *Quarterly Journal of Economics*; *Journal of Money, Credit, and Banking*; *Journal of Banking and Finance*; *Journal of Financial Services Research*; *Journal of Economics and Business*; *Journal of International Money and Finance*; *The Financial Review*; *Economic Inquiry*; *Journal of Economic History*; *Explorations in Economic History*; Cambridge University Press; Kluwer Academic Publishers; Ohio State University Press, and the National Science Foundation.

Testified before the House Financial Services Committee and the Federal Reserve Board and advised the Government Accountability Office (GAO), Federal Deposit Insurance Corporation, Federal Reserve Bank of Philadelphia, Federal Reserve Bank of Richmond, and Public Company Accounting Oversight Board (PCAOB) on structured finance.

Taught securitization seminar for officers and executives at Federal Reserve Bank of Philadelphia, Summer 2002.

Conference Organization: Conference on Retail Loan Securitization. Federal Reserve Bank of Philadelphia (December 2003).

Conference Organization: Program Committee Member for Financial Management Association Annual Meeting (Denver, CO, 2003; New Orleans, LA, 2004; Chicago, IL, 2005); Southern Finance Association Annual Meeting (Orlando 2002, Columbia, SC, 2003); Eastern Finance Association Annual Meeting (Norfolk, VA, 2005).

Conference Organization: Local Arrangements Committee: Economic History Association Annual Conference (Philadelphia, 2001).

Conference Organization: Panel Member, Financial Management Association Best Paper in Financial Services Award (Orlando, FL, 1999).

Conference Organization: *High-LTV Lending: Problem or Cure?* American Enterprise Institute (Washington, DC, Fall 1998).

Conference Organization: *Special Risks Facing Credit Card Banks*, American Enterprise Institute (Washington, DC, December 5, 1997).

Conference Organization: Financial Institutions Assistant Program Track Chair. *Eastern Finance Association* Annual Meeting (Panama City Beach, FL, 1997).

Regulatory Liaison: *Bankers' Roundtable Working Group on Deposit Insurance Reform*. Produced "Deposit Insurance Reform: In the Public Interest," released May 1997.

### **COURSES TAUGHT AND EVALUATION SCORES:**

<u>PhD</u> (average evaluation 3.84/4)	<u>MBA</u> (average evaluation 3.13/4)	<u>Undergraduate</u> (average evaluation 3.20/4)
<ul style="list-style-type: none"><li>• Financial Intermediation</li><li>• Research Methods</li></ul>	<ul style="list-style-type: none"><li>• Derivatives</li><li>• Risk Management</li><li>• Financial Management</li><li>• Financial Markets and</li></ul>	<ul style="list-style-type: none"><li>• Financial Markets and Institutions</li></ul>

Institutions

- Financial Institutions Management

**PH.D. STUDENT SUPERVISION:**

Lin Tan. *Empirical Analysis of Chinese Stock Market Behavior: Evidence from Dynamic Correlations, Herding Behavior, and Speed of Adjustment*. (2005: University of Central Florida).

Vidya Nayak. *Web-based Relational Database Mining for Financial Data*. (2004: Federal Reserve Bank of Philadelphia).

Neelam Paharia. *Spatial – Temporal Aggregation in Finance*. (2002: Progressive Insurance – Pricing Applications Research).

De Wai Chow. *Three Essays on Going-Private Transactions*. (2001: National Chung Cheng University, Taiwan).

Chen, Yi-Kai. *Three Essays on X-Efficiency Distribution among U.S. Commercial Banks*. (2001: Emporia State University, KS).

**CONSULTING ACTIVITY:**

I have consulted and advised many government agencies, research institutions, and corporations, including The Conference Board, Inc., Coventry First, Deloitte, Fannie Mae, the Federal Deposit Insurance Corporation, the Federal Reserve Bank of Philadelphia, FirstPlus Financial (in conjunction with Bear Stearns, Merrill Lynch, and Deutsche Bank), The Group of Thirty, Pricewaterhouse-Coopers, Wachovia, The World Bank Group, and XE Capital Management LLC.

In litigation, I have acted as testifying or non-testifying expert for firms such as Allstate Insurance, AMBASE Corporation/Carteret Federal Savings Bank, Ameriquest Mortgage, Equities First Holding, LLC, Fannie Mae, GMAC Commercial Mortgage, Superior Federal Savings Bank, World Financial Network National Bank.

In regulatory matters, I have testified before the House Financial Services Committee and the Federal Reserve Board and advised the Government Accountability Office (GAO), Federal Deposit Insurance Corporation (FDIC), Federal Reserve Bank of Philadelphia, Federal Reserve Bank of Richmond, and Public Company Accounting Oversight Board (PCAOB) on structured finance.

My consulting has involved issues ranging from mortgage, home equity loan, home equity line of credit, auto, and credit card servicing, and securitization, to discrimination and disparate impact in consumer lending and insurance pricing, valuing distressed securities, the investor recoveries and efficient liquidations of bankrupt firms, and economic valuations of complex investment and lending arrangements involving asset-backed securities, collateralized debt obligations, and hedge funds.

My research has received over 100 national and international press citations in publications such as the *Wall Street Journal*, *New York Times*, *Washington Times*, *the Economist*, *Financial Times*, *LA Times*, *San Francisco Chronicle*, *Toronto Globe & Mail*, *Barrons*, *Business Week*, *die Zeit*, *Neue Zürcher Zeitung am Sonntag*, *Financial Times-Germany*, *MIST News*, *Business Week*, *Forbes*, *Fortune*, *Portfolio Magazine*, *Bloomberg Magazine*, *Credit Magazine*, *American Banker*, *BNA's Banking News*, *Investment Dealers' Digest*, *Inman News*, *Grant's Interest Rate Observer*, *Realty Times*, and the *Philadelphia Business Review*, and syndicated on *Associated Press*, *Reuters*, *Bloomberg*, *KnightRidder Syndicate*, *MarketWatch-Dow Jones Newswire*, and *NBC Nightly News*.

I have made numerous live and taped appearances on *CNBC*, *CNBC Asia*, *Bloomberg Television*, *Comcast CN8 News*, *NPR*, *Bloomberg Radio*, *NBC Radio*, *WBBM Radio Chicago*, *KYW NewsRadio Philadelphia*, and *WWDB Talk Radio Philadelphia*. I have a weekly Economic Commentary on *KYW NewsRadio*, Philadelphia.

**REFERENCES:**

Charles W. Calomiris, Paul M. Montrone Professor of Private Enterprise, Department of Finance, Graduate School of Business, Columbia University, 10027, (212) 854-8748.

Mark J. Flannery, BankAmerica Eminent Scholar, Finance, Insurance, and Real Estate Department, Warrington College of Business, University of Florida, 32611, (352) 392-3184.

Edward J. Kane, Cleary Professor of Finance, Finance Department, Wallace E. Carroll School of Management, Boston College, Chestnut Hill, MA 02647, (617) 552-3986.

