



Topics in

Corporate Finance

*Towards a Fundamental Understanding of
Financial Sector Developments*

FRANK PARTNOY
ARNOUD W.A. BOOT AND
ANJAN V. THAKOR

in cooperation with

NIBESVV



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TOWARDS A FUNDAMENTAL UNDERSTANDING OF FINANCIAL SECTOR DEVELOPMENTS

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With contributions of

Frank Partnoy

Arnoud W. A. Boot and Anjan V. Thakor

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PREFACE

The functioning of the financial system has become one of the most acute public policy issues of our time. The financial crisis that confronts the world since the middle of 2007 points at the need for reform of the financial system. For this reason the Amsterdam Center for Corporate Finance has dedicated this issue of its *Topics in Corporate Finance* series to analyzing two key questions for the design of the financial system: *i.* How should we reform the role of credit rating agencies? And *ii.* How should we deal with the increasing integration and interlinkages between financial institutions and markets?

In the first two chapters of this publication, Frank Partnoy, Professor of Law at the University of San Diego School of Law, addresses the first question relating to the role of credit rating agencies. In the first chapter Partnoy explains why credit rating agencies are at the heart of the current credit crisis. In the second chapter he provides an in-depth analysis of the role of credit rating agencies and the regulatory framework surrounding them. He also puts forward fundamental reform proposals that could solidify their role. This contribution was part of Professor Partnoy's presentation at an ACCF symposium last July. Professor Partnoy very early on started pointing at the underlying risks in the financial sector. It is unfortunate that a crisis is needed to bring his ideas to the forefront.

The third chapter, entitled 'The Accelerating Integration of Banks and Markets and its Implications for Regulation', is an extensive analysis of the profound academic work that has been done on the integration of financial institutions and markets. The authors, Arnoud Boot and Anjan V. Thakor, a finance professor at the Olin School of Business (Washington University, St. Louis), show that the complexity of the financial sector creates virtually insurmountable regulatory and supervisory challenges. They offer several avenues forward.

This publication aims to build a further understanding on what is needed to rectify the weaknesses in the financial sector. We hope you enjoy reading it, and that this publication may contribute to bridging the gap between theory and practice.

Arnoud W. A. Boot
Director ACCF

February 2009

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I OVERDEPENDENCE ON CREDIT RATINGS WAS A PRIMARY CAUSE OF THE CRISIS

Frank Partnoy

1. INTRODUCTION

A primary cause of the recent credit market turmoil was overdependence on credit ratings and credit rating agencies. Without such overdependence, the complex financial instruments, particularly collateralized debt obligations (CDOs) and structured investment vehicles (SIVs), which were at the center of the crisis could not, and would not, have been created or sold. Long-term sustainable policy measures should take into account both regulatory and behavioral overdependence on ratings.

In the first part of the paper, I describe how over time credit rating agencies¹ ceased to play the role of information intermediaries. By the time market participants recently began to securitize large amounts of subprime mortgages, rating agencies were available, not to provide information about the risk associated with the securitized instruments, but to facilitate the use of “regulatory licenses”² by enabling structurers to create and maintain tranches of these instruments with unjustifiably high credit ratings. This role went well beyond the standard reputational model of the role of rating agencies.

In the second part of the paper, I suggest how future policy might minimize overdependence on credit ratings, by removing regulatory licenses and by implementing “shock therapy” mechanisms to wean investors off ratings mnemonics. I also analyze how regulators and market participants can learn from the flaws in rating agency models, to avoid repeating similar mistakes. In particular, I focus on the misapplication of historical data with respect to estimates of expected default probability, recovery, and correlation. Finally, I assess how market measures of these estimates, based on actual prices of traded assets, might substitute for credit ratings for both regulatory and behavioral purposes.

2. SOME BACKGROUND AND THEORY: REPUTATION VS. REGULATORY LICENSES

Historically, information intermediaries have arisen because of information asymmetry between buyers and sellers, particularly in markets where sellers have superior information but cannot costlessly convey this information to buyers.³ If buyers are economically rational, prices in a market with information asymmetry will reflect the average quality of a product, and sellers with superior products will bear the cost of the information asymmetry. Consequently, sellers in such a market will have an incentive to disclose the

1 By credit rating agencies, I am referring to Nationally Recognized Statistical Rating Organizations (NRSROs), as that term was defined during the early 2000s, and in particular to the two major NRSROs, Moody’s Investor Service and Standard & Poor’s Rating Services.

2 By regulatory license, I mean the property rights associated with the ability of a private entity, rather than a regulator, to determine the substantive effect of legal rules. See Partnoy (1999) at 622.

3 Partnoy (1999) at 633-36.

superior nature of their product so that they can receive the highest price. In financial markets, to the extent sellers cannot credibly make such disclosures, there are incentives for information intermediaries to play this role.

Information-gathering firms that certify asset quality typically must satisfy three criteria before their certification will be credible to outside investors. First, the certifying agent must have reputational capital at stake in the certification activity. In other words, the certifying agent credibly must be able to pledge that it will suffer a loss, related either to litigation or declining reputation, if its certification is systematically biased or false. Second, this expected loss must exceed the expected gain from false certification. Third, the agent's services must be costly and the cost must be related to the informational asymmetry between buyer and seller.

In the early debt markets, credit rating agencies evolved to play an informational intermediary role, from the nineteenth century mercantile credit rating agencies through John Moody's application to bonds.⁴ Moody's insight was that he could profit by selling to the public a synthesis of complex bond data into a single letter rating.

For the most part, credit rating agencies fit this reputational investor-pay model until the mid-1970s, when, not coincidentally, the Securities and Exchange Commission began relying substantively on credit rating agencies for regulatory purposes and the agencies shifted to an issuer-pay model.⁵ As the regulatory dependence on ratings increased, rating agencies became more profitable and also began providing ratings of transactions designed to achieve particular ratings. During the late 1980s and early 1990s, bankers and issuers created a range of highly-rated asset-backed transactions and collateralized bond obligations, as well as derivative product companies, financial guarantor transactions, and AAA-rated arbitrage vehicles. The first SIVs and asset-backed CDOs were created during this period.

As the credit rating agency model shifted from investor-pay to issuer-pay, the conditions necessary for the existence of a well-function information intermediary faltered. The rating agencies faced little or no risk of loss from inaccurate ratings, while the potential gains from inaccurate ratings increased. Ratings substantially lagged the revelation of public information about rated issuers and instruments, and rating agencies repeatedly were forced to revise ratings substantially downward. As rating agencies began rating substantially greater numbers of issuers and instruments, the resources expended per rating necessarily declined, and the cost of providing a rating became disconnected from the information gap between investors and issuers. Finally, the rating agencies' businesses became progressively more profitable, even as the informational value of their ratings declined.

During the 1990s, overdependence on credit ratings led many market participants to create highly-rated fixed income instruments that carried attractive yields relative to

4 Partnoy (1999) at 637-38.

5 More precisely, the regulatory dependence on credit ratings began in 1973, when the SEC proposed amending broker-dealer "haircut" requirements, which set forth the percentage of a financial asset's market value a broker-dealer was required to deduct for the purpose of calculating its net capital requirement. Rule 15c3-1, promulgated two years later, required a different "haircut" based on the credit ratings assigned by Nationally Recognized Statistical Rating Organizations (NRSROs). See 17 C.F.R. 240.15c3-1. Since the mid-1970s, statutes and regulations increasingly have come to depend explicitly on NRSRO ratings. See Partnoy (1999) at 690-703.

comparable assets, but that also carried new risks typically not associated with highly-rated bonds. The bond market crisis in 1994-95 was driven by structured notes and other derivatives transactions, including mortgage-backed transactions, which were designed to achieve high ratings, even though they carried other embedded risks. More recently, overdependence on credit ratings played a significant role in the collapse of Enron.⁶

With respect to mortgages, “first-level” securitizations were a response to the investment grade “cliff” noted by W. Braddock Hickman (Hickman (1958)), and later Michael Milken, who saw that portfolios of sub-investment grade rated bonds outperformed more highly-rated bonds on a risk adjusted basis. Market participants adapted this insight to mortgages of various types, which could be pooled into new highly-rated fixed income instruments. Surprisingly, this “cliff” persisted over time, in both corporate bond and mortgage markets; the large yield discontinuity between investment grade and below-investment grade ratings did not disappear even after large amounts of securities were issued. To the contrary, in the early 2000s, rating agency models, and assumptions about historical default, recovery, and correlation, suggested that extant mortgage-backed securities could be repackaged and resold in ways that would outperform, not only the mortgage-backed securities themselves, but other comparably rated securities.

3. THE GROWTH OF “SECOND-LEVEL” MORTGAGE SECURITIZATION

As the credit derivatives market was experiencing record growth, fixed income structurers and investors, with the assistance of credit rating agencies, searched for assets that could be securitized to create highly-rated fixed income instruments with attractive yields relative to comparable investments. For the first time, banks began seriously considering “second-level” securitizations of “first-level” mortgage-backed securities (which were securitizations of mortgages).

The fundamental economic rationale for “second-level” securitizations is not obvious. After all, the underlying mortgage assets already have been securitized. Indeed, the mortgage-backed securities market was already a deep market, driven by high demand from both originators and investors. Mortgage-backed securities were issued in a competitive environment in large numbers, and already were rated by the rating agencies. “First-level” securitization transactions were a response to gaps and inefficiencies in the underlying market for individual assets. To the extent mortgages were being allocated or bundled inefficiently, or not in ways investors desired, one might have expected that continuous “first-level” securitization would evolve to ameliorate these inefficiencies. Put another way, if there had been a more efficient way of pooling mortgages, or a pocket of unsatisfied demand for particular pool portfolios or structures, investors likely would have demanded it, and then banks would have created and supplied it.

⁶ The following assessment from Senator Joseph Lieberman, whose Senate committee held the first hearings on Enron, was typical: “The credit-rating agencies were dismally lax in their coverage of Enron. They didn’t ask probing questions and generally accepted at face value whatever Enron’s officials chose to tell them. And while they claim to rely primarily on public filings with the SEC, analysts from Standard and Poor’s not only did not read Enron’s proxy statement, they didn’t even know what information it might contain.” Senate Committee on Governmental Affairs (2002).

Yet the proliferation of “second-level” mortgage-backed CDOs and SIVs suggested that billions of dollars of “first-level” mortgage-backed securities appeared to be mispriced. Market participants could pool those securities into new special purpose entities with tranching capital structures, and sell the slices of those structures for more than the value of the underlying mortgage-backed securities. These transactions, too, persisted over time, so much so that the appetite for “second-level” mortgage securitizations drove financial intermediaries both to originate new and increasingly risky mortgages, and to create synthetic exposure to mortgages, which then could be resecured through tranching special purpose entities, again at higher prices than the underlying mortgage-backed securities were trading in the market.

To obtain ratings for “second-level” mortgage securitizations, both the structurers and the rating agencies used models based on earlier corporate bond-backed transactions, which provided a methodology for labeling the risks associated with mortgage securities-backed transactions. Bankers increasingly sought to combine the underlying securities and to stratify capital structures in ways that would create new investment grade-rated securities. In particular, CDOs and SIVs were designed to create large tranches of AAA-rated assets backed by lower-rated mortgage-backed securities.

Even after a mortgage-backed security had been re-secured through cash-flow based CDOs, market participants suggested that there was no reason why investors couldn’t take on exposure to a particular mortgage-backed security more than once. Arrangers created synthetic exposure based on side bets derived from the value of the underlying mortgage-backed securities so that investors could obtain exposure to the performance of a pool of mortgages without having an investment vehicle or special purpose entity actually buy the mortgage-backed securities. Synthetic CDOs and SIVs obtained exposure through derivatives transactions, most commonly credit default swaps.

4. CREDIT RATINGS AS DRIVERS OF “SECOND-LEVEL” SECURITIZATIONS

The linchpin of a CDO or a SIV backed in whole or part by synthetic assets was the credit rating. Investors typically did not examine the underlying assets of a synthetic CDO or SIV in any detail or at all. One might criticize them for not doing so, except that the underlying assets frequently were not even specified when the deal was sold. Instead, investors relied on parameters set by the arrangers, bankers, and rating agencies to constrain the assets that could be purchased originally, and held over time.

If the credit rating agencies, and their clients, had used reasonable and accurate models and assumptions, then in principle these transactions might not have been problematic. However, these parties faced financial incentives to use unreasonable and inaccurate assumptions and models to complete deals and thereby earn greater fees. These incentives were especially strong given the expected absence of any reputational consequence, particularly for individuals involved in transactions, who essentially could sell long-term options obligating their firms while pocketing shorter-term bonuses for themselves. The way to obtain sufficiently attractive ratings to pay the high transaction costs and fees for the various arranging parties, and still generate attractive yields for purchasers was to use

models and assumptions that did not reflect the actual risk of the underlying mortgages, including risks that already were impounded in the price of those securities in the market for mortgage-backed securities (Mason and Rosner (2007)).

The simplest way to generate unwarranted high ratings was to use outdated and inapplicable historical assumptions with respect to the underlying mortgage-backed securities. The inputs to the relevant models were straightforward: expected default rate, recovery rate upon default, and, for portfolios of assets, the correlation of expected defaults. The rating agencies created models, with the assistance of bankers and arrangers, that generated tranche credit ratings for “second-level” deals based on these inputs. Those models, in turn, typically depended on assumptions with respect to the expected statistical distribution that returns on the underlying collateral would follow.

Given these assumptions and models, arrangers were then free to find collateral that would generate the most attractive tranche yields, subject to ratings-based constraints. The restrictions on collateral typically were based on credit ratings; in other words, the “second-level” securitization methodology depended on previous “first-level” securitization ratings. As the prices of mortgage-backed securities rose, along with housing prices, it was difficult to generate “second-level” deals with highly-rated tranches without using increasingly unreasonable assumptions. As collateral became more expensive and ratings of that collateral lagged increasing market prices, accurate and timely ratings would have appeared lower than would have been warranted. This lag provided a rationale for increasingly aggressive assumptions with respect to “second-level” deals.

Paradoxically, when housing prices began to fall, but ratings on “first-level” securitizations did not, the historical ratings methodology made “second-level” securitizations increasingly attractive. If one could buy AAA-rated mortgage-backed securities that had fallen in price, but still use the same historical default, recovery, and correlation assumptions associated with AAA ratings in the relevant model, one could create a highly-rated, high-yielding set of “second-level” transactions. As long as mortgage-backed securities ratings lagged market prices, as those prices declined, CDOs and SIVs backed by that collateral would appear increasingly attractive.

Rating agency assumptions and models did not accurately capture the risk associated with “second-level” securitizations.⁷ Default rate assumptions were derived from historical information, including default data about other asset categories as well as asset price correlations, rather than default correlations. Moreover, assumptions for “second-level” deals were based on ratings of mortgage-backed securities, even when both the rating agencies and other participants in the resecuritization transactions were aware that both that the credit quality of the underlying mortgages had declined and that the expected default correlations associated with those mortgages had increased. Nevertheless, the simulations the agencies ran to calculate tranche ratings were based on stale and inaccurate assumptions.

⁷ The SEC investigation of the credit rating agencies found that they struggled to adapt to the complexity of mortgage-backed structured finance deals. See SEC (2008a) at 12: “One analyst expressed concern that her firm’s model did not capture ‘half’ of the deal’s risk, but that ‘it could be structured by cows and we would rate it.’” The SEC also found that “Rating agencies made ‘out of model’ adjustments and did not document the rationale for the adjustment.” Id. at 14.

Rating agency correlation assumptions were particularly important.⁸ Inaccurate correlation assumptions based on incorrect statistical models enabled parties to structure deals with high ratings on senior tranches, given that the expected correlation of defaults of mortgage-backed securities was higher than the estimates used for the models (Moody's Investors Service (2006)). The rating agencies have struggled to understand the importance of correlation assumptions for CDOs and SIVs, even as those assumptions supported a sharply increasing number of "second-level" securitizations. Moody's conducted an in-depth study of corporate bond correlation, which led to a new Monte Carlo simulation-based market tool in 2004 for measuring the credit risk of synthetic transactions; it revised its methodology for structured finance asset correlations a year later.⁹ S&P's inputs simply remained constant for years (Partnoy (2006)). By 2006 and 2007 at the latest, it was apparent that the relevant mortgage asset correlations underlying CDOs and SIVs were significantly higher than the rating agencies had assumed. By February 2008, Moody's had downgraded at least one tranche of 94.2% of subprime residential mortgage-backed deals it had rated in 2006 (Moody's Investors Service (2008)).

In sum, the proliferation of "second-level" securitization transactions is consistent with substantial overdependence on credit ratings. If ratings had been accurate, or put another way if investors had relied on ratings only to the extent they were accurate, then there would have been little incentive for "second-level" securitizations. But because investors were willing to buy CDO and SIV tranches simply because of their high ratings and high yields, either because of regulatory reliance on ratings or because the mnemonic device of ratings came to play an overly-important private role, CDO and SIV tranches had higher-than-justified ratings, even though they held collateral that already had been securitized. Without overreliance on ratings, investors more likely would have looked through the complexity of CDO and SIV transactions to the underlying mortgage-backed securities, and prices more accurately would have reflected market estimates of default probability, recovery, and correlation.

5. REGULATORY VS. BEHAVIORAL OVERDEPENDENCE

To what extent was overdependence on ratings driven by regulation? I previously have argued that rating agencies increasingly sell "regulatory licenses" rather than information, and that ratings are not "opinions," but instead are keys that unlock the financial markets for regulated entities (Partnoy (1999)). Regulators recently have endorsed this explanation, and the SEC has proposed rules to eliminate certain aspects of regulatory dependence on ratings (SEC (2008b)).

In addition, it is apparent that, even putting aside regulatory influences, at least some market participants independently over rely on ratings. At its core, this overreliance likely derives from decades of regulatory dependence on ratings, but it has become a more widespread, behavioral phenomenon. Ratings are part of financial culture. Even after

⁸ See Hull and White (2006), and Van Deventer (2008) at 7: "Management has often discovered that the working-level staff has been depending heavily on models, like the copula approach, that were known or should have been known to be wrong."

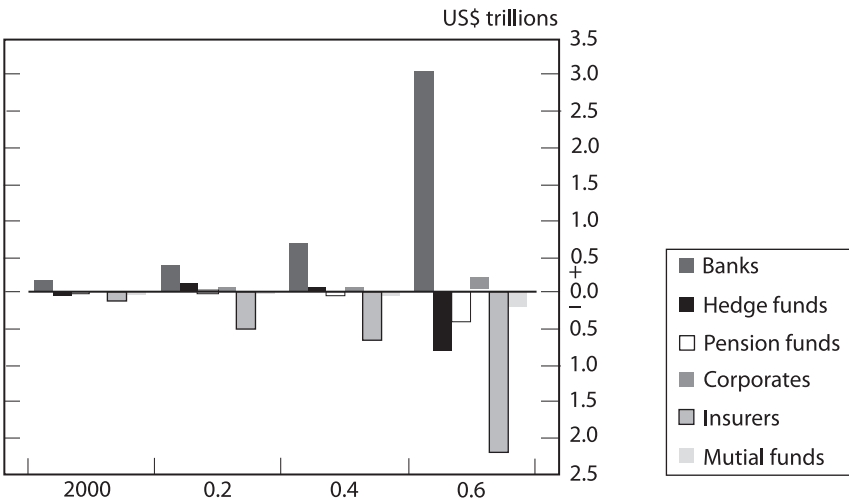
⁹ Moody's Investors Service (2005a) and Moody's Investors Service (2005b).

the massive dislocation associated with the recent crisis, and the abysmal performance of the rating agencies, market participants have continued to rely on letter ratings. One conclusion is that even if all explicit references to ratings were removed from regulation, some residual implicit overreliance would remain.

An interesting perspective on this behavioral point arises from the fact that the major banks selling “second-level” securitizations also misperceived the risks associated with the highest-rated tranches. Indeed, it appears that bank officers were so confident about the high ratings of super-senior CDO tranches that they concluded that such tranches posed virtually no risk. One reason, if not the primary reason, why they misperceived such risks was overreliance on credit rating agency assumptions and models. Some of this overreliance derived from bank regulations that depend on credit ratings; the rest was cultural.

Most strikingly, sanguine assessments of super-senior risk, and assumptions that senior tranches protected by AAA-rated junior tranches could not default, appeared to be so obviously correct that banks’ exposure to these tranches apparently remained hidden from senior managers, investors, and regulators. No bank publicly disclosed risks associated with super-senior tranches before the crisis began. Bank directors and officers claimed, perhaps falsely, that they were unaware of risks associated with these tranches. Moreover, many regulators apparently were unaware of the exposure as well. The Bank of England, in its Financial Stability Report, noted that banks were net buyers of credit protection in 2006; that estimate apparently did not reflect the large amounts of notional credit protection sold by banks in super-senior transactions.¹⁰ These estimates are set forth in Chart 1 below.

Chart 1 – Outstanding Global Amounts of Credit Protection Bought By Institutions



Sources: BBA and Bank calculations.

(a) Amounts netted across long and short positions.

¹⁰ Bank of England (2008), Chart 2.17. The Bank for International Settlements had been warning about overreliance on ratings since early 2005. See BIS (2005).

Much of the blame for overdependence on ratings can be placed on regulation, and I set forth below some measures designed to eliminate this overdependence. But market participants also independently over relied on ratings. High ratings replaced independent judgment, particularly when “second-level” transactions created the illusion of thick bands of highly-rated protective tranches. The collapse of senior securities of both CDOs and SIVs illustrates that “second-level” securitizations require an analysis of something more than just tranche ratings. Because these instruments are so much more complex than the underlying “first-level” securitizations, they generate a greater need for investigation, and paradoxically are more amenable to overreliance on ratings.

6. SOME POLICY PRESCRIPTIONS

If the story about overreliance on credit ratings is even partially correct, what is to be done? There are two categories of policy responses, some of which already have been proposed. First, regulators should eliminate explicit reliance on credit ratings. To the extent regulators are concerned that such an approach would leave a substantive void, there are many substitutes for ratings, including market measures of risk, as described below. Second, regulators should implement some form of “shock therapy” to jar market participants from overreliance on ratings. The use of mnemonics is highly path dependent, and unless there are strong reasons for participants to switch, they will not.

With respect to the first point, the SEC already has proposed removing references to NRSROs in its own rules. For example, Rule 2a-7 of the Investment Company Act limits a money market fund’s portfolio investments to securities that have received credit ratings from NRSROs in one of the two highest short-term rating categories.¹¹ The SEC recommended replacing this NRSRO “regulatory license” with a requirement that money market fund boards of directors determine “that each portfolio instrument presents minimal credit risks.”¹² Likewise, other SEC proposals would replace several other rules that depend explicitly on NRSRO ratings.

Notwithstanding the intense lobbying effort against these proposals, the SEC should implement them as final. Moreover, other regulatory bodies should similarly excise references to credit ratings. In the United States, the most efficient mechanism for doing this would be for Congress formally to remove references from statutes, and then to hold hearings to encourage various agencies to remove any additional remaining references in both formal rules and informal policies.

Perhaps the most important regulatory references to ratings are in international banking regulations, particularly under the Basel II agreement of the Basel Committee on Banking Supervision. Basel II explicitly allows banking regulators to permit banks to use credit ratings from approved rating agencies in calculating their net capital reserve requirements. International regulators should remove this provision, and in place of letter ratings substitute market-based measures, such as credit spreads or credit default swap prices, and/or discretionary estimates of default probability, expected recovery, and

¹¹ Investment Company Act, Rule 2a-7(a) (10), (21).

¹² See SEC (2008b) at 8.

correlation. The Bank for International Settlements has long been a leader in publicizing problems associated with the use of ratings in structured finance (BIS (2005)). It now should explicitly disclaim the use of ratings in regulation generally.

Ratings and rating agencies also have been subsidized by other forms of regulation, and those subsidies should be removed as well. NRSROs are specifically exempt under U.S. securities law from Section 11 liability and Regulation FD; they should not be. Nor should rating agencies be exempt from liability for statutory and common law private claims based on any freedom of speech or journalistic privilege rationales. Historically, the rating agencies have interposed First Amendment objections in civil litigation, with some success (Partnoy (2006)). As new cases based on “second-level” securitizations arise, judges should distinguish those prior cases, and make it clear that rating agencies are subject to civil liability and are not protected by any First Amendment privilege. Legislators also should consider clarifying the viability of private rights of action against rating agencies.

The rating agencies’ position that ratings are merely “opinions,” and therefore are entitled to the same protection as other “speakers,” is specious in the context of complex securitization transactions. Ratings of “second-level” securitizations are not protected speech, and rating agencies are doing much more than merely speaking. They have a high level of initial and ongoing involvement in these deals, at early and later stages, and receive significantly higher fees for them. Rating agencies determine the capital cushions that are required for particular tranches; they provide capital matrix parameters that govern the operation of special purpose entity issuers; they are involved in the operation of the issuers on an ongoing basis; they instruct the asset manager regarding the kinds of assets the issuers can acquire, both initially and over time; and the deal documentation for these transactions typically includes descriptions of the simulation models the rating agencies use to determine the relative proportions of an entity’s capital structure, as well as the necessarily over-collateralization ratios and triggers, both initially and over time. Moreover, unlike corporate bond transactions, CDOs and SIVs require a much more in depth analysis by the rating agencies, including the use of their mathematical models and assumptions. For these reasons, judges should reject the claim that ratings of “second-level” securitizations are merely “opinions.”

With respect to second point regarding “shock therapy,” regulators should encourage investors not to apply the same ratings and analysis to corporate bonds versus structured finance assets.¹³ Ratings of these instruments are categorically different, and it was and is a mistake for anyone to use the same mnemonic for each category. A highly-rated CDO does not pose the same risks as other highly-rated securities, including the collateral underlying the CDO. To the extent regulators and investors continue to rely on ratings, which they should not, at minimum their rating-based rules should distinguish between the symbology of corporate bonds and structured finance instruments, if not other categories as well. Ideally, regulators and investors should find independent means of assessing the risks of different investments within different categories. Forcing investors to split ratings among categories should lead private actors to reassess their approach to risk.

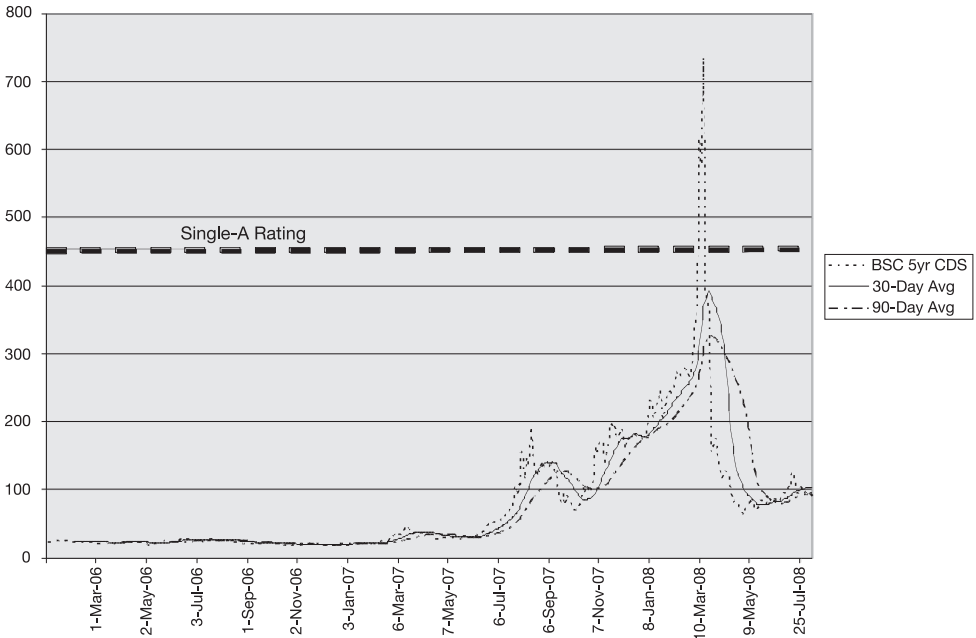
¹³ The SEC has proposed such a split. See SEC (2008c).

Disclosure with respect to credit derivatives and credit rating-based transactions also must improve. Current disclosure of notional amounts and value-at-risk (VAR) does not enable investors to assess the risks associated with default, expected recovery, and correlation of fixed income exposure. One reason for the recent collapse of major financial institutions such as Bear Stearns, Lehman, Fannie Mae, Freddie Mac, and AIG was the lack of transparency with respect to “second-level” securitizations. When no one has enough information to evaluate the risk of portfolios held by financial institutions, the valuation of their issued securities becomes at best a guess. At minimum, bank regulators should require that financial institutions disclose to examiners not only VAR-related measures, but also more robust worst-case analyses and stress tests based on a wide range of assumptions about expected default, recovery, and correlation. Requiring such disclosures also would encourage market participants to rely on these measures directly, instead of letter ratings. It also would encourage dissemination of risk disclosure to bank officers and directors.

As regulators and investors seek substitutes for credit ratings, they should consider looking to market measures and prices. Notwithstanding recent market volatility and dislocations, market prices provided a far more accurate assessment of risk than credit ratings. Such prices and related market measures are available from true information intermediaries, which now play a modern version of the role John Moody originally envisioned in the early twentieth century: providing valuable information about credit risk. Most prominently, Markit Group Limited provides credit default swap pricing and other data that investors could use to assess the risk of their portfolios over time. It would vastly improve policy and market efficiency if regulators and investors relied on this kind of data instead of credit ratings.

An example based on data from Markit is set forth in Chart 2 below. The chart depicts the daily 5-year Bear Stearns senior credit default swap closing spreads, along with a 30- and 90-day rolling average of these spreads. Note that the credit ratings applicable to Bear Stearns’s senior debt were constant at single-A throughout this period. To the extent regulators or institutions are concerned about the volatility of market based measures, it would be straightforward to reference a rolling average like one of those depicted above. Reliance on market measures instead of credit ratings likely would have led institutions with exposure to Bear Stearns securities to assess their exposure more closely during the period leading up to that firm’s collapse. Instead of regulating and making investment decisions based on a Bear Stearns credit rating that remained unjustifiably high and unchanged during that bank’s crisis and collapse, regulators and institutions instead could have looked to a rolling average of market measures. Credit default swap spreads provided an early warning to market participants regarding Bear Stearns.

Moreover, the use of market measures would have beneficial ex ante effects, particularly if regulators also adopt the heightened disclosure requirements outlined above. For example, if Bear Stearns officials had known both that their firm would not be rescued and that investors would sell their securities in response to a rapid deterioration in prices, they would have been forced to be more proactive about disclosing risks in advance, particularly with respect to “second-level” securitizations, and perhaps as a result bank employees would not have taken on the key risks that led to the bank’s collapse.

Chart 2 – Bear Stearns 5-Year CDS Market Spreads (bp) (Source: Markit)

Not every regulator or market participant would need to rely on market measures as a substitute for ratings. Some could rely on professional judgment, as the SEC has suggested in its proposed Rule 2a-7 amendments. Others could rely on third-party information providers. Some might continue to rely on Moody's and S&P, although the overwhelming evidence suggest that such reliance would be misguided. In any event, a shift to permitting reliance on market-based measures would help discourage overreliance on letter ratings.

Switching to market-based measures is not a radical concept. Indeed, even the credit rating agencies themselves increasingly use market-based measures. Letter ratings essentially have become shorthand labels based on assumptions about key variables: probability of default, expected recovery in the event of default, and correlation. Internally, the rating agencies generate letter ratings based on estimates of these variables.¹⁴ At minimum, regulators and market participants should switch to relying on actual estimates of these variables instead of letter ratings that amalgamate the variables in an opaque, outdated, and incomprehensible fashion.

7. CONCLUSION

Causation is a complex concept. It has both “but for” and “proximate” elements. As a matter of “but for” causation, there is a strong argument that credit ratings and credit

¹⁴ With respect to mortgage-backed securities, prepayment risk also is a relevant variable. Prepayment risk was an important factor during the 1994-95 interest rate crisis, but did not play a major role during the recent sub-prime crisis.

rating agencies caused the crisis. “Second-level” mortgage-backed securitizations, particularly CDOs and SIVs, explicitly depended on rating agency letter ratings. Without those ratings, the transactions could not, and would not, have happened. Without the ability to obtain high ratings for CDO and SIV tranches, there would have been little appetite for overpriced lower-rated mortgage collateral. Without that appetite, there would have been little pressure leading to the proliferation of sub-prime mortgages, because those mortgages could not have been offloaded through “second-level” securitizations. Without the proliferation of low quality mortgages, there would not have been a dramatic housing market rise and fall, with the attendant ripple effects.

It is more difficult to say whether credit ratings were a “proximate” cause of the crisis, but there are strong arguments here as well. Overreliance on ratings led banks to hold super-senior exposure they otherwise would have assessed more carefully. Overreliance on ratings led regulators to misperceive the extent to which speculation on sub-prime mortgages had spread, or to where. Overreliance on ratings led institutional investors to take on hidden correlation bets, which their directors, officers, and shareholders did not understand.

Overreliance on ratings was a central component of the credit crisis. In responding to the crisis, and in planning and implementing reforms, regulators should not focus exclusively on proposals related to lending abuses, bank rescues, credit expansion, and macroeconomic or cyclical factors. They should not miss the crucial role of credit ratings.

REFERENCES

- Bank of England (2008), *Financial Stability Report*, April.
- BIS (2005), *The Role of Ratings in Structured Finance: Issues and Implications*, Committee on the Global Financial System, January.
- Hickman, W.B. (1958), *Corporate Bond Quality and Investor Experience*, National Bureau of Economic Research.
- Hull, J., and A. White (2006), Valuing Credit Derivatives Using An Implied Copula Approach, *Journal of Derivatives*, Winter, Vol. 14 (2), p. 8-28.
- Mason, J.R., and J. Rosner (2007), *Where Did the Risk Go? How Misapplied Bond Ratings Cause Mortgage Backed Securities and Collateralized Debt Obligation Market Disruptions*, SSRN Working Paper: <http://ssrn.com/abstract=1027475>, May 3.
- Moody's Investors Service (2005a), *Collateralized Debt Obligations: A Moody's Primer*, March.
- Moody's Investors Service (2005b), *Moody's Revisits its Assumptions Regarding Structured Finance Default (and Asset) Correlations for CDOs*, June.
- Moody's Investors Service (2006), *Moody's Modeling Approach to Rating Structured Finance Cash Flow CDO Transactions*, September.
- Moody's Investors Service (2008), *A Short Guide to Subprime*, March.
- Partnoy, F. (1999), The Siskel and Ebert of Financial Markets?: Two Thumbs Down for the Credit Rating Agencies, *Washington University Law Quarterly*, Vol. 77, p. 619-712.
- Partnoy, F. (2006), How and Why Credit Rating Agencies Are Not Like Other Gatekeepers, in: *Financial Gatekeepers: Can They Protect Investors?*, Y. Fuchita and R.E. Litan (eds.).
- SEC (2008a), *Summary Report of Issues Identified in the Commission Staff's Examinations of Select Credit Rating Agencies*, July, Securities and Exchange Commission.
- SEC (2008b), *References to Ratings of Nationally Recognized Statistical Rating Organizations*, Release Nos. IC-28327, IA-2751, File No. S7-19-08, Securities and Exchange Commission.
- SEC (2008c), *Proposed Rules for Nationally Recognized Statistical Rating Organizations*, Release No. 34-57967, File No. S7-13-08, June, Securities and Exchange Commission.
- Senate Committee on Governmental Affairs (2002), Press Release, *Financial Oversight of Enron: The SEC and Private-Sector Watchdogs*, October 8.
- Van Deventer, D.R. (2008), CDOs and the Credit Crisis: Complexity and Model Risk in the Collateralized Debt Obligation Market Are Severe, *Bank Accounting and Finance*, June.

II HOW AND WHY CREDIT RATING AGENCIES ARE NOT LIKE OTHER GATEKEEPERS¹

Frank Partnoy

1. INTRODUCTION

A key policy question related to the recent wave of corporate and financial scandals is what should be the role of private financial market gatekeepers?² In this paper, I assess potential answers to this question with respect to the arguably least understood gatekeeper: the credit rating agency.³

Credit rating agencies clearly belong within the broad classification of financial market gatekeepers (Coffee (2004a)). They play a verification function in the fixed income markets by designating alphabetical ratings of debt. They have a substantial stock of resources to pledge as reputational capital in the event they are found to have performed poorly.⁴ They act as agents, not principals, and are paid only a fraction of the proceeds of debt issues.⁵

However, credit rating agencies differ from other gatekeepers in several important ways. Although credit rating agencies have performed at least as poorly as other gatekeepers during the past five years, their market values have skyrocketed. Since 2002, as securities firms have restructured their approach to rating shares in response to a wave of private litigation and government prosecution (and to the general decline in the reputation of the ratings of securities analysts). The credit rating process has remained largely intact and credit ratings have become more prominent, important, and valuable.

In addition, credit rating agencies continue to face conflicts of interest that are potentially more serious than those of other gatekeepers: they continue to be paid directly by issuers, they give unsolicited ratings that at least potentially pressure issuers to pay them fees, and they market ancillary consulting services related to ratings. Credit rating agencies increasingly focus on structured finance and new complex debt products, particularly credit derivatives, which now generate a substantial share of credit rating agency revenues and profits. With respect to these new instruments, the agencies have become more like “gateopeners” than gatekeepers; in particular, their rating methodologies for Collateralized Debt Obligations (CDOs) have created and sustained that multi-trillion

1 This paper is part of the Legal Studies Research Paper Series, Research Paper No. 07-46.

2 The pre-2002 literature on gatekeepers was extensive. See, e.g., Partnoy (2001), Coffee (1999), Choi (1998), Kraakman (1986), Gilson and Kraakman (1984), Kraakman (1984), Dooley (1972). The literature on gatekeepers has experienced something of a renaissance in response to the collapse of Enron and WorldCom. For a more recent discussion, see Coffee (2004a), Partnoy (2004), Coffee (2004b), Oh (2004) and Cunningham (2004). There also is an extensive literature on lawyers as gatekeepers, see Jackson (1993), Coffee (2003) and Zacharias (2004).

3 See Pettit, Fitt, Orlov and Kalsekar (2004), Credit ratings are rarely even mentioned in business schools and remain one of the most understudied aspects of modern corporate finance.

4 As noted in section 2.1, there are serious questions about whether fluctuations in the rating agencies' reputations affect their stock of capital. For example, during the past five years, as the market capitalization of most financial market gatekeepers has fallen, the market capitalization of the major rating agencies has increased. Not coincidentally, during the same time, rating agencies have not been subject to civil or criminal liability for malfeasance.

5 Rating agency fees are in the range of 3 to 4 basis points of the face amount for rating a typical corporate bond issue, and substantially more for complex issues. See section 2.1.

dollar market.⁶

Why are credit rating agencies so different from other gatekeepers? Part of the reason is that the most successful credit rating agencies have benefited from an oligopoly market structure that is reinforced by regulations that depend exclusively on credit ratings issued by Nationally Recognized Statistical Rating Organizations (NRSROs).⁷ These regulatory benefits – which I call “regulatory licenses” – generate economic rents for NRSROs that persist even when they perform poorly and otherwise would lose reputational capital. Until recently, there were only three NRSROs: Moody’s, Standard & Poor’s, and Fitch.⁸

Another reason credit rating agencies differ from other gatekeepers is that they have been largely immune from civil and criminal liability for malfeasance. Some securities law rules specifically exempt credit rating agencies from liability. More importantly, several lower-court judges have accepted – wrongly, in my opinion – the rating agencies’ arguments that ratings are opinions protected by the First Amendment.

Various proposals have been put forth to reform credit rating agencies, particularly NRSROs. Some initiatives have been directed at increasing competition among agencies by opening the process of designating NRSROs (SEC (2005)). A few commentators have proposed eliminating the NRSRO designation entirely (Pollock (2005)). Recently introduced legislation would require credit rating agencies to register with the Securities and Exchange Commission, in the same way public corporations register; this legislation would require disclosure of material facts, but not would not impose other substantive requirements.⁹ Since 1999, I have advanced a proposal to substitute market-based measures – such as credit spreads – for credit ratings in the numerous regulations that depend on NRSRO ratings (Partnoy (1999)).

Credit ratings continue to present an unusual paradox: rating changes are important, yet possess little informational value.¹⁰ Credit ratings do not help parties manage risk, yet parties increasingly rely on ratings. Credit rating agencies are not widely respected among market participants, yet their franchise is increasingly valuable. The agencies argue that they are merely financial journalists publishing opinions, yet market participants value ratings far more than the opinions of other publishers.

In this paper, I will argue that optimal policy with respect to credit rating agencies should account for the ways in which agencies differ from other gatekeepers. In Section 2, I describe how agencies are different from other gatekeepers. In Section 3, I explain some of the reasons why these differences have persisted, and in some cases widened. In Section 4, I assess various policy proposals, and argue that an ideal policy should both reduce the value of regulatory licenses and increase the threat of rating agency liability. Simply put, the best proposals would help resolve the paradox of credit ratings by creating incentives for credit rating agencies to generate greater informational value while reducing the impact of ratings on markets.

6 I discuss credit derivatives in greater detail in section 2.3.

7 The Securities and Exchange Commission controls the NRSRO designation process, although numerous regulations outside the securities area depend on NRSRO status. For an excellent description of the structure of the credit rating business.

8 The SEC recently approved two additional NRSROs, so that currently, Moody’s, S&P, Fitch, DBRS and A.M. Best Company, Inc. are designated as NRSROs.

9 See H.R. 2990, The Credit Rating Agency Duopoly Relief Act (2005).

10 See Partnoy (2002) at 65-84; see also Schwarcz (2002).

2. HOW CREDIT RATING AGENCIES ARE NOT LIKE OTHER GATEKEEPERS

The differences between credit rating agencies and other gatekeepers are stark. Credit rating agencies are more profitable than other gatekeepers, they face different and potentially more serious conflicts of interest, and they are uniquely active in structured finance, particularly CDOs. I assess each difference in turn.

2.1. Profitability

I consider the profitability of credit rating agencies from two perspectives. First, I briefly examine the history of these agencies, and conclude that the business of rating bonds generally was not highly profitable until very recently. Second, I look more closely at the extraordinary increase in the profitability of credit rating agencies during the past five years. The performance of credit rating agencies is precisely the opposite of that of other gatekeepers, which were consistently profitable during the twentieth century, but have experienced difficulties during the past five years.

To put the profitability of modern credit rating agencies in context, it is worth remembering that before the 1970s, the agencies' business model was radically different than it is today. Before the 1970s, when the Securities and Exchange Commission created the NRSRO designation and various regulations began to depend on NRSRO ratings, credit rating agencies made money by charging subscription fees to investors, not ratings fees to issuers. In contrast, today roughly 90 percent of credit rating agencies' revenues are from issuer fees.¹¹

The modern credit rating industry grew out of various American firms that began classifying bonds, primarily railroad bonds, during the late nineteenth century. By 1890, Poor's Publishing Company, predecessor of today's S&P, was publishing Poor's Manual, an analysis of bonds.¹² During the following two decades, numerous analysts issued railroad industry reports elaborate statistics and details about operating and financial data for individual companies.¹³

John Moody collected these details and believed that investors would pay for a service that synthesized the mass of information into an easily digestible format.¹⁴ He published his first rating scheme for bonds in 1909, in a book entitled *Analysis of Railroad Investments*, but there wasn't much demand for his ratings until the market boom of the 1920s. By 1924, the market for bond ratings was more competitive than it is today: Poor's, Standard Statistics Company, Inc., Fitch Publishing Company, and others published rat-

¹¹ See Moody's Form 10-K at 18-22.

¹² See, e.g., *In re Bartol*, 38 A. 527 (Pa. 1897) (approving of reference to Poor's Manual of 1890).

¹³ In 1906 and 1907, two prominent reports were published concerning the railroad industry – "The Earning Power of Railroads" by Floyd Mundy and "American Railways as Investment" by Carl Snyder – and John Moody relied heavily on both reports. See Partnoy (1999).

¹⁴ According to Moody, "While no one in this country had attempted such a thing as investment ratings by means of symbols, yet even in those days bonds were classified into groups according to quality and salability, especially by large investment institutions, such as insurance companies. Moreover there had existed for a considerable time, I think, a bond rating system in Vienna and also, I believe, in Berlin. These foreign systems had been developed by symbols and the Austrian Manual of Statistics, which carried these symbols, was quite well known in Europe, although not at all in this country." Harold (1938) quoting from John Moody, in a letter to Harold dated August 21, 1934.

ings, in addition to John Moody's rating company.¹⁵ These early rating agencies made money by charging investors a subscription fee; they did not charge issuers.

Following the 1929 crash, the credit rating industry began a general decline.¹⁶ Investors were no longer very interested in purchasing ratings, particularly given the agencies' poor track record of anticipating the sharp drop in bond values beginning in late 1929. One infamous case involved a default by the Chicago, Rock Island & Pacific on bonds that all of the major agencies had given their highest ratings.¹⁷ Investors recognized that the ratings were not of especially great value and in any event were based largely on publicly available information.

The rating business remained stagnant for decades. According to a study of 207 corporate bond rating changes from 1950 to 1972, credit rating changes generated information of little or no value; instead, such changes merely reflected information already incorporated into stock market prices (indeed rating changes lagged that information by as much as eighteen months) Pinches and Singleton (1978). Concern about the failure of the rating agencies to generate accurate and reliable information led to public arguments for regulation of the credit rating industry.¹⁸

Yet the agencies were not regulated, in part because regulators perceived that they did not play a prominent role in the financial system. During the early 1970s, the SEC decided that instead of regulating the credit rating industry, it would begin relying on the ratings of a handful of major credit rating agencies in making certain regulatory determinations, beginning with the calculation of net capital requirements for broker dealers.¹⁹ In adopting these net capital rules, the SEC created the NRSRO concept, although it neither defined the term nor indicated which agencies qualified as NRSROs. During the following years, the SEC suggested through a series of no-action letters that the major established credit rating agencies qualified for NRSRO designation, but that other smaller agencies did not.

Over time, the SEC – and then other administrative agencies, as well as Congress – established additional legal rules that depended on NRSRO ratings.²⁰ This shift in regulatory approach corresponded to a change in the economics of the credit rating industry. In particular, credit rating agencies abandoned their long-held practice of charging investors for subscriptions, and instead began charging issuers for ratings based on the size of the issue. As additional regulations came to depend more on NRSRO ratings, those ratings became more important, and more valuable. Notwithstanding these changes, during the 1980s, the business of rating bonds grew only modestly. In 1980, there had been just thirty professionals working in the S&P Industrials group; by 1986, there were

15 Partnoy (1999) at 639.

16 There is some evidence that regulations from the 1930s that depended on credit ratings encouraged the use of ratings and led to some resurgence in the industry. However, those profits were short lived, and by the end of World War II, credit rating agencies were not especially profitable.

17 Partnoy (1999) at 643.

18 See Wakeman (1981). Wakeman found that by the 1970s, bond ratings simply mirrored the market's assessment of a bond's risk and generated little information not already reflected in the market price of the bonds. See also Braddock Hickman (1958) who assesses default rates of investment and non-investment grade bonds through 1943.

19 SEC Rule 15c3-1 set forth certain broker-dealer "haircut" requirements, and required a different haircut for securities based on credit ratings assigned by NRSROs.

20 Partnoy (2002) at 74-78.

still only forty.²¹

The major rating agencies dramatically increased the number of bonds they issued during the 1990s. By 1997, Moody's was rating 20,000 public and private issuers in the U.S., and about 1,200 non-U.S. issuers, both corporations and sovereign states; S&P rated slightly fewer in each category. Moody's rated \$5 trillion worth of securities; S&P rated \$2 trillion. Both companies' operating margins were thought to be in the range of thirty percent (Moody's had not yet gone public, and McGraw-Hill, S&P's parent, did not publish much information about S&P's profitability).²² The agencies' power and profitability at this time were reflected in a quip by commentator Thomas Friedman that there were only two superpowers in the world – the United States and Moody's – and that sometimes it wasn't which one was more powerful.²³

It is remarkable that the recent meteoric ascent of credit rating agency revenues and profits began only several years after Friedman's quote. Consider Chart 1, which depicts the increase in the revenues and net income of Moody's during its life as a public company since 2000.

Chart 1 – Moody's Income Statement Data, 2000-04 (\$MMs)

	2004	2003	2002	2001	2000
Revenue	1438	1247	1023	797	602
Expenses	652	584	485	398	314
Operating Income	786	663	538	399	288
Net Income	425	364	289	212	159

As of early September 2005, Moody's market capitalization was more than \$15 billion, roughly the same as Bear Stearns Companies Inc., a major investment bank. Yet Bear Stearns had 11,000 employees and \$7 billion of revenue, whereas Moody's had 2,500 employees and \$1.6 billion of revenue. Moody's operating margins have consistently been more than 50 percent since 2000, even higher than they were during the 1990s. Moody's share price trades at a significantly higher multiple than the typical publicly traded gatekeeper. Moody's diluted EPS for 2004 was just \$2.79 per share, and its stock price in 2005 was in the range of \$50 to \$60 per share. In contrast, investment bank P/E ratios have been closer to 10. Perhaps most remarkable is that Moody's \$15 billion market capitalization is supported by assets of just \$1.4 billion.

Moody's success is even more striking because of the simplicity of its business, the vast majority of which is fee income from ratings. For example, Moody's has not used derivatives and has not had any off-balance sheet arrangements with unconsolidated entities or financial partnerships. Nor does Moody's take on substantial interest rate or credit risk.

Although similar data is not available for S&P Ratings Services, whose stock is not

²¹ Partnoy (1999) at 649.

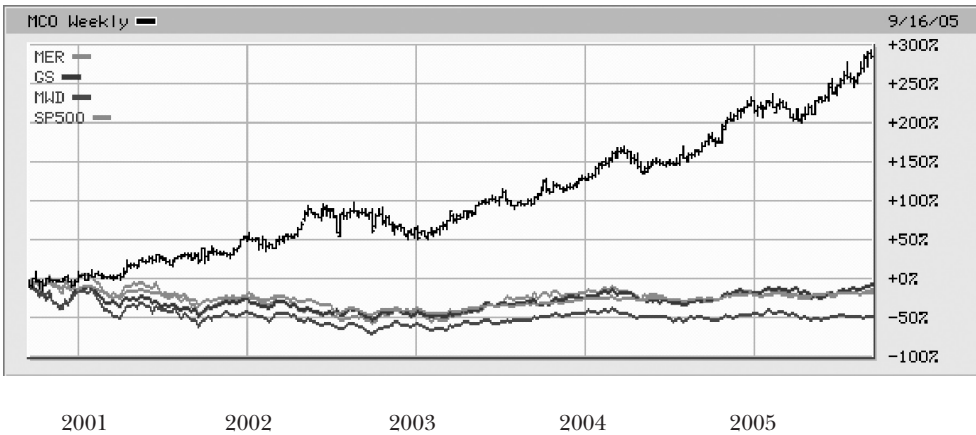
²² Partnoy (1999) at 650. Moody's was owned by The Dun & Bradstreet Corporation prior to its spinoff in September 2000.

²³ The NewsHour with Jim Lehrer: Interview with Thomas L. Friedman, PBS television broadcast, Feb. 13, 1996.

publicly traded, it appears to be similarly profitable. As of September 2005, S&P and Moody's had credit ratings outstanding on roughly the same number and amount of debt instruments. S&P had credit rating opinions outstanding on approximately \$30 trillion of debt, including 745,000 securities issued by roughly 42,000 obligors in more than 100 countries.²⁴ Moody's numbers were roughly the same.²⁵

In financial terms, the credit rating agencies have been moving in the opposite direction of other gatekeepers. While the value of Moody's shares has increased by more than 300 percent during the past five years, most banks' shares have declined in value. Accounting firm profits also have declined, at least until the Sarbanes-Oxley Act of 2002 generated new opportunities. Arthur Anderson is gone, and KPMG barely survived. Most gatekeepers have experienced high volatility during the past five years. But Moody's shares have steadily increased during this period, as depicted in Chart 2.

Chart 2 – Moody's Share Price vs. S&P 500 vs. Major Investment Banks



A portion of the relative decline in the value of other gatekeepers' shares reflects the legal settlements and future expected liability of banks and accounting firms. While other gatekeepers have paid billions of dollars in legal settlements during since 2002, the credit rating agencies have paid virtually nothing. The primary reason for this difference is that the rating agencies have successfully defended against litigation by claiming their business is financial publishing so that their ratings are "opinions" protected by First Amendment privileges. That liability issue is addressed in Section 3.2.

Although Moody's might say it is in the financial publishing business, market participants do not believe it. Moody's is substantially smaller than the other major financial publishers and generates less revenue, but has a much higher market capitalization. Consider the following financial data from Moody's, along with that of two major financial publishers, Dow Jones and Reuters.²⁶

²⁴ See Testimony of Rita M. Bolger, Managing Director and General Counsel for Standard & Poor's Ratings Services (2005C), Ex. A at 1.

²⁵ Moody's 2004 Form 10-K at 3.

²⁶ The comparison is similar for other publicly traded companies in the publishing industry.

Chart 3 – Moody’s vs. Major Financial Publishers

	Mkt Cap	Revenue	Employees	Oper Cash	Oper Marg	Pr/Rev	Pr/Empl
Dow Jones	\$3.3bn	\$1.7bn	7,143	\$224MM	9%	1.9	\$461,991
Reuters	\$9.3bn	\$5.3bn	15,475	\$413MM	11%	1.8	\$600,969
Moody’s	\$15.2bn	\$1.6bn	2,500	\$632MM	54%	9.5	\$6,080,000

As of September 2005, Dow Jones had revenues that were slightly higher than Moody’s and had nearly three times as many employees, yet Moody’s shares were worth nearly five times as much. Reuters, a much larger firm than Moody’s by most measures, has a much smaller market capitalization. The reasons are obvious: Moody’s has much higher operating margins. Investors will pay five times more for a dollar of Moody’s revenue than for a dollar of the revenues of Dow Jones or Reuters. Each Moody’s employee is associated with ten times more market value than each Dow Jones or Reuters employee. By virtually any financial measure, Moody’s has a much more valuable franchise than other financial publishing firms, and is much too profitable to be considered a financial publisher. If Moody’s were in the same business as financial publishing firms, one would expect these ratios to be close.

In sum, credit rating agencies have been more profitable than other gatekeepers. Unlike the “opinions” of other gatekeepers, the ratings of NRSROs are increasingly important and valuable.²⁷ This is true notwithstanding the abysmal recent performance of credit rating agencies.²⁸

2.2. Conflicts of Interest

All of the major gatekeepers have been accused of serious conflicts of interest. However, the conflicts at credit rating agencies are different, and potentially more serious than those at other gatekeepers, not only because agencies are paid directly by the issuers they rate, but also because the vast majority of rating agencies’ revenues are from those fees. In addition, those credit rating agencies with market power, specifically S&P and Moody’s, have been developing ancillary businesses, including consulting, that other non-credit rating agency gatekeepers are now restricted in developing.

The SEC recently conducted formal examinations of the three major NRSROs, and

²⁷ Both anecdotal evidence and academic studies suggest that rating changes are increasingly important events. See SEC (2003) noting that “the importances of these opinions to investors and other market participants, and the influence of these opinions on the securities markets, have increased significantly”.

²⁸ Although the credit rating agencies argue that rating changes are correlated with actual defaults, that claim is a long goal that virtually anyone could achieve simply by reading a newspaper. The market value and regulatory importance of ratings suggests that agencies are at least trying to do something more than merely publish ratings that are correlated after-the-fact with default experience. Indeed, it was the agencies’ poor performance in assessing companies before the recent wave of corporate defaults led Congress to study and then critique the industry. For example, consider the following statement from Senator Joseph Lieberman, whose Senate committee held the first hearings on Enron: “The credit-rating agencies were dismally lax in their coverage of Enron. They didn’t ask probing questions and generally accepted at face value whatever Enron’s officials chose to tell them. And while they claim to rely primarily on public filings with the SEC, analysts from Standard and Poor’s not only did not read Enron’s proxy statement, they didn’t even know what information it might contain.” Senate (2002).

reported serious concerns about conflicts of interest. The first and most obvious conflict arises from the fact that issuers pay NRSROs for their ratings. This conflict has existed since the 1970s, when the SEC began implementing NRSRO-dependent rules and rating agencies switched from charging investors to charging issuers for ratings. However, the SEC has pointed to an increase in potential conflicts in recent years.

As noted above, approximately 90 percent of rating agency revenues are from issuers who pay for ratings.²⁹ Rating agencies fees vary based on the size and complexity of the issue (Standard & Poor's Ratings Services (2005b)). For corporate debt, the fees are in the range of three to four basis points of the size of the issue, with minimum amounts in the range of \$30,000 to \$50,000 and maximum amounts in the range of \$300,000.³⁰ For structured finance issues, fees range up to 10 basis points, and fees for complex transactions are substantially higher, up to \$2.4 million.³¹

The rating agencies recognize that conflicts arise from having issuers pay for ratings, but they say that historically they have been able to manage those conflicts. For example, S&P has adopted procedures designed to ensure that no individual is able to link credit rating opinions to fees (Standard & Poor's Ratings Services (2004)).

Of course, credit rating agencies and other gatekeepers face some of the same actual and potential conflicts. For example, credit rating agency board members serve in various capacities for companies the credit rating agencies rate. WorldCom shared a director with Moody's and also received favorable ratings even after its bonds were trading at non-investment grade credit spreads.³² But unlike other financial intermediaries, credit rating agencies have not been pressured to eliminate such conflicts.

To illustrate the differences between credit rating agencies and other gatekeepers with respect to conflicts, I will focus on two areas of conflict – ancillary services and unsolicited ratings – where credit rating agencies have not been subject to as much regulatory intervention as have other gatekeepers.³³ First, with respect to ancillary services, credit rating agencies market pre-rating assessments and corporate consulting.³⁴ For an

29 Because rating agencies rate thousands of bond issues, they do not depend on any particular issuer, so the concern about conflicts is more systemic than individualized. For example, S&P has stated that no single issuer or issuer group represents more than about two percent of the total annual revenue of its rating business. See SEC Report at 41. In this way, credit rating agencies are unlike auditors, who might depend on one company for a more substantial share of revenue.

30 High volume issuers and multi-year ratings receive discounts. For a general description of credit rating agency fees, see Covitz and Harrison (2003). In addition, the agencies charge monitoring fees, cancellation fees, and initial confidential rating fees, which can be in the range of \$20,000 to \$50,000.

31 Buried in its copyright terms on its website, Moody's makes the following disclosure: "MOODY'S hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MOODY'S have, prior to assignment of any rating, agreed to pay to MOODY'S for appraisal and rating services rendered by it fees ranging from \$1,500 to \$2,400,000." See: Moody's Terms of Copyright.

32 Clifford L. Alexander, Jr., former chairman of Moody's, served on the board of WorldCom/MCI for 19 years, as well as the board of Wyeth, another company Moody's rated. Klein (2004a) at A09.

33 CDOs, discussed in Part 2.3, also present unique conflicts of interest. For example, Fitch has alleged that S&P and Moody's have engaged in anticompetitive practices in the structured finance market by "notching" – lowering their ratings on, or refusing to rate, structured finance securities unless a substantial portion of the assets in the pool also were rated by them. See Fitch Ratings (2002); see also Standard & Poor's Rating Services (2002), "For inclusion in synthetic CDOs, reference entities are rendered eligible if they have a public, private, or implied issuer credit rating (ICR) by Standard & Poor's."

34 In September 2005, S&P announced that it was abandoning its practice of providing corporate governance ratings, an ancillary service that was in potential conflict with its practice of providing credit ratings.

additional fee, issuers present hypothetical scenarios to the rating agencies to understand how a particular transaction – such as a merger, asset sale, or stock repurchase – might impact their ratings. Although the rating agencies argue that fees from ancillary services are not substantial, there is evidence that they are increasing.³⁵

In addition, Moody's, S&P, and Fitch each offer risk management consulting services. According to the SEC, the products and services offered include “public and private firm credit scoring models, internal ratings systems services, and empirical data on default incidence, loss severity, default correlations, and rating transitions.”³⁶ The SEC found that these marketing activities exacerbated the conflicts of interest at the agencies.

These ancillary services resemble consulting services offered by accounting firms. Just as an issuer might feel pressured by its auditor to use the auditor's consulting services, they might similarly feel pressure to use a credit rating agency's consulting services. Issuers might worry that if they did not purchase these other services from the agency, that decision would negatively impact their rating. Conversely, issuers might believe that if they did purchase ancillary services, their rating would improve. In addition, with respect to rating assessment services, once the agency has indicated what rating it would give an issuer after a corporate transaction, the agency would be subject to pressure to give that rating. For example, if an agency were paid a fee to advise an issuer that a stock repurchase would not affect its rating, it would be more difficult for the agency to change that issuer's rating after it completed the repurchase.

Again, the rating agencies claim they are able to manage these conflicts. They have implemented policies and procedures to separate their consulting and ratings functions. However, evidence gathered by the SEC suggests that these policies are not effective, and that rating agency analysts both perform ancillary assessments and are involved in marketing consulting services.³⁷

Obviously, the primary difference between credit rating agencies and other gatekeepers with respect to conflicts related to ancillary services is that regulators have not restricted credit rating agency consulting. In contrast, accounting firms and corporate boards face new rules regarding conflicts of interest. Research analysts at investment banks must comply with restrictions on their activities and compensation. Yet no such rules govern credit rating agencies.

A second area of conflict arises from unsolicited ratings the agencies give to some issuers. Unsolicited credit ratings have been highly controversial, and are the subject of ongoing litigation and scrutiny, but no new regulation.

Moody's has estimated in the past that one percent of its ratings have been unsolicited; S&P and Fitch have not publicly stated how frequently they issue unsolicited ratings, although they admit to engaging in the practice.³⁸ Although it is not clear precisely how frequently credit rating agencies issue unsolicited ratings, it is clear that they do it. The

³⁵ See McGraw-Hill Companies 2001 Form 10-K, “[S&P's] revenue from rating evaluation services ... increased substantially during 2000.”

³⁶ SEC Report at 42.

³⁷ SEC Report at 43.

³⁸ See Klein (2004). The extent to which Moody's continues to issue unsolicited ratings remains unclear. See *Compuware v. Moody's Investors Services, Inc.*, 324 F. Supp.2d 860 (E.D. Mich. 2004).

vast majority of ratings are solicited by issuers, but it seems reasonable to assume based on available data and empirical evidence that roughly one percent of corporate credit ratings are unsolicited. It is not clear what the percentage might be with respect to structured finance ratings.

During the past decade, the Department of Justice has opened investigations into the practice of giving unsolicited ratings, but has not yet brought a prosecution. On July 29, 2005, Moody's disclosed that it had received subpoenas from New York Attorney General Eliot Spitzer seeking information about its practice of issuing unsolicited ratings. It seems likely that regulators will continue to scrutinize unsolicited ratings.

The controversy surrounding the practice of unsolicited ratings began in 1993, when the Jefferson County School District in Colorado decided to issue new bonds to take advantage of lower interest rates.³⁹ Although it had hired Moody's for previous bond issues, it decided to hire S&P and Fitch instead of Moody's for these particular bonds.⁴⁰ On October 20, 1993, the school district priced the bonds, and they initially were selling well. However, two hours after the pricing, Moody's issued a "negative outlook" on the bonds.⁴¹ Several buyers immediately canceled their orders, and the school district was forced to reprice the bonds and pay a higher rate. It sued Moody's, alleging that this "negative outlook" contained falsehoods and had increased the cost of issuing the bonds by \$769,000.

Moody's defended against the lawsuit by arguing that its evaluation of the school district's bonds was a constitutionally protected "opinion." The court agreed, and its dismissal of the claims was upheld on appeal.⁴² For now, I want to set aside the First Amendment implications of this case (and others), which I address below in Section 3.2, and focus on the implications of unsolicited ratings.

The decision in the Jefferson County case suggested to credit rating agencies that the courts would protect them from litigation if they issued unsolicited ratings. Notwithstanding the investigation by the Department of Justice, anecdotal evidence suggests that the agencies have continued to issue unsolicited ratings.⁴³

With respect to unsolicited ratings, the credit rating agencies are unique among gatekeepers. In particular, the conflicts involving securities analysts are the reverse of those associated with credit ratings: the allegation is that analysts give unduly favorable ratings to persuade issuers to pay additional fees for other services, not that they give unduly unfavorable ratings to persuade issuers to pay for the ratings. In other words, the securities analyst conflicts are "pull" conflicts in which the analyst dangles the prospect of favo-

39 Jefferson County School District No. R-1 v. Moody's Investor's Services, Inc., 175 F.3d 848 (10th Cir. 1999).

40 Eaton (1996) at D2.

41 Moody's said, "The outlook on the district's general obligation debt is negative, reflecting the district's ongoing financial pressures due in part to the state's past underfunding of the school finance act as well as legal uncertainties and fiscal constraints" See Jefferson County, 175 F.3d at 850.

42 Moody's was separately fined \$195,000 in 2001 for obstructing justice by destroying documents in the investigation. See Klein (2004) at A01.

43 For example, Michigan Municipal Bond Authority officials said they received a Moody's bill for an unsolicited rating after they chose Fitch to rate some bonds they issued in spring 1995. They returned the bill unpaid. See *Watching the Watchers* (1996) at E1. In one publicized case, Moody's began publishing credit ratings of the bonds of Hannover Re, a large German reinsurer, after it told Moody's it didn't see the value in a Moody's rating (it already was paying S&P and Fitch ratings fees). As Hannover Re continued to refuse to pay Moody's for a rating, Moody's continued to downgrade its debt. When Moody's finally cut Hannover Re's rating to below investment grade in 2003, the company's share value declined by \$175 million. See Klein (2005) at D01.

rable ratings to obtain future fees, whereas the rating agency conflicts are “push” conflicts in which the agency threatens the issuer with unfavorable ratings to obtain current fees.

With respect to other gatekeepers, such as auditors, the notion of unsolicited ratings makes little sense. An accounting firm would not likely give an audit opinion to a non-client; indeed it likely would find it cost prohibitive to do so. It is interesting that credit rating agencies believe they are capable of publishing accurate unsolicited ratings even if they have no access to management or inside information, and are making a judgment based simply on publicly available information.⁴⁴

Finally, one twist to the practice of unsolicited ratings is that credit rating agencies might feel obligated to issue them to preserve a First Amendment defense. If the agencies only rate bonds when they receive payment from issuers, their ratings appear less like protected speech. But if the agencies are publishing “opinions” about issuers who are not paying fees, they appear to be acting more like journalists. As noted above, the evidence indicates that financial market participants do not believe credit ratings are merely the opinions of journalists. If they did, Moody’s would be worth \$3 billion, not \$15 billion. But if credit rating agencies never issued unsolicited ratings, they would appear to be even less like financial publishers, and therefore even less likely to be protected by free speech principles.

2.2.1. Structured Finance

Perhaps the starkest difference between credit rating agencies and other gatekeepers in recent years has been the increasingly substantial role the agencies play in rating new structured finance issues, particularly credit derivatives.⁴⁵ Financial institutions first began using credit derivatives during the mid-1990s as a mechanism to transfer credit risk, primarily because it enabled them to hedge the risk associated with their lending operations and to reduce balance-sheet capital requirements.

The simplest form of credit derivative – the Credit Default Swap (CDS) – facilitates the transfer of credit risk, and does not directly implicate or involve credit rating agencies. In a CDS, one party agrees to pay money to another party if a specified “credit event” occurs, typically a default on a specified bond. One party is “buying” protection against default, and will be paid in the event of default. The other party is “selling” protection against default, and will pay in the event of default. In other words, protection buyers transfer credit risk to protection sellers, in exchange for a payment, or premium, either upfront or over time.⁴⁶ The CDS market has been controversial, in part because banks used CDSs to transfer hundreds of billions of dollars of credit risk to insurance companies, pension funds, and other institutions prior to the recent wave of corporate defaults.

⁴⁴ There is an argument that unsolicited ratings are a sign of market failure in the credit rating business, because they indicate that some agencies, particularly Moody’s, believe they can extract fees from issuers by threatening to publish unduly unfavorable ratings. Such a strategy would only work if issuers did not believe there were sufficient competition to obtain a more accurate rating.

⁴⁵ Credit derivatives are private contracts in which parties agree to transfer the credit risk associated with one or more issuer. The credit derivatives market did not exist a decade ago, but suddenly has become a multi-trillion dollar market. See, e.g., JPMorgan 2005 at 1: citing estimate that at the end of 2004 the total notional size of outstanding credit derivatives was \$5 trillion.

⁴⁶ Note that a CDS also creates credit risk, because the parties are exposed not only to the underlying credit of the asset, but also to the credit of their CDS counterparty. CDSs are now traded on exchanges, as well as in private counterparty transactions. There has been pressure to move to exchange trading of CDSs in order to standardize various contract terms.

There is an active policy debate about the costs and benefits of CDSs, but it does not directly involve credit rating agencies.

Credit rating agencies enter the picture with respect to a second form of credit derivative, known as a Collateralized Debt Obligation (CDO) (Tavakoli (2003)). CDOs are structured, leveraged transactions backed by one or more classes of fixed income assets.⁴⁷ In the mid-1990s, CDOs typically were based on portfolios of high-yield corporate bonds. During the past several years, CDOs have been based on other assets, including asset backed securities, CDSs, and even other CDOs.⁴⁸

At the core of a typical CDO is a Special Purpose Entity (SPE) that issues securities to investors in several different classes, or tranches, most of which are rated by a credit rating agency. The SPE's proceeds are used to purchase a portfolio of fixed income assets. If some of the assets default, the most junior of the SPE's securities takes the first loss. Payments to each tranche are governed by a stipulated priority of payments.

There are two broad categories of CDOs that are relevant to this discussion: cash flow CDOs and synthetic CDOs. Cash flow CDOs involve the actual purchase of real fixed income assets whose cash flows are used to pay investors in the different tranches. Synthetic CDOs bundle the same kinds of credit risk exposure without real assets, by selling protection on the underlying assets using CDSs. Cash flow CDOs were motivated both by reduction in bank capital charges and potential arbitrage opportunities. Because synthetic CDOs essentially create new instruments, instead of using assets on bank balance sheets, they are motivated primarily by arbitrage, not regulation.⁴⁹

It is worth thinking about precisely how such "arbitrage" opportunities have arisen. According to S&P, "rating agencies played an important role in the development of the market since they were able to develop criteria to size default risk based on rates of the underlying obligors."⁵⁰ In other words, the rating agencies have developed methodologies for rating CDOs that result in the combination of the tranches being worth more than the cost of the underlying assets. The difference between the price investors in aggregate pay for CDO tranches and the cost of the underlying assets must be substantial, because it covers the high fees the various participants charge for structuring and arranging a CDO, and for managing the underlying assets.

So how does such "arbitrage" arise? There are two views. The first is that actual value is created during the CDO process, either because the underlying assets are mispriced or because market segmentation otherwise prevents parties from buying the types of portfolios that CDOs create. It is difficult to test this view, but there are reasons to be skeptical. Investors who want to own diversified portfolios of fixed income assets are not prohibited from doing so. Moreover, if markets were segmented by risk, one would expect market pressure to lead corporations that issue bonds to create capital structures that would be most attractive to particular market segments. Corporate bonds are not like home mort-

47 See Standard & Poor's Rating Services (2002) at 4.

48 Recently, the CDO markets have experienced some difficulties. In April and May 2005, market participants were surprised when equity tranches of CDOs suddenly became much cheaper, while mezzanine tranches became more expensive. Likewise, CDOs obviously performed poorly after the increase in corporate defaults during 2002. In 2003, S&P and Moody's downgraded 150 cashflow CDO transactions, 108 more than in 2001. See Currie (2003).

49 Structure Finance, (2002) at 5; see also Standard and Poor's (2003).

50 Standard & Poor's Structure Finance (2002) at 5.

gages, which typically cannot be purchased individually or even in diversified classes. Economists know that arbitrage opportunities rarely persist unless there is a dominant information asymmetry or regulatory explanation. The purchasers of CDO tranches typically are sophisticated and the regulatory rationales do not apply to synthetic CDOs. Moreover, the cost of this so-called “arbitrage” is enormous: if a trillion dollars of CDOs have been sold, financial intermediaries have earned billions of dollars in fees.

A second view is that because the methodologies used for rating CDOs are complex, arbitrary, and opaque, they create opportunities for parties to create a ratings “arbitrage” opportunity with adding any actual value. It is difficult to test this view, too, although there are reasons to find it persuasive. Essentially, the argument is that once the rating agencies fix a given set of formulas and variables for rating CDOs, financial market participants will be able to find a set of fixed income assets that, when run through the relevant model, generate a CDO whose tranches are more valuable than the underlying assets. Such a result might be due to errors in rating the assets themselves (i.e., the assets are cheap relative to their ratings), errors in calculating the relationship between those assets and the tranche payouts (i.e., the correlation and expected payout of the assets appear to be higher and therefore support higher ratings of tranches), or errors in rating the individual tranches (i.e., the tranches receive a higher rating than they deserve, given the ratings of the underlying assets). These arguments are complex and subtle, and a complete analysis is well beyond the scope of this paper.⁵¹

Nevertheless, it is possible to gain some insight by closely examining the CDO rating process. Consider S&P’s methodology. S&P uses a proprietary model called CDO Evaluator, which simulates the loss distribution and time to default of the assets in the portfolio using Monte Carlo methods and determines if in any of the simulations a loss trigger is breached. During the late 1990s, both S&P and Moody’s developed early versions of such models with the close cooperation of the investment banks that created CDOs. S&P released the first version of CDO Evaluator in November 2001, and has released several updated versions since then.

Once a client has signed an engagement letter, S&P and the client use CDO Evaluator to run Monte Carlo simulations to establish the default level of each proposed pool of assets at each rating level. The model uses default estimates based on the existing ratings of the assets. For example, for a tranche to be rated AAA, S&P might require that it be able to withstand a default rate of 30 percent of the asset pool for a particular period of time, assuming a level of defaults based on the ratings of those assets. The default rate for lower credit ratings would be correspondingly lower. The model also incorporates assumptions about how much of the face value might be recovered after a default.

From a mathematical perspective, pricing the tranches of a CDO is a reasonably straightforward task. First, one calculates the expected cash flows of the underlying assets over time. Then one determines how those cash flows would be paid out to each tranche over time. The equity, or most junior, tranche absorbs losses up to the first “attachment

⁵¹ The rating agencies are sensitive to these arguments. As S&P has describes the CDO process, “This is not alchemy or turning straw into gold, but rather the implementation of structured finance to create different investment risk profiles, based on the structuring of credit support.” See Standard & Poor’s Structure Finance (2002) at 14.

point.” Then the most junior mezzanine tranche absorbs losses up to the next attachment point, and so on. The rating agencies then give a credit rating to each of the tranches (but usually not to the junior tranche) based on assumptions about certain key variables, including expected default rates, recovery rates, and correlation rates among assets.

Although this process employs sophisticated mathematical techniques, the conclusions can be somewhat dubious. For example, a rating agency might run 100,000 computer simulations to determine the number of times a breach would occur, that is, how often a particular tranche would lose value beyond a certain level. However, the variable in this assessment is the number of breaches out of the 100,000 runs, not the magnitude of the breach or any qualitative analysis of the breach. For example, for a typical five-year synthetic CDO, S&P might establish a confidence interval for the AAA level of 0.284%, meaning that the particular tranche would be “breached” in 284 runs out of 100,000.

However sophisticated the techniques, they are subject to the limitations of “garbage in, garbage out.” For example, S&P calculates a probability distribution of default rates for a portfolio, and then calculates a set of Scenario Default Rates (SDRs) in two steps (Standard & Poor’s CDO Evaluator (2001)). First, for a given tranche to receive a particular rating, the probability of defaults in its portfolio exceeding the portfolio default rate cannot exceed the default rate for a corporate bond with that rating. Second, S&P multiplies the portfolio default rate by an adjustment factor depending on the tranche. This is basically an error factor that in S&P’s judgment should adjust for the fact that actual defaults might be higher or lower.

But recovery rates and recovering timing for assets vary depending on the nature of the asset, particularly its seniority. This is far from an exact science – recovery times vary by jurisdiction, legal framework, and debtor’s rights – and there rarely is historical evidence of default rates for particular assets (especially rated assets). Yet the assumed recovery inputs the rating agencies use necessarily must be precise ones.

The default probability estimates S&P uses are fixed, based on default probability estimates within a given rating category. S&P has published assumptions about default rates to be used in certain CDO calculations, as set forth in Chart 4 below (Standard & Poor’s CDO Evaluator (2001)).

Chart 4 – S&P Default Rate Assumptions for CDOs

	ABS (all)	Corp Year 4	Corp Year 7	Corp Year 10
AAA	0.25%	0.19%	0.52%	0.99%
AA	0.50%	0.57%	1.20%	1.99%
A	1.00%	0.81%	1.81%	3.04%
BBB	2.00%	1.81%	3.94%	6.08%
BB	8.00%	9.49%	14.20%	17.47%
B	16.00%	21.45%	26.15%	28.45%

If a CDO manager is able to purchase assets within a particular rating category at market prices that implied a lower default rate than the one suggested in the above

table, the manager could create an “arbitrage” profit by achieving a higher rating. To the extent purchasers of CDO tranches care primarily about ratings and yields, rather than the analysis of the actual default probability of the assets, the CDO would add value. It is important to note that the agencies rate bonds within a particular rating category, say AAA, even though market prices imply different probabilities of default. They permit CDO managers to assume that the rating agencies’ assumptions, not the market’s implicit assumptions, are the relevant ones when evaluating the tranches of CDOs. Put another way, credit rating agencies are providing the markets with an opportunity to arbitrage the credit rating agencies’ mistakes (or, more generously, the fact that rating categories cover a broad range of default probabilities, rather than a point estimate).

The problems with how CDO pricing models assess the various measures of correlation among assets are even more troubling. Clearly, the ratings of CDO tranches should be sensitive to the correlation of the underlying assets. Yet even as late as 2002, S&P’s correlation inputs for corporate assets were simply 0.3 within a given industry and 0.0 between industry sectors. The correlation inputs for asset backed securities were similar. S&P recognized that these inputs were flawed, but used them nonetheless.⁵² The Bank for International Settlements also has expressed concerns about this kind of model risk, particularly with respect to correlation.⁵³

Perhaps surprisingly, it is the investment bank structuring the CDO, not the rating agency, that typically performs these complex calculations.⁵⁴ The process of rating CDOs becomes a mathematical game that smart bankers know they can win. A person who understands the details of the model can tweak the inputs, assumptions, and underlying assets to produce a CDO that appears to add value, even though in reality it does not.

The mathematical precision of the models is illusory, because numerous subjective factors enter the process as well. For example, the rating agency evaluates the CDO asset manager, who has discretion to engage in trading. CDOs typically are not fully funded when they are first rated; instead, the manager has a set of parameters governing which assets it is permitted to buy or sell. There also are difficult questions about the documentation of CDOs, as well as record and reporting requirements, which are not yet standardized.⁵⁵

Even if these difficulties could be surmounted, consider the complexities associated with so-called “CDO Squared” transactions, whose assets consist of a reference portfolio of other CDOs and asset-backed securities (or, less commonly, “CDO Cubed” transactions, whose assets consist of a portfolio of CDO Squareds). Again, the models require assumptions about all of the variables stated above, but this time piled on to a second (or

⁵² Standard & Poor’s Structure Finance (2002) at 46: “As data becomes available, the correlation coefficients will be modified based on documented studies.”

⁵³ Bank for International Settlements (2005a). Some credit rating agency officials have echoed those concerns. See Bank for International Settlements (2005b) at 56 (quoting the head of CDOs at S&P in London as saying, “I’m not sure correlation risk has been fully understood by anyone. We try to be very clear to the market about what our assumptions are and how our models work.”).

⁵⁴ For example, S&P states that “[t]he transaction’s sponsor or banker will generally perform the cash flow modeling and provide Standard & Poor’s with the results and the model. The sponsor or the banker doing the cash flow modeling must also provide to Standard & Poor’s an independent-accountant verification that the proprietary cash flow model is representative of the transaction structure, and that the dominant cash flow run results are as indicated by the party doing the modeling.” See Standard & Poor’s Structured Finance (2002) at 17-18.

⁵⁵ Additional complications arise as to what are known as leveraged super senior notes, essentially tranches above the AAA-rated notes that take the last loss in a CDO transaction.

third) level, with respect to the underlying CDOs, in addition to the underlying assets of those CDOs. Moreover, although a typical CDO Squared transaction might involve 1,000 corporate names,⁵⁶ there are only about 400 issuers of liquid corporate bonds. That means certain names must appear more than once. According to S&P, each corporate name appears in such transactions, on average, 4.17 times.

Economists should ask why parties would do CDOs, given these complexities. If the problem is that bonds are mispriced, one would expect the CDS market to resolve that problem, or at minimum provide lower cost opportunities to arbitrage that mispricing than high-fee CDOs. If the problem is that bond purchasers and issuers are in different market segments, one would expect issuers to take advantage of potential arbitrage opportunities by adjusting their leverage to attract neglected segments of the market. Yet there is little evidence CDOs are used to create new assets with underrepresented credit ratings; instead, the ratings of CDO tranches span the same range as those of corporate bonds.

If the mathematical models have serious limitations,⁵⁷ how could they support a \$5 trillion market? Some experts have suggested that CDO structurers manipulate models and the underlying portfolio in order to generate the most attractive ratings profile for a CDO. For example, parties included the bonds of General Motors and Ford in CDOs before they were downgraded because they were cheap relative to their (then high) ratings.⁵⁸ The primary reason the downgrades of those companies had an unexpectedly large market impact was that they were held by so many CDOs.⁵⁹

With respect to structured finance, credit rating agencies have been functioning more like “gateopeners” rather than gatekeepers. The agencies are engaged in a business, the rating of CDOs, which is radically different from the core business of other gatekeepers. No other gatekeeper has created a dysfunctional multi-trillion dollar market, built on its own errors and limitations.⁶⁰

3. WHY CREDIT RATING AGENCIES ARE NOT LIKE OTHER GATEKEEPERS

Given the differences between credit rating agencies and other gatekeepers, the next question is: why? Are there substantive economic differences between the function of

56 Drill-Down Approach for Synthetic CDO Squared Transactions, Standard & Poor’s Rating Services (2003).

57 Recent research in finance shows that asset pricing models of the variety used by credit rating agencies fail to explain real world data. See Tarashev (2005). For example, observed market spreads typically are much higher than those predicted by structural models, especially at the high quality end of the rating spectrum. See Shuermann (2004). These studies suggest that there are significant non-credit components to spreads on fixed-income instruments. Moreover, such models fail to take into account tail risk, and are based on historical measures, which often are not good predictors. One would think that the collapses of firms such as Long-Term Capital Management and Askin Capital Management would have been sufficient warning to entities attempting to engage in arbitrage based on such models. See also Whitehouse (2005) at A1.

58 Likewise, more than three-fourths of the pre-2002 CDOs S&P rated in the United States contained WorldCom bonds, representing an average of more than one percent of the assets of synthetic CDOs. See Wiggins (2002) at 26. Representatives of Moody’s have stated that 58 of the synthetic CDOs it rated had exposure to WorldCom. See Bream (2002) at 31.

59 See Sender, Mollenkamp & Mackenzie (2005), quoting Janet Tavakoli, a prominent structured finance expert, as suggesting that “managers often game the portfolio”.

60 One open question is the fate of the synthetic CDO market outside the United States, where it appears that transactions are driven more by “arbitrage,” not regulatory capital motivations, particularly in Japan. See From Crisis to Opportunity (2005) at S4; see also Adams, Mathieson & Schinasi (1999), assessing the role of the major credit rating agencies in various countries.

rating credit, such that one would expect credit rating agencies to differ from other gatekeepers in the way they do? Or are the differences due to other factors?

The first reason for the differences between credit rating agencies and other gatekeepers is the regulations that depend on NRSRO ratings. It is difficult to argue that the function of providing credit ratings is much different from an economic perspective than the functions of other gatekeepers. Of course, credit rating agencies provide certification services only with respect to debt, while securities analysts provide certification services only with respect to equity. However, there is little reason to think that distinction would generate the marked differences discussed in Section 2. Indeed, financial institutions also generate credit ratings, although they are used primarily for internal purposes. However, non-NRSRO credit ratings are not particularly valuable, because they do not implicate any regulatory consequences. This argument is discussed in Section 3.1.

A second reason for the differences is that credit rating agencies generally are not subject to civil liability for malfeasance. It is not surprising that the credit rating agencies would prefer to compare themselves, not to gatekeepers such as securities analysts and auditors, but to publishing companies. As an S&P official argued at a recent legislative hearing, “The very notion that a bona fide publisher – whether it be *BusinessWeek*, *The Wall Street Journal*, or S&P – can be required under the threat of penalty or other retribution to obtain a government license, adhere to government dictates about its policies and procedures, and/or submit to intrusive examinations before being permitted to disseminate its opinions is inconsistent with core First Amendment principles.”⁶¹ This argument is discussed in Section 3.2.

3.1. Regulatory Licenses

I have argued elsewhere that the paradox of credit ratings – how they can be so valuable even though they lack informational content – can be resolved by understanding the regulatory framework in which credit rating agencies operate.⁶² I will not repeat the details of this argument here, except to note that this regulatory framework differs from that of other gatekeepers in important ways.

In particular, credit ratings are valuable, not because they contain valuable information, but because they grant issuers “regulatory licenses.” In simple terms, a good rating entitles the issuer (and the investors in a particular issue) to certain advantages related to regulation. The regulatory license view of credit ratings illuminates some of the unique aspects of the role of credit rating agencies. Once regulation is passed that incorporates ratings, rating agencies will begin to sell not only information but also the valuable property rights associated with compliance with that regulation.

Moreover, if regulation enables only a few raters to acquire and transfer regulatory licenses, or if it imposes costs on new raters that raise the barriers to entry, the rating agencies will acquire market power in the sale of regulatory licenses. Unlike rating agencies selling information in a competitive market, rating agencies selling regulatory

⁶¹ Testimony of Rita M. Bolger, Managing Director and General Counsel for Standard & Poor’s (2005c) at 2.

⁶² Partmoy (2002), at 74-78.

licenses under oligopolistic (or even monopolistic) conditions will be able to earn abnormal profits.⁶³

The regulatory license view can be generalized beyond credit ratings, and applies to a certain extent to other gatekeepers. For example, securities regulations set forth in great detail the minimum qualifications for certified and public accountants and for accountants' reports.⁶⁴ Federal regulations also require registered companies to file audited financial statements for the previous three fiscal years (17 C.F.R. 210.3-01-02). Other regulations cover the content and quality of accountant reports (17 C.F.R. 210.2-02). Section 404 of the Sarbanes-Oxley Act now requires certification of internal controls.⁶⁵

Since 1973 credit ratings have been incorporated into hundreds of rules, releases, and regulations, in various substantive areas, including securities, pension, banking, real estate, and insurance regulation.⁶⁶ As noted above, the cascade of regulation began when, following the credit crises of the early 1970s, the SEC adopted Rule 15c3-1, the first securities rule that formally incorporated NRSRO ratings. I have noted elsewhere the extensive credit-rating dependent rules and regulations promulgated under the Securities Act of 1933, the Securities Exchange Act of 1934, the Investment Company Act of 1940, various banking and insurance regulations and statutes, and other regulatory schemes.⁶⁷ More recently, international regulatory standards, including the Basel 2 capital accords, have depended on credit ratings.

Such extensive regulatory dependence on credit ratings is unique. For example, investors do not receive differential regulatory treatment when they purchase stocks with "buy" ratings from securities analysts. Investors might not buy securities of an issuer without the relevant opinion letters from an audit firm, but that audit firm's opinion typically does not determine the level of the investors' compliance with other regulation.

To the extent other gatekeepers are selling regulatory licenses, their role is problematic in ways that are similar to the above problems associated with credit ratings. Investment banking fairness opinions are unduly expensive, in part because they provide support for a due diligence defense for directors of a company who approve a merger or sale. The same is true of audit opinions, which similarly provide a legal defense. The very high fees associated with compliance with Sarbanes-Oxley Section 404 do not reflect the intrinsic market value of an accounting firm's substantive controls review, but rather reflect the expense associated with being in compliance with that new law (Langevoort (2005)).

The overriding message is that regulatory licenses are costly. They create oligopolistic pressure, and exacerbate rent-seeking among already concentrated industries. They might be necessary when a regulator is unwilling to or cannot make substantive decisions on its own and the market failure is sufficient serious to justify the cost. But as a general

63 For an assessment of the oligopolistic nature of NRSROs, see White (2002) at 41-64.

64 17 C.F.R. 210 (1999). These qualifications depend on certification requirements specified by the relevant state licensing agency.

65 Section 404 has generated enormous controversy, because of the high cost of implementation. It is not surprising that various gatekeepers have attempted to seek rents associated with Section 404, which essentially is a scheme requiring that companies obtain regulatory licenses associated with their own internal controls.

66 Partnoy (1999) at 690-95.

67 Partnoy (2002) at 74-78.

matter, regulators should be very careful not to create regulatory licenses, and once they are created they should take great care in policing them.

Unfortunately, regulators have taken no such care with respect to NRSRO ratings. Once the notion of NRSRO-based regulation became standardized, market participants began to frame decisions in terms of ratings much more frequently. To the extent financial market behavior is path-dependent, regulatory licenses have started parties down a suboptimal path, where dependence on ratings has generated behavioral influences. Once legal rules approve of reliance on credit ratings, it is only natural that individuals would come to rely heavily on such ratings as well.

3.2. Liability

The unique problems associated with credit rating agencies as gatekeepers stem from a second source: their lack of exposure to civil and criminal liability. Unlike other gatekeepers, rating agencies are explicitly immune from certain violations of securities law, including Section 11 of the Securities Act of 1933 and Regulation FD.⁶⁸ Moreover, rating agencies have been unique among gatekeepers in their ability to argue that their function is merely to provide “opinions” that are protected by the First Amendment. Because of these differences, rating agencies have not paid substantial judgments or settlements resulting from the recent wave of corporate fraud.

The credit rating agencies claim that their core business is financial publishing.⁶⁹ Specifically, NRSROs have long argued that their core activities are the journalistic pursuits of gathering information on matters of public concern, analyzing that information, forming opinions about it, and then broadly disseminating that information to the public. They have had some limited success in putting forth these arguments in litigation.

As noted above in Section 2.1, Moody’s financial statements show that it actually is engaged in an entirely different business from publishing, one which is much more profitable. In addition, in its most recent proxy statement, Moody’s itself suggests that its business is not financial publishing. It notes that it “does not believe there are any publicly traded companies that represent strict peers.”⁷⁰ For purposes of assessing the compensation paid to senior executives, Moody’s looks instead to a “peer group” of “financial services companies with market capitalization comparable to the Company.”⁷¹

68 Rule 436(g)(1) of the Securities Act of 1933, 17 C.F.R. § 230.436(g)(1) provides for exemption of liability for NRSROs: “The security rating assigned to a class of debt securities, a class of convertible debt securities, or a class of preferred stock by a nationally recognized statistical rating organization . . . shall not be considered a part of the registration statement prepared or certified by a person within the meaning of sections 7 and 11 of the Act.” NRSROs generally are shielded from liability under the securities laws for all conduct except fraud. See Senate (2002) at 105.

69 Consider the following statement by Moody’s: “As set forth more fully on the copyright, credit ratings are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell or hold any securities. Each rating or other opinion must be weighed solely as one factor in any investment decision made by or on behalf of any user of the information, and each such user must accordingly make its own study and evaluation of each security and of each issuer and guarantor of, and each provider of credit support for, each security that it may consider purchasing, selling or holding.” See Moody’s Ratings Definitions (2005).

70 Moody’s 2004 Proxy Statement, Mar. 23, 2005 at 24. For the purposes of assessing its share price performance, Moody’s compares itself to publishing companies, including Dow Jones and Reuters. As noted in Part II.A., Moody’s is not comparable to those two companies from a financial perspective.

71 Moody’s 2004 Proxy Statement (2005) at 22.

Interestingly, Moody's does not provide a list of the names of any of these companies, but leaves it to investors to guess at which financial services companies might provide relevant benchmarks for paying executives.

But even if one accepted the argument that credit rating agencies are financial publishers, that does not end the inquiry. It remains a question whether holding such a publisher or speaker liable for malfeasance would impact expression.⁷² The securities laws are predicated on the assumption that corporate speech can be regulated. The Supreme Court has clearly indicated that "commercial speech" can be regulated to the extent it is false or misleading.⁷³ Moreover, the securities laws provide for liability for false and misleading statements even if those statements were not made with the kind of malicious intent that is required for other forms of speech.⁷⁴ If speech by an issuer can be regulated, it should follow that speech by an agent of the issuer, whom the issuer has paid to speak, also can be regulated, on a similar rationale.

The Supreme Court has never ruled directly on the issue of whether gatekeepers are entitled to First Amendment protection for their opinions, and it is not clear what position it would take. In one somewhat related case, *Dun & Bradstreet v. Greenmoss Builders*,⁷⁵ the Supreme Court held that statements made in an individual's credit report are not a matter of public concern that would give a credit reporting agency (in this case, Dun & Bradstreet, the former parent of Moody's) special privileges under the First Amendment. Although *Dun and Bradstreet* is not directly on point, the Court did note in that case that the market-driven nature of the speech made heightened First Amendment protection unnecessary. On the other hand, in a different case also not directly on point, *Lowe v. SEC*, the Supreme Court noted in dicta that "It is difficult to see why the expression of opinion about a marketable security should not also be protected."⁷⁶

In the lower courts, both S&P and Moody's have persuaded some judges to dismiss claims against them (Fitch has had less success), and to note that credit ratings were protected expressions of opinion.⁷⁷ However, the courts have distinguished situations where credit rating agencies were merely acting as journalists or information gatherers from situations where the agencies were playing a more significant role in structuring the transaction to be rated.

The most recent case was part of the Enron litigation in federal district court in Texas. In one of the numerous actions in *Newby v. Enron Corp.*, the consolidated litigation by various investors against numerous Enron-related entities, Connecticut Resources Recovery Authority (CRRRA) sued to recover approximately \$200 million of public funds it lost on a complex transaction it did with Enron in December 2000.

The transaction effectively was a \$220 million loan from CRRRA to Enron. Enron

⁷² See County of Orange, 245 B.R. at 154: "S&P's status as a financial publisher does not necessarily entitle it to heightened protection under the First Amendment".

⁷³ Central Hudson Gas & Electric Corp. v. Public Service Commission, 447 U.S. 557 (1980).

⁷⁴ New York Times v. Sullivan, 376 U.S. 254 (1964).

⁷⁵ Dun & Bradstreet, Inc. v. Greenmoss Builders, Inc., 472 U.S. 749 (1985).

⁷⁶ Lowe v. SEC, 472 U.S. 181, 210 n. 58 (1985).

⁷⁷ See, e.g., Jefferson County Sch. Dist. No. R-1 v. Moody's Investor's Servs., 175 F.3d 848, 856 (10th Cir. 1999): dismissing claims for tortious interference, injurious falsehood, and anti-trust violations because Moody's credit ratings are "protected [*177] expressions of opinion", County of Orange v. McGraw-Hill Cos., 245 B.R. 151, 157 (C.D. Cal. 1999): "The First Amendment protects S&P's preparation and publication of its ratings."

stopped making payments after it filed for bankruptcy protection on December 2, 2001, and CRRR sued S&P, Moody's, and Fitch, alleging that they were liable for negligent misrepresentation and violations of the Connecticut Unfair Trade Practices Act, because they failed to exercise reasonable care or competence in obtaining and communicating accurate information about Enron's creditworthiness.⁷⁸ Specifically, at the time of the transaction between CRRR and Enron, all three agencies gave Enron's debt ratings in the investment grade category. CRRR claimed those ratings were undeserved.⁷⁹

The Newby court found opinion divided on the question of credit rating agency liability, and concluded that any First Amendment protection for credit ratings was "qualified," not absolute.⁸⁰ In other words, credit ratings clearly can be regulated, the same as other corporate speech that is not entitled to absolute First Amendment protection. The court further observed that there is a potential conflict of interest created by compensation of credit rating agencies.⁸¹ However, the court ultimately dismissed the rating agencies from the case, in part because of the weak factual allegations made by CRRR.

Before the Enron litigation, various courts had reached a range of results in cases filed against the rating agencies. In the Orange County litigation, the judge dismissed some, but not all, of the claims against S&P, and ruled that S&P's constitutionally protected speech "was not absolutely privileged."⁸² In *Commercial Financial Services v. Arthur Andersen*,⁸³ a case involving ratings of asset backed securities, the court held that the First Amendment did not protect the credit rating agencies. The crucial distinction between the CFS case and the Orange County litigation was that CFS had asked Moody's to rate its bonds and had in fact paid Moody's for rating them. (In *Jefferson County*, the unsolicited ratings case discussed above, Moody's had not been asked to rate the bonds and was not paid.) The court noted that although a journalist's speech might be protected, if CFS had hired that journalist to write a company report about the bonds, a different standard would apply.

Other cases have suggested that the question of whether credit rating agencies are liable depends on particular circumstances such the sophistication of the investor and the complexity of the transaction. In *Quinn v. McGraw-Hill*, the Seventh Circuit suggested that it was unreasonable for an investor to rely on an "A" rating from S&P, but permitted claims for negligent and fraudulent misrepresentation against S&P to go forward nonetheless.⁸⁴ In *American Savings Bank v. UBS PaineWebber*, the court held that "the journalist privilege is a qualified one. Fitch is not primarily engaged in newsgathering generally, nor was it doing so when procuring the information sought by the subpoenas. The Court finds that Fitch is not entitled to the protections offered by the journalist privilege."⁸⁵

78 Newby v. Enron Corp., 2005 U.S. Dist. LEXIS 4494, p. 174 (S.D. Tex. Feb. 16, 2005).

79 As of October 2000, S&P gave Enron a BBB+ rating with "unsecured outlook stable," Moody's gave Enron a Baa1 rating with "no watch," and Fitch gave Enron a BBB- rating.

80 Newby, p. 203.

81 Newby, p. 216.

82 See In re: County of Orange, debtor, County of Orange v. McGraw Hill Cos. Inc., D.C. Calif., SA CV 96-765 GLT, Bankruptcy No: SA 94-22272 JR, 3/16/98; see also Orange County May Proceed With Claims Against Standard and Poor's, 30 BNA 444, Mar. 20, 1998. S&P settled the case with a payment of \$ 140,000 to Orange County.

83 Commercial Financial Services, Inc. v. Arthur Andersen LLP, 94 P.3d 106, 109 (Okla. Civ. App. 2004): "The Rating Agencies' ratings fall somewhere between those opinions which receive constitutional protection and those that do not."

84 See Quinn v. McGraw-Hill Companies, Inc., 168 F.3d 331, 336 (7th Cir. 1999).

85 Am. Sav. Bank, FSB v. UBS PaineWebber, Inc., 2002 U.S. Dist. LEXIS 24102 at * 2-3 (S.D.N.Y. Dec. 16, 2002).

The transaction at issue in that case was a CDO.

Rating agencies have had success challenging subpoenas and refusing to turn over documents, although the courts generally have given them only a qualified journalist's privilege, if any privilege at all. For example, in August 1992, Pan Am served a document subpoena on S&P seeking information about meetings between S&P and Delta as part of S&P's credit rating process. (Pan Am had alleged that it was forced to stop flying when Delta repudiated a commitment to fund Pan Am's reorganization.) S&P refused to produce the documents, claiming the journalist's privilege. A bankruptcy court held a hearing and ruled that S&P was not acting as a journalist when it gathered the relevant information.⁸⁶ Judge Blackshear noted that S&P's activities were market driven and that it received fees for its ratings activity. Judge Loretta Preska reversed the ruling and found that S&P was protected by the First Amendment, noting that other journalists, including television reporters, newspaper publishers, and booksellers all receive First Amendment protection even though their speech is profit-motivated.⁸⁷

What is one to make of these disparate decisions? The most one can say is that to the extent a credit rating agency only plays the role of information gatherer, and is not involved in structuring the transaction it rated, courts have been more sympathetic to claims that credit rating agencies are entitled to qualified protection.⁸⁸ However, the courts have been more skeptical of free speech claims where the rating agency has played a significant role in structuring the transaction it rated.⁸⁹ Obviously, this is an area that would benefit from some clarification.

Perhaps the reason credit rating agencies have been unique among gatekeepers in obtaining at least partial First Amendment protection for their certifications is that they have more clearly disclaimed the value of their opinions. Unlike equity analysts, who provide "buy," "hold," or "sell" recommendations, credit rating agencies say that they are not providing investment advice.⁹⁰ In any event, credit rating agencies have used the privilege more effectively than any other gatekeeper, not only to avoid liability, but to avoid regulatory scrutiny.

Finally, it is interesting that the credit rating agencies seem to be worried that their First Amendment protections might be at risk. Moody's has noted in its financial statements that it "faces litigation from time to time from parties claiming damages relating to ratings actions. In addition, as Moody's international business expands, these types of claims may increase because foreign jurisdictions may not have legal protections or liability standards comparable to those in the U.S. (such as protections for the expression

86 *In re Pan Am Corp.*, 161 B.R. 577 (S.D.N.Y. 1993).

87 But this argument creates problems for rating agencies who argue both that their ratings are speech and who do not issue unsolicited ratings. Courts have based decisions in part on the fact that rating agencies rate all issuers, not merely those that pay them fees to do so. See *In re Pan Am Corp.*, 161 B.R. 577 (S.D.N.Y. 1993): "The record is uncontradicted that S&P does not merely provide ratings to issuers who pay a fee." To the extent the rating agencies only provide ratings to issuers who pay them for the ratings, their argument is weaker.

88 *Compuware Corp. v. Moody's Investors Services, Inc.*, 324 F. Supp.2d 860 (E.D. Mich. 2004): Moody's was entitled to protection as a journalist under New York's reporter's privilege statute.

89 See *In re Fitch*, 330 F.2d 104, 111 (2d Cir. 2003): finding such a relationship was "not typical of the relationship between a journalist and the activities upon which the journalist reports".

90 Although equity analyst opinions are typically thoroughly disclaimed today, those disclaimers were weaker before 2001.

of credit opinions as is provided by the First Amendment).⁹¹ The SEC was hampered in its investigation of NRSROs by claims that the First Amendment shielded them from producing certain documents to the SEC, and the legislative report on credit ratings was skeptical of the First Amendment claims of credit rating agencies.⁹² This difference between credit rating agencies and other gatekeepers might be short-lived, as judicial doctrine shifts and rating agency lobbying becomes less effective. In other words, the primary reason for this difference might be that no authoritative body has carefully considered the question of credit rating agency liability.

4. PROPOSALS

It follows from the discussion in Section 3 that policy solutions should address the reasons why credit rating agencies are not like other gatekeepers. The ideal proposals would reduce the benefits associated with regulatory licenses and impose a real threat of liability on credit rating agencies for malfeasance.

4.1. Reduce the Benefits of Regulatory Licenses

There are various ways to reduce the benefits associated with regulatory licenses. The simplest would be to remove the NRSRO designation. One preliminary question is whether the markets could function properly without this designation. Prior to the 1970s, they operated reasonably well, so there are reasons to think the markets and regulators could adapt to a system without NRSROs. It might be a difficult transition, as regulators would be forced to make the kinds of decisions they previously had made with respect to substantive regulation of financial market participants. They would no longer be able to delegate important authority and responsibility to NRSROs. For example, the SEC would need to decide how to assess the net capital requirements of broker dealers. Regulators would need to determine which bonds were appropriate for money market funds. The Basel 2 accords suggest that some regulators might have the ability to perform such tasks. Although Basel 2 relies in part on credit ratings, it also contains alternative mechanisms for determining bank capital requirements without reference to credit ratings.

However, while it might be a good idea to eliminate the NRSRO designation, it seems politically unlikely. A more plausible possibility is to find a replacement for NRSROs. There are three alternatives to the current regime. First, regulators could open the market to new NRSROs. Second, regulators could replace NRSROs with a market-based measure such as credit spreads or credit default swaps – or even an equity-based measure of credit risk. Third, regulators could replace the concept of recognition in the NRSRO regime with the concept of “registration” more familiar in securities regulation more

⁹¹ Moody's 2005 Form 10-K at 31-32.

⁹² The report noted: “The fact that the market seems to value the agencies’ ratings mostly as a certification (investment grade v. non-investment grade) or as a benchmark (the ratings triggers in agreements) and not as information, and the fact that the law, in hundreds of statutes and regulations, also uses their work that way, seems to indicate that their ratings are not the equivalent of editorials in *The New York Times*. The fact that the rating agencies have received First Amendment protection for their work should not preclude greater accountability.” Senate (2002) at 124.

generally. Recently introduced legislation has taken this last approach. Any of these approaches likely would be superior to the current regime.

4.1.1. *Open the Market to New NRSROs*

In April 2005, the SEC proposed new rules defining the term NRSRO.⁹³ The SEC suggested that one regulatory solution might be simply to approve more NRSROs. Moody's has indicated it would support proposed new rules opening the market to competition from other agencies.⁹⁴

One weakness of this approach is that simply adding NRSROs will not eliminate regulatory licenses. To the extent there are natural monopoly pressures in the credit rating industry, those pressures would persist. It is worth remembering that twenty years ago there were many more NRSROs, but consolidation in the industry reduced that number to three. If the credit rating industry is a natural monopoly, even if the SEC approves new NRSROs, the market will consolidate, unless antitrust regulators or other pressures prevent it from doing so.

Moreover, opening the market to new NRSROs also raises the question of which credit rating agencies will qualify for designation. The criteria the SEC has suggested should be the basis for assessing new NRSROs are problematic, and are likely to cement the current oligopoly structure.⁹⁵ Nor is it clear that opening the market to competition would generate any new informational value. Even absent consolidation, there is an argument that opening the market to competition could make regulatory licenses more important, by creating incentives for rate shopping among issuers. The SEC appears willing to screen new NRSROs, but it could not possibly police the ratings of approved NRSROs to determine if the conflicts of interest mentioned above were leading rating agencies to issue inaccurate ratings. Nor has the SEC suggested it would or should perform that function. Overall, opening the market to new NRSROs seems a weak, and perhaps counterproductive, choice, even if it would be superior to the current approach.

If regulators decided simply to open the market to competition, they might improve that approach by including among new NRSROs one or more credit rating agencies that rated debt issues using a market-based measure. For example, a credit rating agency might simply follow credit spreads or CDS prices and issue alphabetical ratings based on market prices. The algorithm for converting credit spreads or CDS prices could be straightforward and transparent, perhaps even automated, based on a rolling average of credit spreads, the market prices of credit default swaps (which are becoming increasingly standardized), or even one of the equity-based methodologies currently used by the rating agencies themselves. The next section assesses these alternatives.

93 Definition of Nationally Recognized Statistical Rating Organization, SEC Release Nos. 33-8570, 34-51572; IC-26834; File No. S7-04-05 (Apr. 19, 2005).

94 See Dering (2005) at 12: "Contrary to Professor Partnoy's implication, Moody's endorses market-based levels of competition in the provision of credit rating opinions."

95 Requiring that NRSRO ratings be "publicly available" or "generally accepted in the financial markets" would cement the oligopoly enjoyed by current NRSROs. See Letter from Frank Partnoy, University of San Diego School of Law, to Jonathan G. Katz, Secretary, Commission (June 9, 2005); see also Testimony of Frank Partnoy, Professor of Law, University of San Diego School of Law, Hearings before the United States House of Representatives, Subcommittee on Capital Markets, Insurance, and Government Sponsored Enterprises, "Legislative Solutions for the Rating Agency Duopoly" (June 29, 2005).

4.1.2. Replace NRSROs with Market-Based Measures

If regulators are attracted to the market-based approach, they might consider avoiding the problems associated with the NRSRO concept entirely by removing the NRSRO designation and replacing it with a market-based measure of credit risk. The SEC has been considering this proposal during recent years, although it has not yet endorsed it. The great advantage to a market-based measure is that it incorporates all available information into a rating, including the ratings of other credit rating agencies. Moreover, a market-based rating could be designed to be very timely, or to be lagged, based on a rolling average of ratings.

Indeed, Moody's already has done much of the work to generate market-based ratings. Moody's publishes "Market Implied Ratings" – known as MIRs – which reflect the market price of credit for various issues over time. Moody's argues that its ratings are superior to MIRs, but it is unclear if the reason for the difference between a Moody's credit rating and a MIR is the inability of the market to price credit risk accurately, or the inability of Moody's to reflect the risks associated with a particular issue in its ratings in a timely manner. Moody's argues it is the former, but the latter seems more likely given the evidence set forth in Section 2.

There have been three areas of criticism surrounding the proposal that credit spreads would be a viable substitute for credit ratings. (Some of the same criticisms likely would be made regarding a proposal to use CDS or equity prices.) First, some critics have alleged that credit spreads would be more volatile than ratings.⁹⁶ It certainly is true that credit ratings are, and are intended to be, more stable than daily fluctuations in the market. However, it is easy to limit the volatility of credit spreads simply by using a weighted average over time. Indeed, from a volatility perspective credit spreads are superior to credit ratings, because they enable the regulator to make an explicit choice about volatility, instead of leaving that decision to a handful of credit rating agencies, who do not appear to be contemplating the consequences of volatility in ratings in any systemic way.

Instead, the current approach actually magnifies volatility, by creating and then unleashing a wave of selling pressure following downgrades.⁹⁷ Because the rating agencies approach downgrades in an ad hoc manner, they become trapped in a situation where if they choose to downgrade an issue below investment grade, they potentially will force the insolvency of the issuer. Market-based ratings might avoid such problems, because market participants would be able to anticipate a downgrade with greater certainty in advance; such an approach might reduce the negative consequences associated with the human behavioral component of rating downgrades.

Moreover, information available in the market would be reflected over time more gradually through the use of credit spreads, so that institutional investors would be able to plan when they might need to sell bonds for regulatory purposes. In contrast, credit

⁹⁶ SEC Report at 39; see also Hill (2004): suggesting a "pure market measure" should be used only after the additional NRSROs have been approved and the NRSRO designation reconsidered.

⁹⁷ See Macey (2003). Professor Jon Macey has argued that issuers "capture" credit rating agencies, not because of these conflicts, but because "issuers make it impossible for rating agencies to downgrade them." Noting that a downgrade below investment grade are particularly important because they can shut off a company's access to capital and calling such a downgrade "a corporate nuclear bomb".

rating changes are a discrete event that often come as a great surprise to investors (as was the case with Enron, for example – the single largest daily decline in Enron’s share price, in percentage terms, was the drop immediately following the downgrade below investment grade).

In any event, it is unclear why, if there is negative information reflected in the market for particular bonds, that information should not be reflected in regulation, too. As a policy matter, if NRSRO-based regulations make sense, they might as well be based on accurate ratings. If particular bonds are likely to be in default soon, so that various institutions will need to sell them when they are downgraded, why shouldn’t that process begin sooner rather than later? What advantage was gained by waiting for the credit rating agencies to downgrade Enron, abruptly throwing the company into bankruptcy?

The second objection is that credit spreads are backward looking.⁹⁸ This objection is, to be blunt, preposterous. Numerous academic studies have shown that credit ratings are backward looking, much more so than markets, and the agencies admit as much. The advantage of credit spreads is that the regulator can make a decision as to how backward looking a measure they will use. Moreover, the markets for bonds, as well as the markets for CDSs and equities, incorporate information about future expectations. To the extent any measure is likely to be forward looking, it is a market measure, not an NRSRO rating.

The third objection is potentially more problematic: that the use of credit spreads or some other market-based measure would be limited to liquid securities. At the outset, it would be worth using such a measure for liquid securities, or at least giving regulated entities that option, even if on a temporary or experimental basis. With the development of the CDS market, there are market measures for many otherwise illiquid bonds. Critics are correct that there would be limitations as to illiquid securities, although it would be a straightforward exercise to calculate reasonable market estimates of credit spreads even for illiquid bonds. Indeed, Moody’s does precisely this with its market-based comparisons, and both Moody’s and Fitch use equity-based measures where bonds are not sufficiently liquid.

Objectors argue that market participants would manipulate any market-based measure, using it to their advantage, either for arbitrage or to take advantage of legal rules that depended on market-based ratings. However, it is unclear whether market participants would have greater incentives to manipulate market-based measures than NRSROs have to manipulate ratings. Moreover, if one market participant attempted to manipulate an issue through large amounts of buying or selling, that activity would both create liquidity and signal a potential arbitrage opportunity to other market participants. Market participants would not benefit from the NRSRO oligopoly, and therefore would face competition from other firms who could profit from attempts at price manipulation. The bond, CDS, and equity markets are far more competitive than the current market for NRSRO ratings.

Perhaps most importantly, a market-based proposal would remove perverse incentives to engage in CDO transactions. If CDOs create value overall, parties would continue to

98 See *The Current Role and Function of Credit Rating Agencies in the Operation of the Securities Markets* (2002): “Spreads are the reflection of the last trade in the marketplace, and that market may be wrong on any given day about the long-term fundamental value, the probability of default or ultimate recovery value of any security.”

do them under a market-based alternative to NRSROs. But if CDOs are merely a complex exercise in manipulating mathematical models based on inaccurate ratings, they should disappear, or at least decline in number and importance.

Interestingly, Fitch has made several statements in its recent research that suggest market-based measures might be a more viable option than anyone previously had thought.⁹⁹ Moreover, both Fitch and KMV, a unit of Moody's, use equity prices to make calculations regarding debt ratings. A market-based measure based on equity prices – which the NRSROs already use – would not have many of the drawbacks the critics have suggested for credit spreads or CDO prices. Certainly, equity markets are more liquid and less susceptible to manipulation. Policymakers who reject the credit spread and CDO alternatives might consider whether an equity-based bond credit rating measure would be an attractive market-based alternative.

4.1.3. Replace “Recognized” with “Registered”

A third proposal, reflected in legislation introduced by Representative Michael G. Fitzpatrick (Pennsylvania), is to replace the concept of recognition in the NRSRO regime with the concept of “registration” more familiar in securities regulation more generally.¹⁰⁰ As initially proposed, this legislation would fundamentally alter the role of the SEC with respect to credit rating agencies. Instead of granting NRSRO designations, the SEC would oversee the registration of new credit rating agencies. It also would be involved in inspection, examination, and enforcement.¹⁰¹

S&P in particular has challenged this legislation on First Amendment grounds, repeating many of the arguments the rating agencies have made in private litigation. On June 29, 2005, at a House Financial Services subcommittee hearing on the new credit rating agency legislation, Floyd Abrams, the well-known First Amendment lawyer was present – and was recognized by the members of Congress – even though he was not scheduled to be a panelist, and did not testify. Abrams's presence sent a clear message to members of Congress that the rating agencies likely would challenge the proposed legislation as unconstitutional. At the hearing, counsel for S&P argued that the bill would violate the First Amendment, because rating agencies are “members of the financial press.”¹⁰² And indeed Mr. Abrams recently sent a memorandum to the subcommittee staff arguing that the proposed legislation is unconstitutional.¹⁰³

99 Consider the following statements: “In the light of the empirical findings and the observations on methodological issues, we conclude that market-based methodologies are superior to solely ratings-driven methodologies in estimating asset correlations. Market based methods address all of the aforementioned shortcomings of the latter category, and any possible systematic overestimation bias can easily be addressed with a calibration exercise.” FitchRatings Structured Finance (2005) at 19 “Correlations can be measured using credit spreads from either the bond market or the credit default swap market. One clear advantage of this approach, as in the case of equity-based correlations, is that the information is readily available in the market place.”, at 3, citing limited universe of credit default swap market coverage and lack of historical data coverage, and potential for liquidity and data quality concerns.

100 H.R. 2990, The Credit Rating Agency Duopoly Relief Act (2005).

101 This legislation is in some tension with the SEC Staff Outline, in which the Commission would continue to approve NRSRO status.

102 See Klein (2005a), at A08.

103 This memorandum insists, incredibly, that Congress has no more power to regulate credit ratings than the publication of editorials in financial newspapers and magazines. See Annex, Constitutional Analysis of the Staff Outline of Key Issues for a Legislative Framework for the Oversight and Regulation of Credit Rating Agencies at 2, 14-17 (2005). It also wrongly suggests that the question of whether rating agencies are distinguishable from other financial market

The legislation has many positives, and perhaps most importantly it presents a unique opportunity to confront the First Amendment argument head on. The question of whether ratings are merely opinions protected by free speech doctrine is sufficiently important that it should be litigated properly, and decided by the federal appellate courts. Unfortunately, private litigation has not yet generated any decisive cases and it remains unclear what protections credit rating agencies should receive. Whatever the courts decide, it is important to have some clarity, and this legislation appears to be the only possible route to that end.¹⁰⁴

The most attractive feature of the legislation is that it would confront the regulatory license issue. Because the principal barrier to entry for credit rating agencies no longer would be SEC approval, market forces would be able to operate on NRSROs. Of course, to the extent the rating business is a natural monopoly, the market structure arising from a registration regime might not be that different from the current structure under a designation regime. But to the extent the overall securities system of registration makes sense, even if it reinforces some oligopolistic pressure, it ought to work equally well for credit rating agencies.

A registration system would be more consistent with the letter and spirit of the securities laws. In other words, the Commission would take the same approach to NRSROs that it has taken in other areas, pursuant to and consistent with Congressional authority. The legislation would permit the 130-plus non-NRSRO agencies to compete with current NRSROs, and it would create incentives for new rating agencies to enter the market. Perhaps most importantly, it would encourage new rating agencies to use market based measures in assessing companies.

4.2. Create a Threat of Liability for Rating Malfeasance

The final policy proposal is simple: make credit rating agencies liable for malfeasance, and limit the extent to which the First Amendment is deemed to protect their “opinions.” This could be done in two ways. First, courts could reject the agencies’ argument that their ratings are constitutionally protected speech. Here, the trends seem to be promising, notwithstanding the recent ruling in the Enron litigation. Judges are recognizing that the First Amendment protection of rating agencies is not qualified, not absolute, and depends on context. At minimum, CDO ratings do not appear to be protected.

The courts or Congress might mark the distinction emerging in some cases between agencies playing an active role as contrasted to the passive role of simply publishing an opinion. Ironically, the argument for constitutional protection is strongest with respect to unsolicited ratings, for which the agency is not paid and is not actively involved in either the structuring of the issue or an investigation of the issuer. In contrast, the agencies’ role

gatekeepers, such as accountants, is settled law, citing *In re Scott Paper Securities Litig.*, 145 F.R.D. 366 (E.D. Pa. 1992). However, First Amendment experts have noted, to the contrary, that free speech protection in the securities area is narrow. See, e.g., Schauer (2004), citing cases narrowly interpreting free speech protections.

104 To the extent a court followed the relatively narrow set of cases in which credit rating agencies as viewed exclusively as mere publishers, the legislation likely would survive any First Amendment scrutiny. Indeed, it would be difficult for a court to strike down a registration regime without calling into question the basis for securities regulation more generally.

in the CDO market is far less likely to be protected speech. Agencies play an active role in structuring CDOs, and their “opinions” with respect to CDOs are less public.

Overall, this policy prescription is simple: treat credit rating agencies like other gatekeepers. Credit rating agencies have become unique in various ways during the past decade. That should not have happened. The simplest way to reverse course would be to amend Section 11 and Regulation FD to include NRSROs, and to make it clear – whether through legislation or judicial decision – that credit rating agencies “opinions” are no different from the “opinions” of other gatekeepers.

5. CONCLUSION

Professor Coffee has suggested a four-part typology of rules to govern gatekeeper behavior: (1) structural rules, (2) prophylactic rules, (3) “empowerment” rules, and (4) liability rules. Following this typology for credit rating agencies, structural rules could be designed to eliminate regulatory licenses by substituting alternatives, including market-based measures, to the current regime of NRSRO designation. Liability enhancing rules could make credit rating agencies liable for the same kinds of malfeasance as other gatekeepers, either by imposing negligence-based liability or a modified form of strict liability.¹⁰⁵ Prophylactic or empowerment rules seem less likely to improve the current situation.¹⁰⁶ Proposals for new codes of conduct¹⁰⁷ or voluntary approaches¹⁰⁸ seem especially poorly suited to address the

105 Strict liability would have advantages over negligence liability, because it would give gatekeepers appropriate incentives to investigate issuers rather than prepare legal defenses, and it would force issuers, assuming gatekeepers passed on the costs, to bear the expected social cost of fraud. It also would avoid the thicket of ex post adjudication that creates the incentives for dysfunctional gatekeeper behavior in the first place. See Coffee (2004a); Partnoy (2004); Coffee (2004b).

106 Prophylactic rules might include prohibitions on self-dealing or other conflicts of interest. For example, regulation might preclude rating agencies from taking fees from issuers, or rating firms related to their board members. The rating agencies have voluntarily implemented such prophylactic rules. It is hard to imagine that the credit rating agencies would be in need of “empowerment” rules, which would seek to give them greater leverage over issuers. “Empowerment” rules are directed at the problem that for the gatekeeper to be an effective monitor on behalf of investors, it must be independent of the issuer’s management. Sarbanes-Oxley recognized this problem and transferred all responsibility for the hiring, supervision, retention, and compensation of auditors to the audit committee, whose own independence it also enhanced. This article has suggested that the power of S&P and Moody’s over issuers already is too great and should be limited.

107 For example, in September 2004, S&P adopted a “Code of Practices and Procedures.” Unfortunately, self-regulation seems unlikely to solve the central problems associated with the differences between credit rating agencies and other gatekeepers. S&P’s Code is largely self-serving. It begins with a disclaimer, stating that “by making this Code available to the public Ratings Services does not assume any responsibility or liability to any third party arising out of or relating to this Code.” Standard & Poor’s Ratings Services (2004). Its first set of provisions includes addition disclaimers and remarks that essentially are intended to protect S&P from civil and criminal liability. In Section 1.1.1 of the Code, S&P states that “Ratings are current opinions regarding creditworthiness and not verifiable statements of fact.” Section 1.1.2 states, “Ratings do not constitute investment or financial advice. Ratings are not recommendations to purchase, sell, or hold a particular security.” Section 1.1.3 states, “Ratings Services relies on the issuer, its accountants, counsel, advisors and other experts for the accuracy, completeness and timeliness of the information submitted in connection with the rating and surveillance process.” Section 1.1.4 states, “Ratings Services is not obligated to perform any due diligence or independent verification of information submitted to, or obtained by, Ratings Services in connection with the rating and surveillance process.” Even the provisions directed at minimizing conflicts of interest are modest. Section 3.3.2 provides that analysts should not be involved in the negotiation of fees with issuers.

108 On December 23, 2004, the Technical Committee of the International Organization of Securities Commissions (“IOSCO”) published a voluntary Code of Conduct Fundamentals for Credit Rating Agencies (“IOSCO Code”). The IOSCO Code is not binding on credit rating agencies, and does not carry the threat of sanction. It reflects two years of deliberation, and does little more than what the agencies already have done with respect to conflicts of interest. The Committee of European Securities Regulators (“CESR”) has produced a similarly toothless set of recommendations.

problems discussed here.

In sum, credit rating agencies will continue to present unique difficulties until regulators address the ways in which those agencies differ from other gatekeepers. Credit rating agencies are more profitable than other gatekeepers and at least as subject to conflicts of interest, particularly in the CDO market. They benefit from regulatory licenses and limitations on liability more than other gatekeepers. This article has suggested that reforms directed at credit rating agencies should reflect these differences between the agencies and other gatekeepers. Specifically, regulators should consider market-based alternatives to the NRSRO regime, as well as approaches that would make NRSROs liable for malfeasance, just like any other gatekeeper.

REFERENCES

- Adams, C., D.J. Mathieson and G. Schinasi (1999), International Monetary Fund, *International Capital Markets: Developments, Prospects, and Key Policy Issues*, 185-212, available at <http://www.imf.org/external/pubs/ft/icm/1999/index.htm>.
- BIS (2005a), *The Role of Ratings in Structured Finance*, Report, Bank for International Settlements.
- BIS (2005b), *Vindicates Agencies, But Warns on Ratings Limitations, Correlation Risk, Structured Finance International*, Bank for International Settlements, p. 56.
- Bream, R. (2002), Moody's Expects Pressure on CDOs, *Financial Times*, July 10, p. 31.
- Carney, W.J. (2005), The Costs of Being Public after Sarbanes-Oxley, *Emory Law & Economic Research Paper* 05-4, (February).
- Charles A., D.J. Mathieson and G. Schinasi (1999), *International Monetary Fund, International Capital Markets: Developments, Prospects, and Key Policy Issues* 185-212.
- Choi, S. (1998), Market Lessons for Gatekeepers, *Northwestern University Law Review*, Vol. 92 (4), p. 916, p. 934-49.
- Coffee, Jr., J.C. (1999), Brave New World?: The Impact(s) of the Internet on Modern Securities Regulation, *The Business Lawyer*, Vol. 52, p. 1195, p. 1210-13, p. 1232-33.
- Coffee, Jr. J.C. (2003), Regulating the Lawyer: Past Efforts and Future Possibilities: The Attorney as Gatekeeper: An Agenda for the SEC, *Columbia Law Review*, Vol. 103 (5), p. 1293.
- Coffee, Jr. J.C. (2004a), *Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms*, Berkeley Program in Law & Economics, Working Paper Series, Paper 160.
- Coffee Jr., J.C. (2004b), Partnoy's Complaint: A Response, *Boston University Law Review*, Vol. 84, p. 77.
- Covitz D.M., and P. Harrison (2003), *Testing Conflicts of Interest at Bond Ratings Agencies with Market Anticipation: Evidence that Reputation Incentives Dominate*, Federal Reserve Board Finance and Economics Discussion Series, Working Paper, 2003-68, at <http://www.federalreserve.gov/pubs/feds/2003/200368/200368pap.pdf>.
- Cunningham, L.A. (2004), Choosing Gatekeepers: The Financial Statement Insurance Alternative to Auditor Liability, *UCLA Law Review*, Vol. 52, p. 413.
- Currie, A. (2003), Cool Heads Rule in CDO Land, *Euromoney*, at 114.
- Dering, J.M. (2005), Executive Vice President, Global Regulatory Affairs, Moody's Corporation, Letter to the Editor, *Financial Times*, July 15, at 12.
- Dooley, M.P. (1972), The Effects of Civil Liability on Investment Banking and the New Issues Market, *Virginia Law Review*, Vol. 58, p. 776, p. 794-95.
- Eaton, L. (1996), Judge Dismisses Lawsuit against Moody's Service, *The New York Times*, May 10.
- Fitch Ratings (2002), Press Release, Survey Shows Majority of Structured Finance Executives Oppose Notching as Practiced by Moody's and S&P, March 27.
- Fitch Ratings (2005), Structured Finance Quantitative Financial Research Special Reports: A Comparative Empirical Study of Asset Correlations, July 14, at 19, available at <http://www.fitchratings.com>.

- From Crisis to Opportunity: The Evolution of CDOs in Japan, *Structured Finance Int'l*, May 1, 2005, at S4.
- Gilson R.J., and R.H. Kraakman (1984), The Mechanisms of Market Efficiency, *Virginia Law Review*, Vol. 70, p. 549, p. 613-21.
- Harold G. (1938), Bond Ratings as an Investment Guide: An Appraisal of Their Effectiveness 6.
- Hickman, W.B. (1958), *Corporate Bond Quality and Investor Experience*, National Bureau of Economic Research.
- Hill, C. (2004), Regulating the Rating Agencies, *Washington University Law Quarterly*, Vol. 82, p. 43, p. 85-86.
- Jackson, H.E. (1993), Reflections on Kaye, Scholer: Enlisting Lawyers to Improve the Regulation of Financial Institutions, *Southern California Law Review*, Vol. 66, p. 1019, 1049-72.
- JPMorgan Credit Derivatives and Quantitative Research (2005), *Credit Derivatives: A Primer*, January.
- Klein, A. (2004a), Moody's Board Members Have Ties to Clients, *Washington Post*, November 22, p. A09.
- Klein, A. (2004b), Credit Raters' Power Leads to Abuses, Some Borrowers Say, *Washington Post*, November 24, p. A01.
- Klein, A. (2005a), Credit Raters Speak Against Oversight, *Washington Post*, June 30, p. A08.
- Klein, A. (2005b), Spitzer Examining Debt Ratings by Moody's, *Washington Post*, July 30, at D01.
- Kraakman, R.H. (1984), Corporate Liability Strategies and the Costs of Legal Controls, *Yale Law Journal*, Vol. 93, p. 857, p. 895-96
- Kraakman, R.H. (1986), Gatekeepers: The Anatomy of a Third-Party Enforcement Strategy, 2 *Journal of Law Economics & Organization*, Vol. 2, p 53.
- Langevoort, D.C. (2005), Internal Controls after Sarbanes-Oxley: Revisiting Corporate Law's "Duty of Care as Responsibility for Systems," forthcoming *Journal of Corporation Law*.
- Macey, J.R. (2003), The Future Disclosure System: A Pox on Both Your Houses: Enron, Sarbanes-Oxley and the Debate Concerning the Relative Efficacy of Mandatory Rules Versus Enabling Rules, *Washington University Law Quarterly*, Vol. 81, p. 329.
- Moody's Ratings Definitions (2005), <http://www.moody.com/moodys/cust/AboutMoody/AboutMoody.aspx?topic=rdef&subtopic=oody%20cre dit%20ratings&title=Introduction.htm>, visited September 2.
- Oh, P.B. (2004), Gatekeeping, *Journal of Corporation Law*, Vol. 29, p. 735.
- Partnoy, F. (1999), The Siskel and Ebert of Financial Markets: Two Thumbs Down for the Credit Rating Agencies, *Washington University Law Quarterly*, Vol. 77, p. 619.
- Partnoy, F. (2001), Barbarians at the Gatekeepers, *Washington University Law Quarterly*, Vol. 79, p. 491.
- Partnoy, F. (2002), The Paradox of Credit Ratings, in: *The Role of Credit Reporting Systems in the International Economy*, Kluwer Academic Publishers, R.M. Levitch, G. Majnoni,

- and C. Reinhart, (eds.), p. 65-84.
- Partnoy, F. (2004), Strict Liability for Gatekeepers: A Reply to Professor Coffee, *Boston University Law Review*, Vol. 84, p. 365.
- Pettit, J., C. Fitt, S. Orlov and A. Kalsekar (2004), The New World of Credit Ratings, *UBS Investment Banking Research*, September 2004.
- Pinches G.E. (1978); and J.C. Singleton (1978), The Adjustment of Stock Prices to Bond Rating Changes, *Journal of Finance*, Vol. 33, p. 29, p. 39.
- Pollock, A.J. (2005), *End the Government Sponsored Cartel in Credit Ratings*, AEI Institute for Public Policy Research.
- Schauer, F. (2004), The Boundaries of the First Amendment: A Preliminary Exploration of Constitutional Salience, *Harvard Law Review*, Vol. 117, p. 1765.
- Schwarcz, S.L. (2002), The Private Ordering of Public Markets: The Rating Agency Paradox, *University of Illinois Law Review*, p. 14.
- SEC (2003), Report on the Role and Function of Credit Rating Agencies in the Operation of the Securities Markets, January, at 5 <http://www.sec.gov/news/studies/credratingreport0103.pdf>
- SEC (2005), Staff Outline of Key Issues for a Legislative Framework.
- Senate Committee on Governmental Affairs (2002), Press Release, *Financial Oversight of Enron: The SEC and Private Sector Watchdogs*, (Oct. 8), p. 105.
- Sender, H., C. Mollenkamp and M. Mackenzie (2005), Risky Strategies Take Toll on Traders, *Wall Street Journal*, May 11.
- Shuermann, T. (2004), A Review of Recent Books on Credit Risk, Federal Reserve Bank of New York, *Journal of Applied Econometrics*, John Wiley & Sons, Vol. 20 (1), p. 123-130.
- Standard & Poor's CDO Evaluator (2001), Applies to Correlation and Monte Carlo Simulation to Determine Portfolio Quality, November 13.
- Standard & Poor's Rating Services (2002), Structure Finance, Global Cash Flow and Synthetic CDO Criteria, March 21.
- Standard and Poor's Rating Services (2003), Structured Finance Ratings: Criteria for Rating Synthetic CDO Transactions, September.
- Standard & Poor's Ratings Services (2004), Code of Practices and Procedures, September.
- Standard & Poor's Rating Services (2005a), Annex, Constitutional Analysis of the Staff Outline of Key Issues for a Legislative Framework for the Oversight and Regulation of Credit Rating Agencies, prepared by Cahill Gordon & Reindel.
- Standard & Poor's Ratings Services (2005b), U.S. Ratings Fees Disclosure, April 20, available at <http://www2.standardandpoors.com/servlet/Satellite?pagename=sp/Page/CreditRatingsRatingsPoliciesPg&r=1&l=EN&b=2&s=148>.
- Standard & Poor's Ratings Services (2005c), Capital Markets, Insurance, and Government Sponsored Enterprises Subcommittee of the House Financial Services Committee, June 29.
- Tarashev, N.A. (2005), An Empirical Evaluation of Structural Credit Spread Models, BIS Working Papers No. 179 (July).
- Tavakoli, J. (2003), *Collateralized Debt Obligations & Structured Finance*, John Wiley & Sons.

- The Current Role and Function of Credit Rating Agencies in the Operation of the Securities Markets (2002), Hearings Before the U.S. Securities and Exchange Commission, November 15, (Fernandez testimony), available at <http://www.sec.gov/spotlight/ratingagency.htm>.
- Wakeman, L.M. (1981), The Real Function of Bond Rating Agencies, *Chase Financial Quarterly*, Vol. 1, p. 19.
- Watching the Watchers (1996), Justice Department Launches Probe of Moody's Ratings, *Tulsa World*, March 28.
- White, L.J. (2002), The Credit Rating Industry: An Industrial Organization Analysis, in: *The Role of Credit Reporting Systems in the International Economy*, Kluwer Academic Publishers, R.M. Levitch, G. Majnoni, and C. Reinhart (eds.).
- Whitehouse, M. (2005), How a Formula Ignited Market that Burned Some Big Investors, *Wall Street Journal*, September 12, p. A1.
- Wiggins, J. (2002), Growth of Structured Finance Sector Set to Slow, *Financial Times*, July 1, p. 26.
- Zacharias, F. (2004), Lawyers as Gatekeepers, *San Diego Law Review*, Vol. 41, p. 1387.

III THE ACCELERATING INTEGRATION OF BANKS AND MARKETS AND ITS IMPLICATIONS FOR REGULATION¹

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1. INTRODUCTION

The financial sector has evolved rapidly over the last decade, with the impetus for change provided by deregulation and advances in information technology. Competition has become more intense. Interbank competition within domestic markets as well as across national borders, and competition from financial markets have gained importance. Both the institutional structure of financial institutions and the boundary between financial institutions and financial markets have been transformed. This paper reviews the literature related to these developments and uses it to examine the importance of this changing landscape for the structure of the financial services industry and the design and organization of regulation.

As we will argue, the increasingly intertwined nature of banks and financial markets is not without costs. In particular, as the financial crisis of 2007-2009 has illustrated, systemic risks may have become more prevalent. In this chapter, we seek to provide a fundamental analysis of the underlying forces that could explain the evolution of the banking industry. We begin by discussing the key insights from the financial intermediation literature, including the potential complementarities and conflicts of interest between intermediated relationship-banking activities and financial-market activities (underwriting, securitization, etc.). While debt contracts dominate the financial intermediation literature, the impressive growth of private equity firms has turned the spotlight on equity. In a sense, one could interpret private equity (PE) as intermediation driven from the equity side. That is, PE firms bring together funding from a group of investors (“partners”) and invest that capital as equity in businesses in which they take a position. Given their economic functions as debt and equity intermediaries respectively, how do banks and PE firms interact?

Our discussion reveals that the interaction between banks and PE firms is only one aspect of an increasing integration of banks and markets. Banks have a growing dependence on the financial markets not only as funding sources for hedging purposes but also for engaging in various transactions like securitization for their customers. The multiple dimensions of bank dependence on markets generate both risk reduction and risk elevation possibilities for banks. For example, while hedging may reduce risk, proprietary trading, liquidity guarantees for securitized debt, and positions in credit default swaps can increase risk. This raises potential regulatory concerns. What do these developments imply for prudential regulation and supervision? Will the increasing interactions between banks and markets increase or decrease financial system fragility? The financial crisis of 2007-2009

¹ This paper will be published in *The Oxford Handbook of Banking* (Editors: Allen Berger, Phil Molyneux and John Wilson).

suggests an increase in fragility, but how much can we generalize from this crisis? These questions have become particularly germane not only because of growing banks-markets integration, but also due to the growing cross-border footprint of financial institutions.

These developments have also focused attention on the role of “gatekeepers” (Coffee (2002)), like credit rating agencies. While the financial intermediation literature has acknowledged the role of credit rating agencies as information processors and sellers for some time now (e.g. Allen (1990) and Ramakrishnan and Thakor (1984)), the literature has not discussed how rating agencies may impact on the fragility of the financial sector through the important role they play as “spiders in the web of institutions and markets.” We take up this issue in our discussion.

The organization of the paper is as follows. In section 2, we will focus on the economic role of financial intermediaries. The primary focus here is on the banks’ role in lending and how this compares to non-intermediated finance directly from the financial market. We will also analyze the effects of competition on the banks’ lending relationships. Does competition harm relationships and reduce their value and hence induce more transaction-oriented banking, or does competition augment the value of relationships? This discussion will summarize the key insights from the modern literature of financial intermediation. In Section 3 we discuss the increasingly interconnected nature of banks and financial markets, with a focus on securitization. This ‘technology’ has been at the center of the 2007-2009 financial crisis. What are the future prospects for securitization? The proliferation of non-banking financial institutions, and particularly private equity firms, is discussed in Section 4. We will argue that much of this activity is complementary to the role of banks, rather than threatening their *raison d’etre*. Section 5 focuses on the role of credit rating agencies. These agencies have been indispensable for the explosive growth (and temporary demise) of securitization. How will their role develop? Section 6 discusses regulatory implications. Here we link the role of banks in lending (as emphasized in Section 2) to their role as providers of liquidity. This brings in the issue of fragility which is at the heart of the current regulatory debate. Section 7 concludes.

2. UNDERSTANDING BANKS AS INFORMATION-PROCESSING INTERMEDIARIES

In this section we discuss two issues: (1) what is the key role of banks *vis-à-vis* markets? and, (2) how does competition impinge on this role?

2.1. The Economic Role of Banks

We first discuss the role of banks in qualitative asset transformation; i.e. the process by which banks absorb risk to transform both the liquidity and credit risk characteristics of assets (see Bhattacharya and Thakor (1993)). For example, banks invest in risky loans but finance them with riskless deposits (e.g. Diamond (1984) and Ramakrishnan and Thakor (1984)). They also invest in illiquid loans and finance them with liquid demandable deposits (e.g. Diamond and Dybvig (1983)). The theory of financial intermediation has placed special emphasis on the role of banks in monitoring and screening borrowers in

the process of lending. Bank lending is typically contrasted with direct funding from the financial markets. What are the comparative advantages of bank loans over public capital market bond financing?

The most striking insight of the contemporary theory of financial intermediation is that banks are better than markets at resolving informational problems. The possession of better information about their borrowers allows banks to get closer to their borrowers. Interestingly, a feedback loop is generated as this proximity between the financier and the borrowing firm in bank lending arrangements may also help mitigate the information asymmetries that typically plague arms-length arrangements in market transactions. This has several aspects. A borrower might be prepared to reveal proprietary information to its bank that it may have been reluctant to reveal to the financial markets (Bhattacharya and Chiesa (1995)). A bank might also have better incentives to invest in information acquisition. While costly, the substantial stake that it has in the funding of the borrower and the enduring nature of its relationship with the borrower—with the possibility of information reusability over time—increase the marginal benefit of information acquisition to the bank.²

Such borrower-lender proximity may also have a dark side. An important one is the hold-up problem that stems from the information monopoly the bank may develop due to the spontaneous generation of proprietary information on borrowers. Such an informational monopoly may permit the bank to charge higher loan interest rates *ex post* (see Sharpe (1990) and Rajan (1992), and Boot (2000) for a review). The threat of being “locked in,” or informationally captured by the bank, may dampen loan demand *ex ante*, causing a loss of potentially valuable investment opportunities. Alternatively, firms may opt for multiple bank relationships (see Carletti, Cerasi and Daltung (2007)). This may reduce the informational monopoly of any individual bank, but possibly at a cost. Ongena and Smith (2000) show that multiple bank relationships indeed reduce the hold-up problem, but can worsen the availability of credit; see Thakor (1996) for a theoretical rationale.

Another aspect is that relationship banking could accommodate an intertemporal smoothing of contract terms (see Allen and Gale (1995, 1997)), that would entail losses for the bank in the short term that are recouped later in the relationship. Petersen and Rajan (1995) show that credit subsidies to young or *de novo* companies may reduce the moral hazard problem and informational frictions that banks face in lending to such borrowers. Banks may be willing to provide such subsidized funding if they can expect to offset the initial losses through the long-term rents generated by these borrowers. The point is that, without access to *subsidized* credit early in their lives, *de novo* borrowers would pose such serious adverse selection and moral hazard problems that *no* bank would lend to them. Relationship lending makes these loans feasible because the *proprietary* information generated during the relationship produces “competition-immune” rents for the bank later in

² Ramakrishnan and Thakor (1984) and Millon and Thakor (1985) focus on pre-contract information asymmetries to rationalize the value financial intermediaries add relative to markets. Diamond (1984) focuses on post-contract information asymmetries to rationalize intermediation. Coval and Thakor (2005) show that financial intermediaries can provide an institutional resolution of the problem of cognitive biases at the individual investor level, acting as a “beliefs bridge” between pessimistic investors and optimistic entrepreneurs. James (1987), Lummer and McConnell (1989) and Gande and Saunders (2005) provide empirical evidence on the informational value of bank financing. See also the “stories” provided by Berlin (1996) supporting the special role of banks.

the relationship and permits the early losses to be offset. The importance of intertemporal transfers in loan pricing is also present in Berlin and Mester (1999). They show that rate-insensitive core deposits allow for intertemporal smoothing in lending rates. This suggests a complementarity between deposit taking and lending. Moreover, the loan commitment literature has emphasized the importance of intertemporal tax-subsidy schemes in pricing to resolve moral hazard (see Boot, Thakor and Udell (1991), and Shockley and Thakor (1997)) and also the complementarity between deposit taking and *commitment* lending (see Kashyap, Rajan and Stein (1999)).

The bank-borrower relationship also displays greater contractual flexibility than that normally encountered in the financial market. This flexibility inheres in the generation of hard and soft proprietary information during a banking relationship. This information gives the bank the ability to adjust contractual terms to the arrival of new information and hence encourages it to write “discretionary contracts” *ex ante* that leave room for such *ex post* adjustments. This is in line with the important ongoing discussion in economic theory on rules versus discretion, where discretion allows for decisionmaking based on more subtle—potentially non-contractible—information. See, for example, Simon (1936), and Boot, Greenbaum and Thakor (1993). The papers by Stein (2002), and Berger, Miller, Petersen, Rajan and Stein (2005) highlight the value of “soft information” in lending. This could be an example of this more subtle and non-contractible information. On this issue, two dimensions can be identified. One dimension is related to the nature of the bank-borrower relationship, which is typically long-term, with accompanying reinforcing incentives for both the bank and the borrower to enhance the durability of the relationship. This allows for *implicit*—nonenforceable—long-term contracting. An optimal information flow is crucial for sustaining these “contracts.” Information asymmetries in the financial market, and the non-contractibility of various pieces of information, would rule out long-term alternative capital market funding sources as well as *explicit* long-term commitments by banks. Therefore, both the bank and the borrower may realize the added value of their relationship, and have an incentive to foster the relationship.³

The other dimension is related to the structure of the explicit contracts that banks can write. Because banks write more discretionary contracts, bank loans are generally easier to renegotiate than bond issues or other public capital market funding vehicles (see Berlin and Mester (1992)). Such renegotiability may be a mixed blessing because banks may suffer from a “soft-budget constraint” problem: borrowers may realize that they can renegotiate *ex post*, which could give them perverse *ex ante* incentives (see Bolton and Scharfstein (1996), and Dewatripont and Maskin (1995)). The soft-budget-constraint problem is related to the potential lack of toughness in enforcing contracts due to the *ex post* distribution of “bargaining power” linked with relationship-banking proximity (see Boot (2000)). In practice, one way that banks can deal with this issue is through the priority structure of their loan contracts. If the bank has priority/seniority over other lenders, it could strengthen the bank’s bargaining position and allow it to become tougher. These issues are examined in Diamond (1993), Berglöf and Von Thadden (1993), and Gorton and Kahn (1993).

³ Mayer (1988) and Hellwig (1991) discuss the commitment nature of bank funding. Boot, Thakor and Udell (1991) address the *credibility* of commitments.

The bank could then credibly intervene in the decision process of the borrower when it believes that its long-term interests are in jeopardy. For example, the bank might believe that the firm's strategy is flawed, or a restructuring is long overdue. Could the bank push for the restructuring? If the bank has no priority, the borrower may choose to ignore the bank's wishes. The bank could threaten to call the loan, but such a threat may lack credibility because the benefits of liquidating the borrower's assets are larger for higher-priority lenders, and the costs from the termination of the borrower's business are higher for lower-priority lenders. When the bank loan has sufficiently high priority, the bank could *credibly* threaten to call back the loan, and this may offset the deleterious effect of the soft-budget constraint. This identifies a potential advantage of bank financing: *timely intervention*. Of course, one could ask whether bondholders could be given priority and allocated the task of timely intervention. Note that bondholders are subject to more severe information asymmetries and are generally more dispersed (i.e. have smaller stakes). Both characteristics make them ill-suited for an "early intervention" task.

2.2. Intermediation and Competition

Since relationship banking is an integral part of the economic services provided by banks and generates rents for banks, it also potentially invites multiple bank entry, which then generates interbank competition. An interesting question this raises is how competition might affect the *incentives* for relationship banking. While this may ultimately be an empirical question, two diametrically opposite points of view have emerged theoretically. One is that competition among financiers encourages borrowers to switch to other banks or to the financial market. The consequent shortening of the expected "life-span" of bank-borrower relationships may induce banks to reduce their relationship-specific investments, thereby inhibiting the reusability of information and diminishing the value of information (Chan, Greenbaum and Thakor (1986)). Banks may then experience weaker incentives to acquire (costly) proprietary information, and relationships may suffer. There is empirical evidence that an increase in relationship length benefits the borrower. Brick and Palia (2007) document a 21 basis point impact on the loan interest rate due to a one standard deviation increase in relationship length.

Moreover, increased credit market competition could also impose tighter constraints on the ability of borrowers and lenders to intertemporally share surpluses (see Petersen and Rajan (1995)). In particular, it becomes more difficult for banks to "subsidize" borrowers in earlier periods in return for a share of the rents in the future. Thus, the funding role for banks that Petersen and Rajan (1995) see in the case of young corporations (as we discussed) may no longer be sustainable in the face of sufficiently high competition. This implies that interbank competition may have an *ex post* effect of diminishing bank lending.⁴

An issue related to competition is the effect of consolidation. An extensive empirical

⁴ Berlin and Mester (1999) provide a related, albeit different, argument. Their analysis suggests that competition forces banks to pay market rates on deposits, which may impede their ability to engage in the potentially value-enhancing smoothing of lending rates.

literature focuses on the effect of consolidation in the banking sector on small business lending. This consolidation may in part be a response to competitive pressures. The effects on small business lending, however, are not clear-cut. Sapienza (2002) finds that bank mergers involving at least one large bank result in a lower supply of loans to small borrowers by the merged entity. This could be linked to the difficulty that larger organizations have in using “soft information” (Stein (2002) and Berger, Miller, Petersen, Rajan and Stein (2005)). However, Berger, Saunders, Scalise and Udell (1998) show that the actual supply of loans to small businesses may not go down after bank mergers, since they invite entry of *de novo* banks that specialize in small business lending (see also Strahan (2007)).

The opposite point of view is that competition may actually *elevate* the importance of a relationship-orientation as a distinct competitive edge. The idea is that competition pressures profit margins on existing products and increases the importance of financier differentiation, and more intense relationship lending may be one way for the bank to achieve this. Boot and Thakor (2000) formalize this argument to show that a more competitive environment may encourage banks to become more client-driven and customize services, thus focusing *more* on relationship banking by banks.⁵ They distinguish between “passive” transaction lending and more intensive relationship lending by banks. Transaction lending competes head-on with funding in the financial market. Competition from the financial market (as well as interbank competition) will lead to more resource-intensive relationship lending, and reduce transaction lending, since this mitigates the margin-reducing effects of price competition. The *absolute* level of relationship lending is, however, non-monotonic in the level of competition: initially competition increases relationship lending, but when competition heats up “too much,” investments in bank lending capacity will suffer and that may start to constrain relationship lending. Berger, Klapper, Martinez Peria and Zaidi (2008) find empirically that bank ownership type (foreign, state-owned or private domestic) affects the bank’s choice between transaction and relationship lending.

Relationships may foster the exchange of information, but may simultaneously give lenders an information monopoly and undermine competitive pricing. As discussed in Section 2.1, the informational monopoly on the “inside” lender’s side may be smaller if a borrower engages in multiple banking relationships. This would mitigate the possibilities for rent extraction by informed lenders and induce more competitive pricing (see Sharpe (1990) and also Petersen and Rajan (1995)). Transaction-oriented finance, however, may give banks little incentive to acquire information but is potentially subject to more competition. This suggests that markets for transaction-oriented finance may fail when problems of asymmetric information are insurmountable without explicit information acquisition and information-processing intervention by banks. This argument is used by some to highlight the virtues of (relationship-oriented) bank-dominated systems (e.g., Germany and Japan) *vis-à-vis* market-oriented systems. This is part of the literature on the design of financial systems; see Allen (1993), Allen and Gale (1995) and Boot and Thakor (1997). One objective of this literature is to evaluate the economic consequences

⁵ In related work, Hauswald and Marquez (forthcoming) focus on a bank’s incentives to acquire borrower-specific information in order to gain market share, and Dinç (2000) examines a bank’s reputational incentives to honor commitments to finance higher quality firms. Song and Thakor (2007) theoretically analyze the effect of competition on the mix between relationship and transaction lending, and focus on fragility issues in particular.

of alternative types of financial system architecture.

What this discussion indicates is that the impact of competition on relationship banking is complex; several effects need to be disentangled. However, recent empirical evidence (see Degryse and Ongena (2007)) seems to support the Boot and Thakor (2000) prediction that the orientation of relationship banking *adapts* to increasing interbank competition, so higher competition does not drive out relationship lending. Despite this adaptation, there is also evidence that in recent years the geographic distance between borrowers and lenders has increased, and that this has been accompanied by higher loan defaults (see DeYoung, Glennon and Nigro (2008)).

3. BANK LENDING, SECURITIZATION AND CAPITAL MARKET FUNDING

Much of our focus in the previous section was on *interbank* competition. Nonetheless, banks also face competition from the capital market. The standard view is that banks and markets compete, so that growth in one is at the expense of the other (e.g. Allen and Gale (1995), and Boot and Thakor (1997)). In this context Deidda and Fattouh (2008) show theoretically that both bank and stock market development have a positive effect on growth, but the growth impact of bank development is lower when there is a higher level of stock market development. They also present supporting empirical evidence. What this shows is that dynamics of the interaction between banks and markets can have *real* effects. How banks and markets interact is therefore of great interest.

In contrast to the standard view that they compete, the observations in the previous section suggest that there are also potential complementarities between bank lending and capital market funding. We argued that prioritized bank debt may facilitate timely intervention. This feature of bank lending is valuable to the firm's bondholders as well. They might find it optimal to have bank debt take priority over their own claims, because this efficiently delegates the timely intervention task to the bank. The bondholders will obviously ask to be compensated for their subordinated status. This—ignoring the timely intervention effect—is a “wash.” In other words, the priority (seniority) and subordination features can be priced. That is, as much as senior debt may *appear* to be “cheaper” (it is less risky), junior or subordinated debt will appear to be more expensive, and there should be no preference for bank seniority, other than through the timely-bank-intervention channel. Consequently, the borrower may reduce its total funding cost by accessing both the bank-credit market and the financial market.⁶

Another manifestation of potential complementarities between bank lending and

⁶ This is directly related to the work on bargaining power and seniority as discussed in section 2.1, see the work of Gorton and Kahn (1993) and Berglof and Von Thadden (1994). The complementarity between bank lending and capital market funding is further highlighted in Diamond (1991), and Hoshi, Kashyap and Scharfstein (1993). Diamond (1991) shows that borrower may want to borrow first from banks in order to establish sufficient credibility *before* accessing the capital markets. Again, banks provide certification and monitoring. Once the borrower is “established,” it switches to capital market funding. Hoshi, Kashyap and Scharfstein (1993) show that bank lending exposes borrowers to monitoring, which may serve as a certification device that facilitates simultaneous capital market funding. In this explanation, there is a *sequential* complementarity between bank and capital market funding. In related theoretical work, Chemmanur and Fulghieri (1994) show that the quality of the bank is of critical importance for its certification role. This suggests a positive correlation between the value of relationship banking and the quality of the lender. See Petersen and Rajan (1994) and Houston and James (1996) for empirical evidence.

capital market activities is the increasing importance of securitization. Securitization is an example of unbundling of financial services. It is a process whereby assets are removed from a bank's balance sheet, so banks no longer permanently fund assets when they are securitized; instead, the investors buying asset-backed securities provide the funding. Asset-backed securities rather than deposits thus end up funding dedicated pools of bank-originated assets. More specifically, the lending function can be decomposed into four more primal activities: origination, funding, servicing and risk processing (Bhattacharya and Thakor (1993)). Origination subsumes screening prospective borrowers and designing and pricing financial contracts. Funding relates to the provision of financial resources. Servicing involves the collection and remission of payments as well as the monitoring of credits. Risk processing alludes to hedging, diversification and absorption of credit, interest rate, liquidity and exchange-rate risks. Securitization decomposes the lending function such that banks no longer fully fund the assets, but continue to be involved in other primal lending activities. A potential benefit of securitization is better risk sharing. The proliferation of securitization may however also be induced by regulatory arbitrage, e.g. as vehicle to mitigate capital regulation (see Gorton and Pennacchi (1995) for an economic rationale for bank loan sales and securitization).

Central to the extensive academic work on securitization is the idea that it is not efficient for originators to completely offload the risks in the originated assets. The originating bank needs to maintain an economic interest in the assets to alleviate moral hazard and induce sufficient effort on the originating bank's part in screening and monitoring. What this implies is that even with securitization, banks do not become disengaged from the assets they originate. Banks still continue to provide the services involved in screening and monitoring borrowers, designing and pricing financial claims, and providing risk management and loan servicing support. As such, securitization preserves those functions that are at the core of the *raison d'être* for banks. This militates against the notion that securitization effectively lessens the importance of banks.

Boyd and Gertler (1994) have argued that the substitution from on-balance sheet to off-balance sheet banking induced by securitization may have falsely suggested a shrinking role for banks. Indeed, by keeping banks involved in their primal activity of pre-lending borrower screening, securitization preserves much of the banks' value added on the asset side.

Up to the 2007-2009 financial crisis, securitization was rapidly gaining in importance. In fact, prior to the Summer of 2007, securitization became prevalent for ever wider types of credits including business credits which were previously thought to be difficult to securitize because of their information opaqueness. Also, a rather new market for securitization involving asset-backed commercial paper (ABCP conduits) emerged as a significant force. As the sub-prime crisis of 2007 has shown, these developments are not without problems. The structure of real world securitization transactions appears to have taken a rather fragile form. In particular, it is important to note that much of the securitization leading up to the crisis involved the financing of long-term assets with short term funding, which induced substantial liquidity risk. While this liquidity risk was sometimes mitigated by liquidity guarantees (e.g. stand-by letters of credit and refinancing commitments), the underwriting

institutions often underestimated the risks involved and overstretched themselves.⁷ Recent events may cast doubt on the optimality of such strategies. Also, because the originating institutions appeared to have retained minimal residual risk, monitoring incentives may have been compromised (see Mian and Sufi (2007)).⁸ The eagerness of banks to securitize claims—and keep the repackaging “machine” rolling—may have also adversely impacted the quality of loans that were originated through a dilution of banks’ screening incentives due to lower retained residual risks (e.g. sub-prime lending).

The 2007-2009 financial crisis has brought securitization almost to a grinding halt. However, the risk-diversification that securitization can accomplish appears to be of more than just ephemeral importance. Thus, we expect securitization to reemerge, albeit possibly in a form that entails lower levels of liquidity risk, as well as lesser moral hazard in screening (loan underwriting standards) and monitoring. A caveat is that some of the activity in securitization may have been induced merely by capital arbitrage, in which case its social value may be rather limited; the new Basel II capital requirements may diminish such regulatory arbitrage.

Another effect of the interaction between banks and markets is that as markets evolve and entice bank borrowers away, banks have an incentive to create new products and services that combine services provided by markets with those provided by banks. This allows banks to “follow their customers” to the market rather than losing them. There are numerous examples. For instance, when a borrower goes to the market to issue commercial paper, its bank can provide a back-up line of credit. Securitization of various sorts is another example in that banks not only originate the loans that are pooled and securitized, but they also buy various securitized tranches as investment securities. The impetus for such market-based activities grows stronger as interbank competition puts pressure on profit margins from traditional banking products and the capital market provides access to greater liquidity and lower cost of capital for the bank’s traditional borrowers. As a consequence, there is a natural propensity for banks to become increasingly *integrated* with markets, and a sort of unprecedented “co-dependence” emerges that makes banking and capital market risks become increasingly intertwined. A discussion of whether this is desirable and what the regulatory implications might be appears in Section 6.

4. BANKS, EQUITY AND PRIVATE EQUITY FIRMS

The emergence of non-banking financial institutions like private equity (PE) firms is considered by some a (further) signal for the diminishing role of banks. However, also here

7 Most noteworthy are the bankruptcies among German Lander banks that were involved in providing liquidity guarantees.

8 Securitization is facilitated in part by credit enhancement, including partial guarantees by the arranger of a securitization transaction (and/or he holds on to the most risky layer of the transaction). In the recent credit crisis, this disciplining mechanism broke down; residual risk with the arranger was minimal or framed as liquidity guarantees to off-balance sheet vehicles without appropriately realizing the inherent risks. That is, banks have also been underwriting the liquidity risk in securitization transactions by, for example, guaranteeing the refinancing of commercial paper in ABCP transactions via standby letters of credit. Such guarantees have generated profits for banks, but also created risks, as illustrated by the losses incurred by banks in the recent sub-prime crisis. The marketability of securitized claims has also been facilitated by accreditation by credit rating agencies (see Boot, Milbourn and Schmeits (2006)). However, even the role of rating agencies has been called into question during the subprime lending crisis

we will argue that these developments are rather complementary to the role of banks. Let us first discuss the role that PE firms play.

The arguments in Section 2.1 about the need for banks to have seniority suggest a natural economic inhibiting of investments by banks in the equity of corporations. Equity “softens” a bank’s incentive to intervene for much the same reasons as does junior debt. So while the emphasis of corporate finance theory on agency problems would suggest that it might be efficient for the bank to have both debt and equity claims on a corporation, this seems to not be advisable from a timely-intervention point of view. This might explain why equity intermediation has largely been in the hands of private equity (PE) firms and/or bulge-bracket global investment banks that typically engage much less in relationship banking and focus more on transactions and the associated capital market activities.

Some more observations can be made about PE firms. Their activities could be viewed as intermediation driven from the equity side. That is, PE firms attract funding from a group of investors (“partners”) and invest the funds as equity in businesses. They are extensively involved in monitoring and advising these businesses. How different is this from the role banks play as debt intermediaries? To address this question, note first that banks do occasionally take equity positions in their role as venture capitalists, particularly for later stage financing where there is a prospect for developing a valuable relationship on the lending side. Thus, banks participate in venture capital financing with higher probability if there is a greater likelihood of subsequent lucrative lending activity (Hellmann, Lindsey and Puri (forthcoming)). Banks may also have (participations in) PE-subsidaries that operate independently from the other businesses of the bank. However, this somewhat limited role as an equity financier does not mean that it would be efficient for the bank to permanently become an integrated provider of debt and equity finance, a “one-stop” financier of sorts; see our earlier discussion of the value of having senior claims. In particular, equity as a junior security may undermine a bank’s bargaining power, and thus compromise its role in timely intervention. Also soft-budget constraint problems may then (re)emerge.

At a more general level, one could ask whether the monitoring role of PE firms substitutes for the lending-related monitoring of banks. It might. Note, however, that equity and debt are fundamentally different securities. The type of monitoring needed will differ significantly potentially across debt and equity. What will be true, however, is that the increasing involvement of PE investors induces banks to partner with these investors. In a sense, banks start building relationships with PE firms rather than the firms that the PE investors take equity positions in. This is not without risks since it may affect the added value of banks in timely intervention *vis-à-vis* the (underlying) borrower and even the banks’ incentives to be involved in this.⁹ However, to the extent that PE firms are an

⁹ This suggests potential conflicts of interest. Much of the literature has focused on potential concerns related to banks combining lending and capital market activities. A lot of research has been done on potential conflicts of interest in universal banking. This literature is motivated by the Glass-Steagall regulation in the U.S. (see Kroszner and Rajan (1994), Puri (1996), and Ramirez (2002)). In similar spirit, Drucker (2005) shows that junk-rated firms and companies in local lending relationships are more likely to select an integrated (universal) commercial-investment bank when they expect to issue public debt in the future. This revealed preference for commercial-investment bank relationships by firms that issue informationally sensitive securities suggests that there are benefits for banks to use private information from lending in investment banking.

A similar rather positive picture emerges if one looks at U.S. banking following the 1999 Financial Services Modernization Act. It appears that information collected through the banks’ commercial lending businesses may

integral part of the capital market, this development too makes the involvement of banks in the capital market deeper and more intricate. Such complexity is further exacerbated by the emergence of other intermediaries like hedge funds, particularly because of the growing importance of hedge funds as direct lenders. See Brophy, Ouimet and Sialm (forthcoming) who point out that hedge funds have emerged as “lenders of last resort,” providing finance to firms that banks do not typically lend to.

5. ROLE OF CREDIT RATING AGENCIES

Credit ratings are a fascinating part of today’s financial markets. Their importance is evident from the behavior of market participants. However, academic researchers have generally been skeptical about their incremental value, largely because of the absence of a theory of rating agencies. In the literature on financial intermediary existence, bank debt offers monitoring advantages which would not be available in the financial market. The typical argument for the lack of monitoring in the capital market is that free-rider problems among investors prevent effective monitoring. Boot, Milbourn and Schmeits (2006) have shown that credit rating agencies (CRAs) add a monitoring-type element to the financial market, and thereby play a role as a “focal point” to resolve coordination failures among multiple dispersed investors (creditors). The CRA’s ability to resolve such coordination failure arises from the effect of its actions—the assigned rating and the “credit watch” process—on firm behavior via the conditioning of investors’ investment decisions on the assigned rating. In earlier work, Da Rin and Hellmann (2002) showed that banks could also resolve a multiple-equilibria problem among borrowers by helping coordinate the investment decisions of these borrowers. The role that Boot, Milbourn and Schmeits give to CRAs has some similarity to this.

This role of CRAs in resolving coordination failures in the financial market qualifies the distinction between public debt and bank financing. The mechanism is, however, less “direct” than in the case of bank financing: the credit rating (and particularly the threat of a downgrade) *induces* good firm behavior rather than preventing bad behavior through direct intervention. Apart from bank loans, the non-bank private debt market also offers a potentially more direct alternative than credit rating agencies in the public debt market. In fact, private debtors often impose more discipline than banks and hence serve even riskier borrowers (Carey, Post and Sharpe (1998)).

Another mechanism that links banks and CRAs is the certification role of bank loans. Datta, Iskandar-Datta and Patel (1999) show that the monitoring associated with bank loans *facilitates* borrowers’ access to the public debt market. This certification role of banks therefore complements what CRAs do. As rating agencies become more sophisticated and reliable, the certification role of banks diminishes in importance, causing bank borrowers to migrate to the capital market. In this sense, CRAs intensify the competition between banks and markets. But CRAs also pull banks into the capital market. For exam-

have reduced the costs of underwriting debt and equity (see Drucker and Puri (2004), and Schenone (2004)). Gande (2007) concludes that commercial banks have distinct benefits in underwriting leading to lower issuer costs. He also concludes that “the value of banking relationships appears to be largest for non-investment grade, small and IPO firms for whom one would ex ante expect the benefit of bank monitoring to be the highest”.

ple, banks originate loans that they securitize, and then seek ratings for the securitized pools from CRAs. The ratings, in turn, facilitate the ability of banks to sell (securitized) asset-backed securities in the capital market.

This rather positive interpretation of CRAs is clouded somewhat by recent negative publicity. In the 2001 crisis surrounding Enron, CRAs were accused of being strategically sluggish in downgrading.¹⁰ More recently, CRAs have been blamed (in part) for the sub-prime crisis in which they were allegedly too lenient in rating the senior tranches in securitization transactions. Allegations have been made about conflicts of interest for CRAs arising from the fact that structured finance is a source of over-increasing income for CRAs, which then corrupts their incentives for accurately rating the issuers involved in structured finance (Cantor (2004)). In this context, Coffee and Sale (2008) point at the naiveté to think that reputation building incentives alone would keep credit rating agencies in check.

Of particular concern are the so-called “rating triggers.” For example, some debt contracts may dictate accelerated debt repayments when the rating falls. The consequences of such accelerated debt repayments might, however, be so severe as to cause rating agencies to become reluctant to lower the ratings of those borrowers in a timely manner. Complications also arise from the role played by the so-called “monoliners.” These are insurers who traditionally guaranteed municipal bonds but now also guarantee the lowest-risk (best) tranches in securitization transactions. These insurers are virtually indispensable in the sense that the viability of many forms of securitization is predicated on this type of “reinsurance.” However, the ability of the monoliners to issue credible guarantees (and hence their role in securitization) depends on these institutions themselves having AAA ratings. This potentially generates an indirect chain-reaction mechanism for CRAs. In rating (and monitoring) the monoliners, CRAs affect the viability of the securitization market. Thus, the impact of CRAs is both direct (rating securitization tranches) and indirect (rating the monoliners). The potential failure of such monoliners would have a significant effect on the value of various structured finance products and induce an additional chain reaction among players active in the structured finance market, including investors. This further underscores the increasing interlinkages in the financial markets. Other concerns are related to the oligopolistic nature of the industry, and the importance that ratings have due to regulation. The latter includes the exclusivity given to a few rating agencies via the “Nationally Recognized Statistical Rating Organization” (NRSRO) classification, recently weakened in the 2006 Credit Rating Agency Reform Act, but also the inclusion of external ratings in the new Basle II capital regulation framework.

10 See for example discussions in the U.S. Senate: “On March 20, 2002, the Senate Committee held a hearing – entitled “Rating the Raters: Enron and the Credit Rating Agencies” [. . .]. The hearing sought to elicit information on why the credit rating agencies continued to rate Enron a good credit risk until four days before the firm declared bankruptcy [. . .].”, U.S. Senate Hearings (2002), and U.S. Senate Staff Report (2002): “[. . .] in the case of Enron, credit rating agencies displayed a lack of diligence in their coverage and assessment of Enron.” See also Cantor (2004) and Partnoy (1999).

6. REGULATION AND THE SECOND RAISON D'ÊTRE FOR BANKS: LIQUIDITY CREATION

In Section 2, we discussed the role of banks as information processors and delegated monitors. That information processing and monitoring referred to credit risk primarily. But banks also perform another important function, which is the provision of liquidity. That is, banks invest in illiquid assets (loans) but finance themselves largely with highly liquid demand deposits, and through this intermediation process create liquidity in the economy. However, in the process of creating liquidity, banks expose themselves to withdrawal risk and become fragile. Our discussion of this issue in this section will focus on “institution-driven fragility,” manifested in the classic run on an individual bank, as well as “market-driven fragility” that refers to risks that come primarily via the financial market and interbank linkages, and appear to be more systemic. We will discuss how the increasing integration of banks into financial markets allows banks to shift some of their traditional risks to the markets, and what this implies for *financial system stability* and regulation. Issues related to the economics of bank regulation are covered in Bhattacharya, Boot and Thakor (1998, 2004).

6.1. Fragile Banks as Liquidity Providers

In the classical interpretation, a financial crisis is directly linked to the notion of bank runs. In a fractional reserve system with long-term illiquid loans financed by (liquid) demandable deposits, runs may come about due to a coordination failure among depositors (Diamond and Dybvig (1983)). Even an adequately capitalized bank could be subject to a run if the deadweight liquidation costs of assets are substantial. Regulatory intervention via lender of last resort (LOLR) support, deposit insurance and/or suspension of convertibility could all help, and perhaps even eliminate the inefficiency. In fact, such intervention can be justified because of its potential to expunge the negative social externalities arising from the possible contagion effects associated with an individual bank failure. While these implications arise theoretically in a rather simple and stylized setting, many have generalized this simple setting by allowing for asymmetric information and incomplete contracts; see Rochet (2004) for a review. The general conclusion is that fragility is real, and information-based runs are plausible. In particular, Gorton's (1988) empirical evidence suggests that bank runs are *not* sunspot phenomena (as in Diamond and Dybvig (1983)), but are triggered by adverse information about banks. More importantly, the banking crises stemming from such runs have *independent* negative real effects (see Dell'Ariccia, Detragiache and Rajan (2008)). Also relevant in this context is the large literature that has now developed on banks and liquidity (see, for example, Acharya, Gromb and Yorulmazer (2007a, 2007b) and Acharya and Schaefer (2006)).

Given that bank runs are triggered by adverse information that depositors have about the financial health of banks, one might think that a simple solution would be to make banks safer by, for example, imposing higher capital requirements. Calomiris and Kahn (1991) first argued that the threat of bank runs may be a valuable disciplining device to keep bank managers honest, since a greater diversion of bank resources for personal con-

sumption can increase the likelihood of a bank run. Building on this argument, Diamond and Rajan (2001) have suggested that financial fragility may play an important role in inducing banks to create liquidity, and thus a reduction in fragility through higher bank capital may lead to lower liquidity creation. Until recently, there has been no empirical work done on this issue, in part because of a paucity of empirical measures of liquidity creation. In recent work, Berger and Bouwman (forthcoming) develop measures of liquidity creation and provide empirical evidence on the relationship between bank capital and liquidity creation. They show that higher capital leads to higher liquidity creation in the case of large banks, and lower liquidity creation in the case of small banks. Since capital requirements also affect the asset portfolios of banks through their lending decisions (see Thakor (1996)) and these requirements may be binding for some banks, this raises issues about the interaction of credit and liquidity risks that need to be explored.

Complicating this issue further is that the liquidity provision function of banks is also affected by the financial markets. Two observations are germane in this regard. First, access to financial markets weakens the liquidity insurance feature of demand deposit contracts. To see this, note that the root cause of the fragility in the Diamond and Dybvig (1983) world is the underlying demand deposit contract. The rationale for this contract—as modeled by Diamond and Dybvig (1983)—is the desire for liquidity insurance on the part of risk-averse depositors with uncertainty about future liquidity needs. However, as shown by Von Thadden (1998), the very presence of financial markets allows depositors to withdraw early and invest in the financial market, which puts a limit on the degree of liquidity insurance. In fact, when the market investment opportunity is completely reversible, deposit contracts cannot provide any liquidity insurance. This is related to the earlier work of Jacklin (1987) who shows that deposit contracts have beneficial liquidity insurance features provided that restricted trading of deposit contracts can be enforced.¹¹ In any case, these arguments suggest that the proliferation of financial markets weakens the liquidity-provision rationale for demand deposits, which may help explain the market-based proliferation of close substitutes for deposits.

A second observation has to do with whether the development of financial markets leads to a diminished role for the Central Bank in providing liquidity via its LOLR function. In the Bagehot tradition, one could ask whether the LOLR has a role to play in providing liquidity to liquidity-constrained-yet-solvent institutions when capital markets and interbank markets are well developed. Goodfriend and King (1988) argue that solvent institutions then cannot be illiquid since informed parties in the repo and interbank market would step in to provide the needed liquidity. In this spirit, former European Central Bank (ECB) board member Tommaso Padoa-Schioppa suggested that the classical bank run may only happen in text books since the “width and depth of today’s interbank market is such that other institutions would probably replace those which withdraw their funds” (as quoted in Rochet and Vives (2004)).

While these remarks correctly suggest that the development and deepening of finan-

¹¹ Actually, Jacklin (1987) shows that with the “extreme” Diamond-Dybvig preferences, a dividend-paying equity contract can achieve the same allocations without the possibility of bank runs. However, for basically all other preferences, a demand deposit contract does better, provided that trading opportunities are limited.

cial markets could reduce the need for a LOLR in providing liquidity support, we believe that it would be hasty to conclude that there is no role for a LOLR, particularly when information asymmetries are considered. For example, Rochet and Vives (2004) show that a coordination failure in the interbank market may occur, particularly when fundamentals are weak, and that this may lead to a need for liquidity support by the LOLR for a solvent institution.¹² The 2007-2009 financial crisis gives ample reason to believe that coordination failures in interbank markets are real and that the role of a LOLR is still important.

This discussion suggests two somewhat tentative conclusions. First, the development of financial markets (including interbank markets) has improved the risk-sharing opportunities available to banks and has probably decreased the likelihood of a run on an individual bank. Whether the total insolvency risk of individual institutions has declined depends on the actual risk taking and capitalization. Evidence in De Nicolo and Tieman (2005) suggests that the insolvency risk of European institutions has remained more or less the same over the last 15 years despite increases in capital over time and a wider geographic range of operations. Second, because these improved risk-sharing opportunities have arisen from a greater degree of integration between banks and markets, they may also have contributed to an *increase* in *systemic* risk. In other words, while the likelihood of an individual bank failing due to an idiosyncratic shock may have declined, there may be a concomitant increase in the probability that localized liquidity and solvency problems may propagate quickly through the financial system as a whole, leading to higher systemic risk. This raises thorny regulatory issues, which we turn to next.

6.2. Regulatory Implications

The preceding discussion has focused the spotlight on one fact: banks and markets are becoming increasingly integrated. This is happening in part because of greater competition is inducing banks to follow their borrowers to the capital market and offer products that *combine* features of bank-based and market-based financing. It is also happening because banks themselves are using the financial market increasingly for their own risk management purposes. There is thus a multitude of factors that have contributed to an astonishingly rapid melding process.

An important implication of this integration is that it is becoming more and more difficult to isolate banking risks from financial market risks. A financial market crisis inevitably cascades through the banking system, and what happens in the banking system does not take long to reverberate through the financial market. So if the main task of bank regulators is the safety and soundness of the banking system, they must now also worry about the financial market whose participants are outside the bank regulator's domain.

Moreover, even though the explicit insurance guarantee applies only to bank deposits, the temptation for government regulators to bail out various uninsured participants,

¹² Another line of research studies the impact of liquidity on asset pricing (e.g. Acharya and Pedersen (2005)) and the possible role of asset price bubbles as a source of fragility and contagion (see Allen (2005) and De Bandt and Hartmann (2002) for surveys on contagion).

including investment banks and financial market investors, in the event of a crisis in the capital market seems increasingly difficult to resist on *ex post* efficiency grounds, particularly because of the implications for *bank safety*.¹³ It will be interesting to examine the connotations of this for *ex ante* incentives and the magnitude of the *implicit* “soft” safety net provided by the government. What seems safe to conjecture is that a perception of a greater regulatory concern with *ex post* efficiency and hence a greater desire to intervene has elevated the importance of moral hazard. And this has happened in an environment in which regulatory issues are becoming increasingly international both due to the cross-border proliferation of financial institutions and the increasing integration of banks with financial markets, which are typically international in scope.

6.3. Need for Cross-Border Coordination in Regulation and Supervision: The EU Example

The regulatory task across national boundaries is rather complex. Consider the European Union (EU) as an example. The patchwork of national supervision and European-wide coordination in the EU has so far held itself up reasonably well, arguably even during the 2007-2009 financial crisis.¹⁴ Nevertheless, in crisis situations important concerns can be raised about the adequacy of information sharing and cooperation between the various supervisors, the European Central Bank (ECB) and the national central banks. In particular, in such situations the question about who will be in charge might become paramount. Potential tensions can easily be envisioned between supervisory agencies, national central banks and the ECB. Moreover, one could ask to what extent these arrangements accomplish the efficiency and effectiveness objectives that regulation and supervision should be subjected to.

Policymakers are aware of these issues. For example, the new Directive on Financial Conglomerates gives the home country supervisor the single coordinating responsibility in all member states for group-wide supervision of the financial conglomerate. Issues of financial stability, however, remain the responsibility of the host countries.

The question is how to coordinate these potentially diverse interests, particularly in crisis situations. The core message of the second Brouwer-report (Economic and Finance Committee (2001)) was that *no* mechanism was in place to coordinate in case of a crisis.¹⁵ For that reason a Memorandum of Understanding between virtually all European national central banks and supervisors was formulated that specifies principles and procedures for cooperation in crisis management situations (European Central Bank (2003)). However, the fiscal side, in particular the budgetary obligations imposed on member states in the case of bail-outs, also requires the approval of national finance min-

13 The guarantee provided to a collapsing Bear Stearns by the government to facilitate its sale to J.P. Morgan-Chase is an example, as are the general measures to let investment banks qualify for a commercial banking license (and in doing so allow them access to deposits and let them qualify for deposit insurance).

14 Nevertheless, several things did go wrong, most notably the non-coordinated actions surrounding deposit insurance. Some countries chose to offer blanket guarantees overnight (e.g. Ireland) and in doing so imposed severe externalities on other countries and also foreign banks in their own markets that were not covered. These foreign countries and banks faced an immediate erosion of their deposit base.

15 See Economic and Finance Committee (2002) for further recommendations.

istries that have to incur the potential financial obligations associated with bail-outs. In a follow-up Memorandum of Understanding, these finance ministries were also included (European Central Bank (2005)).

Several questions can be raised about the efficiency of the arrangements in general. The decentralized structure may give rise to potential conflicts of interest between the national authorities and “outsiders.” For example, national authorities might be prone to TBTF (too-big-to-fail) rescues, and this worsens moral hazard on the part of large institutions. Yet one could argue that the moral hazard engendered by TBTF policies could be attenuated somewhat by attaching to TBTF rescues specific provisions that would involve replacing management, wiping out the claims of shareholders and uninsured debtholders, etc. This is true in theory but does not appear to happen often in practice. One reason might be the possibility of capture of local regulators and supervisors due to the closeness of their relationships to the “national flagship” institutions (Boot and Thakor (1993)). There are also issues of “too many to fail” (see Acharya and Yorulmazer (2007)) or “too interconnected to fail” (Herring (2008)), which could also induce regulatory leniency toward these institutions. Alternatively, national authorities may not sufficiently internalize the disruptive consequences that a domestic bank failure could have in other countries. Efficiency might be hampered in other ways as well. For example, the national scope of supervision may help encourage the emergence of “national champions” among regulators, who may then seek to protect institutions in their countries. More fundamentally, the decentralized structure could give rise to an uneven playing field and regulatory arbitrage possibilities.

Casual observation would seem to suggest that integration and further coordination (if not centralization of authority) of both regulation and supervision might yield substantial efficiency gains not only for the supervisory authorities but also, and perhaps more importantly, for the supervised financial institutions themselves. There are currently more than 35 supervisory authorities responsible for prudential supervision in the EU, and a typical large financial institution might have to report to more than 20 supervisors (Pearson (2003)).

Yet, practical considerations suggest that a full integration of all regulatory and supervisory functions at the European level may not (yet) be feasible. While it is clear that regulatory and supervisory integration needs to keep pace with the development of the size and the cross-border footprint of the covered banks, the heterogeneity of underlying supervisory systems and the implied costs of integration should not be underestimated. An interesting illustration is the evidence reported by Barth, Caprio and Levine (2004) on the variation across the European Union countries in supervisory institutions and practices. Their conclusion is that supervisory arrangements within the EU are as diverse as in the rest of the world. Also, illustrating this point further, the EU countries are current or former standard bearers of all major legal origins. A vast literature now documents how legal origin matters for the shape and functioning of the financial system (see La Porta, Lopez DeSilanes, Schleifer and Vishny (1998)). Bank regulation and supervisory practices differ also considerably between civil and common law countries, typically with a more flexible and responsive approach in the latter.

While common sense suggests that ultimately a more integrated regulatory and supervisory structure is desirable¹⁶, the way we should get there is far from clear. Indeed, practical considerations, including political concerns, suggest at least the short-run inevitability of a fragmented structure. A coordination layer will then need to be superimposed on this structure; assigning single coordinating responsibility to the home-country supervisor is one example of that.¹⁷

The 2007-2009 credit crisis may well lead to a situation in which central banks get a heavier role in supervision. While central banks always had a role in safeguarding the stability of the financial system, during the 2007-2009 crisis we have seen that both the Federal Reserve and the European Central Bank (ECB) became directly involved in rescuing depository as well as non-depository financial institutions. An important question in the current debate is whether this expanded role should be formalized. For example, the ECB has hinted at obtaining a mandate for the supervision of systemically-relevant banks that operate across national borders. This reflects a significant change in thinking. Prior to the crisis, the consensus appeared to be that caution was in order when it came to expanding the mandate of central banks because an expanded mandate could compromise the pivotal function of central banks in conducting monetary policy.

6.4. Other Reform Suggestions

The struggle for better cross-border coordination in regulation and supervision should go hand in hand with more fundamental reforms in the regulatory structure. The first is that the scope of regulation and supervision needs to be clearly identified, and, if possible, contained. Effective supervision and regulation—given the mushrooming cross-sector and cross-border footprint of financial institutions—requires a better delineation of safety and systemic risk concerns. The earlier discussion on the precise propagation mechanism as it relates to systemic risk is actually pointing at the same issue. The cross-sector integration of financial institutions and the increasingly more seamless integration of financial markets and institutions have considerably broadened the scope of regulation and the potential sources of systemic risk.

Another relevant question is whether market discipline could help in containing systemic risks, or whether market responses merely amplify such risks (see Flannery (1998)). Here the picture gets a bit murky. Basel II tries to encourage market discipline via its third pillar that is aimed at greater transparency. The idea is that market discipline could help supervisors in safeguarding the well-being of the financial sector. This has merit on the face of it and has support in the literature as well. The literature has

16 Actually, some theoretical work suggests the potential value of competition between regulators. See, for example, Kane (1988).

17 An important distinction needs to be made between business conduct regulation and prudential regulation. We have focused on the latter. The former is closer to the functioning of financial markets and lends itself more readily for centralization at the European level. But even in context of these financial markets, the Lamfalussy report (Committee of Wise Men (2001)) that is the blueprint for financial market supervision in the European Union (EU) does not directly propose authority at the EU level, but introduces a collaboration model that induces regulatory and supervisory convergence. It states that if its proposed approach is not successful, the creation of a single EU regulatory authority should be considered.

viewed market discipline working in three ways: (1) by providing regulators market-based signals of bank risk-taking through the yields on subordinated debt issued by banks; (2) by providing banks disincentives to take excessive risk through the upward adjustments in sub-debt yields in response to greater bank risk; and, (3) by choking off the supply of sub-debt when sufficiently high risk-taking by the bank is detected by the market, thereby providing additional encouragement to the bank to temper its risk-taking. Nonetheless, it has been shown both theoretically and empirically that market discipline can be effective only if the claims of uninsured investors (sub debt and equity) are not protected via de facto ex post insurance in a government-sponsored rescue of a failing institution. For a theoretical treatment of these issues, see Decamps, Rochet and Roger (2004), and for empirical analyses that support the risk-controlling role of market discipline, see Barth, Caprio and Levine (2004), and Goyal (2005). However, despite all of the research support for the role of market discipline, our knowledge of whether market discipline facilitates or hinders the regulatory task of maintaining banking stability *during* a financial crisis is quite limited. In particular, when the financial sector is severely stressed, as during the 2007-2009 credit crisis, market discipline may induce herding behavior, as everybody “heads simultaneously for the exit,” and this actually could be a source of instability. This suggests that regulation and supervision in “normal times” should perhaps be distinguished from that during crisis episodes. Market discipline, although valuable in normal times, may be very distortive in times of systemic stress. This may be one reason why during crises regulators have been inclined to provide more or less blanket guarantees to distressed institutions, ostensibly to counter the potentially adverse effects of market discipline. However, all of this notwithstanding, it would be dangerous to conclude that market discipline, say via the use of market value accounting and other mechanisms, is something that should be relied upon in good times and eschewed in bad times. The key is to figure out the appropriate regulatory actions in *good* times, when banks have the flexibility to comply without compromising their viability, that would enable banks to be more capable of withstanding the stresses of market discipline during bad times. And it will also be important to remember that banks cannot be completely insured from the effects of market stress during bad times (for example, through the use of blanket guarantees for *all* claimants), or else the ex ante effectiveness of market discipline is lost entirely (e.g. Decamps, Rochet and Roger (2004)).

This brings up the issue of introducing fire-walls in the financial sector. For example, does a subsidiary structure reduce systemic risk concerns? We do not think that an answer is readily available. More generally, what type of constraints, if any, should be put on the corporate structure of financial institutions? Until the 2007-2009 financial crisis, the general belief was that deregulation in the financial sector would continue further, possibly leading to even bigger and broader financial institutions. But now it is far from clear what the future will bring. Some have suggested reintroducing the Glass-Steagall Act to insulate local banking from the risks and fads that periodically afflict financial markets. To what extent this is effective, and not overly costly, is open to debate. In any case, changes in the industrial structure of the financial sector are of paramount importance

for the design and effectiveness of regulation and supervision.¹⁸ If these issues cannot be satisfactorily addressed, we are not very optimistic about the possibilities for effective and efficient pan-European regulation, let alone globally-coordinated regulation, even in the long run.

A second issue has to do with the evolution of capital regulation. Many believe that banks should operate with higher capital buffers. This is somewhat at odds with Basel II which permits banks to fine-tune their required capital ratios based on their (certified) internal models. There are questions about whether these models induce pro-cyclicality, and whether such model-dependency induces systemic risk by itself (e.g. institutions using the same models, and thus potentially being subject to the same shortcomings). We also have a concern about the potential adverse consequences of the discretion that Basel II provides to banks.¹⁹ Perhaps similar concerns led the FDIC to impose a minimum leverage ratio on banks in the Basel II environment. The FDIC has argued that requiring a minimum level of capital—regardless of risk—is essential for timely regulatory intervention in the event of problems. Such timely intervention seems particularly important in cross-border situations, given the complexities created by bank failures in such situations. In particular, timely regulatory intervention could help contain conflicts between local authorities in such cases (see Eisenbeis and Kaufman (2005)).

A third issue is deposit insurance. The 2007-2009 financial crisis has made it clear that when a real crisis hits, national authorities effectively feel compelled to fully guarantee the deposit bases of their financial institutions to eliminate the possibility of massive runs. This heavy dependence on insured deposits is an issue that needs a reexamination. Extant research (see Bhattacharya, Boot and Thakor (1998)) has clearly shown the moral hazards that insured deposits entail. Moreover, Barth, Caprio and Levine (2004) have shown that high levels of (*de facto* or *de jure*) deposit insurance impede the effectiveness of market discipline and increase the likelihood of a banking crisis, controlling for many other aspects of the regulatory environment. A question is whether strict regulatory limits should be put on the risks that institutions can expose these deposits to. Earlier research had at some point advocated narrow banking which fully insulates insured deposits. But are there alternatives? And more generally, can insured deposits be made less important as a funding vehicle for financial institutions?

A fourth issue is whether regulation and supervision is sufficiently addressing macro-prudential issues, in particular systemic concerns. It appears that the majority of regulatory initiatives are focused on the well being of individual financial institutions. That is, a micro-prudential focus dominates (see Brunnermeier, Crockett, Goodhart, and Shin (2009)). This should be addressed to better reconcile regulation and supervision with the systemic concerns that are paramount.

The fifth issue is that very little is known about the efficiency and effectiveness of vari-

18 Earlier we referred to the concentration in the credit rating business and the importance of ratings for the markets for structured finance (securitization). It is interesting to ask what impact a meltdown of one of the main credit rating agencies would have on these markets, and what this in turn would imply for participants in these markets.

19 This concern stems from the observation that individual banks are unlikely to sufficiently internalize the systemic-risk externalities of their actions. Consequently, the latitude that Basel II grants to banks in having them use their own internal risk-assessment models to determine appropriate capital levels is misplaced. Banks appear to have powerful incentives to tweak these models in order to generate prescriptions to keep low levels of capital.

ous regulatory and supervisory structures. As Barth, Nolle, Phumiwasana and Yago (2003) put it, “there is very little empirical evidence on how, or indeed whether, the structure, scope or independence of bank supervision affects the banking industry.” Their own research suggests that the effect is at best marginal, but measurement problems are vexing. They conclude from this that we may thus choose to focus only on the effect that regulation has on systemic risk. But here too little is known about the regulatory structures that are most efficient in dealing with systemic risk. What this means is that we need considerable additional research to sharpen our identification of the costs and benefits of different regulatory and supervisory arrangements. Given the strikingly different national supervisory arrangements that exist today, our lack of knowledge on this issue is a significant barrier to progress toward a harmonized “superior” model.²⁰

7. CONCLUSION

We have reviewed some of the literature on why banks exist, the risks these create, and how interbank competition as well as that from markets affects the economic roles served by banks as well as the attendant risks. One important development is that banks have become increasingly integrated with markets. This integration generates two effects that work in opposite directions. On the one hand, individual banks become better equipped to manage their own risks because it becomes easier and less costly to hedge these risks using the market. This could reduce the risk of an individual bank failing due to an idiosyncratic shock. On the other hand, there is an increase in the probability that a shock to a small subset of banks could generate systemic effects that ripple through the financial market, so that this banks-markets integration may be causing an elevation of systemic risk.

It is easy to see that this substantially complicates the task of prudential regulation of banks and raises the specter of a widening of the “implicit” governmental safety net as *ex post* efficiency concerns tempt the government to bail out even uninsured players. This is no longer a mere theoretical conjecture, as demonstrated by the bailouts of investment banks and insurance companies in 2008-09. We believe that these are important issues that deserve greater theoretical and empirical attention. In particular, we need to have a better understanding of how tough the regulatory intervention in a crisis should be. Governmental initiatives such as those witnessed in the U.S. during the 2007-2009 crisis—massive governmental injections of liquidity and capital into banks and other financial institutions without an adequate corporate control role for the government—are very costly and possibly ineffective due to daunting moral hazard and asymmetric information problems. Some key lessons might be learnt from previous financial crisis, e.g. the Swedish financial crisis of the 90s, see Ingves and Lind (1994).²¹

20 We have not focused on changes that might be needed in the internal incentive structure in banks. As has become clear in the current crisis, internal risk management showed substantial lapses (see Group of Thirty (2009)). Other issues abstained from in this chapter relate to pro-cyclicality in Basel II and IFRS (and market value) accounting.

21 See also the theoretical work of Aghion, Bolton and Fries (1999). In a recent commentary, Stiglitz (2009) advocates nationalization of banks for some time to facilitate their clean up. A better proposal (made by Richard Herring) and closely following the Swedish experience might be that of “bridge banks”, where there is temporary involvement of the government (say for two years), during which time the government has an adequate corporate control role, asset

To conclude, we believe the most important, yet only partially answered, research questions raised by our discussion are the following:

- What are the implications of the ever-increasing integration of banks and markets for *systemic* risk and fragility?
- What issues should we consider in the optimal design of regulation to respond to the (up to recently at least) growing cross-border footprints of major financial institutions and the increasing integration of banks and financial markets?
- What changes, if any, should be imposed on the structure of the financial services industry, and the banking sector in particular, to contain the ‘mushrooming’ nature of systemic concerns, i.e. to contain the scope of regulation and supervision?
- What role, if any, can market discipline play in helping safeguard the stability of the financial sector?
- How do banks and private equity firms (and other non-banking financial institutions) interact and what implications does this have for the regulation of banks and financial markets?
- What role do credit rating agencies play in financial markets, how does this affect banks, and what implications does this have for systemic risks that *bank* regulators care about?

These questions represent a rich agenda for future research.

sales are handled in an orderly manner, incentives are realigned, and the bank is put back in a position to be viable again. The regulatory apparatus for this already exists in many countries, including the U.S. Actually many variations on this are observed in the 2008-2009 handling of the crisis. For example, in some cases (see Citi and the Dutch bank ING) governments had chosen to ring fence troubled assets within the banks' corporate structures, yet provide explicit government guarantees on these assets.

REFERENCES

- Acharya, V., D. Gromb, and T. Yorulmazer (2007a), Failure in the Market for Liquidity Transfers and the Origins of Central Banking, Working Paper.
- Acharya, V., D. Gromb, and T. Yorulmazer (2007b), Imperfect Competition in the Inter-Bank Market for Liquidity, Working Paper.
- Acharya, V., and L. Heje Pedersen (2005), Asset Pricing with Liquidity Risk, *Journal of Financial Economics*, Vol. 77 (2), p. 375-410.
- Acharya, V., and S. Schaefer (2006), Liquidity Risk and Correlation Risk: Implications for Risk Management, Working Paper.
- Acharya, V., and T. Yorulmazer (2007), Too Many to Fail - An Analysis of Time-Inconsistency in Bank Closure Policies, *Journal of Financial Intermediation*, Vol. 16 (1), p. 515-554.
- Aghion, P., P. Bolton and S. Fries (1999), Optimal Design of bank Bail Outs: The Case of Transition Economies, *Journal of Institutional and Theoretical Economics*, Vol. 155, p. 51-70.
- Allen, F. (1990), The Market for Information and the Origin of Financial Intermediation, *Journal of Financial Intermediation*, Vol. 1 (1), p. 3-30.
- Allen, F. (1993), Stock Markets and Resource Allocation, in *Capital Markets and Financial Intermediation*, eds. C. Mayer and X. Vives, Cambridge University Press.
- Allen, F. (2005), Modeling Financial Instability, *National Institute Economic Review*, Vol. 192, p. 57-67.
- Allen, F., and D. Gale (1995), A Welfare Comparison of Intermediaries and Financial Markets in Germany and the U.S., *European Economic Review*, Vol. 39 (2), p. 179-209.
- Allen, F., and D. Gale (1997), Financial Markets, Intermediaries and Intertemporal Smoothing, *Journal of Political Economy*, Vol. 105 (3), p. 523-546.
- Bart, J.R., D.E. Nolle, T. Phumiwasana and G. Yago (2003), A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance, *Financial Markets, Institutions & Instruments*, Vol. 12 (2), p. 67-120.
- Barth, J.R., G. Caprio, and R. Levine (2004), Bank Regulation and Supervision: What Works Best?, *Journal of Financial Intermediation*, Vol. 13 (2), p. 205-248.
- Berger, A.N., and C. Bouwman (2007), Bank Liquidity Creation, Working Paper, Board of Governors of the Federal Reserve System.
- Berger, A.N., L.F. Klapper, M.S. Martinez Peria, and R. Zaidi (2008), Bank Ownership Type and Banking Relationships, *Journal of Financial Intermediation*, Vol. 17 (1), p. 37-62.
- Berger, A.N., N. Miller, M. Petersen, R. Rajan and J. Stein (2005), Does Function Follow Organizational Form? Evidence From the Lending Practices of Large and Small Banks, *Journal of Financial Economics*, Vol. 76 (2), p. 237-269.
- Berger, A.N., A. Saunders, J. Scalise and G. Udell (1998), The Effects of Bank Mergers and Acquisitions on Small Business Lending, *Journal of Financial Economics*, Vol. 50 (2), p. 187-229.
- Berglöf, E., and E.-L.von Thadden (1994), Short-Term Versus Long-Term Interests:

- Capital Structure with Multiple Investors, *Quarterly Journal of Economics*, Vol. 109 (4), p. 1055-1084.
- Berlin, M. (1996), For Better and for Worse: Three Lending Relationships, *Business Review Federal Reserve Bank of Philadelphia*, p. 3-12.
- Berlin, M., and L. Mester (1992), Debt Covenants and Renegotiation, *Journal of Financial Intermediation*, Vol. 2 (2), p. 95-133.
- Berlin, M., and L. Mester (1999), Deposits and Relationship Lending, *Review of Financial Studies*, Vol. 12 (3), p. 579-607.
- Bhattacharya, S., A.W.A. Boot and A.V. Thakor (1998), The Economics of Bank Regulation, *Journal of Money, Credit and Banking*, Vol. 30 (4), p. 745-770.
- Bhattacharya, S., A.W.A. Boot and A.V. Thakor, eds. (2004), *Credit Intermediation and the Macro Economy*, Oxford University Press, Oxford, UK.
- Bhattacharaya, S, and G. Chiesa (1995), Proprietary Information, Financial Intermediation, and Research Incentives, *Journal of Financial Intermediation*, Vol. 4 (4), p. 328-357.
- Bhattacharya, S., and A.V. Thakor (1993), Contemporary Banking Theory, *Journal of Financial Intermediation*, Vol. 3 (1), p. 2-50.
- Bolton, P., and D. Scharfstein (1996), Optimal Debt Structure and the Number of Creditors, *Journal of Political Economy*, Vol. 104 (1), p. 1-25.
- Boot, A.W.A. (2000). Relationship Banking: What do we Know?, *Journal of Financial Intermediation*, Vol. 9 (1), p. 7-25.
- Boot, A.W.A., S.G. Greenbaum and A.V. Thakor (1993), Reputation and Discretion in Financial Contracting, *American Economic Review*, Vol. 83 (5), p. 1165-1183.
- Boot, A.W.A., T. Milbourn and A. Schmeits (2006), Credit Ratings as Coordination Mechanisms, *Review of Financial Studies*, Vol. 19 (1), p. 81-118.
- Boot, A.W.A., and A.V. Thakor (1993), Self-Interested Bank Regulation, *American Economic Review*, Vol. 83-2, p. 206-212.
- Boot, A.W.A., and A.V. Thakor (1997), Financial System Architecture, *Review of Financial Studies*, Vol. 10-3, p. 693-733.
- Boot, A.W.A., and A.V. Thakor (2000), Can Relationship Banking Survive Competition?, *Journal of Finance*, Vol. 55 (2), p. 679-713.
- Boot, A.W.A., A.V. Thakor and G. Udell (1991), Credible Commitments, Contract Enforcement Problems and Banks: Intermediation as Credibility Assurance, *Journal of Banking and Finance*, Vol. 15 (3), p. 605-632.
- Boyd, J.H., and M. Gertler (1994), Are Banks Dead, or Are the Reports Greatly Exaggerated?, *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 18 (3).
- Brick, I.E., and D. Palia (2007), Evidence of Jointness in the Terms of Relationship Lending, *Journal of Financial Intermediation*, Vol. 16 (3), p. 452-476.
- Brophy, D., P.P. Ouimet and C. Sialm (forthcoming), Hedge Funds as Investors of Last Resort?, *Review of Financial Studies*.
- Brunnermeier, M., A. Crockett, C. Goodhart and H. Shin (2009), The Fundamental Principles of Financial Regulation, Preliminary Draft of *Geneva Reports on the World Economy*, 11, International Center for Monetary and Banking Studies, Geneva,

- Switzerland.
- Calomiris, C., and C. Kahn (1991), The Role of Demandable Debt in Structuring Optimal Banking Arrangements, *American Economic Review*, Vol. 81 (3), p. 497-513.
- Cantor, R. (2004), An Introduction to Recent Research on Credit Ratings, *Journal of Banking and Finance*, Vol. 28 (11), p. 2565-2573.
- Carletti, E., V. Cerasi and S. Daltung (2007), Multiple-Bank Lending: Diversification and Free-Riding in Monitoring, *Journal of Financial Intermediation*, Vol. 16 (3), p. 425-451.
- Carey, M., M. Post and S.A. Sharpe (1998), Does Corporate Lending by Banks and Finance Companies Differ? Evidence on Specialization in Private Debt Contracting, *Journal of Finance*, Vol. 53 (3), p. 845-878.
- Chan, Y.-S., S.G. Greenbaum and A.V. Thakor (1986), Information Reusability, Competition and Bank Asset Quality, *Journal of Banking and Finance*, Vol. 10 (2), p. 243-253.
- Chemmanur, T.J., and P. Fulghieri (1994), Reputation, Renegotiation, and the Choice Between Bank Loans and Publicly Traded Debt, *Review of Financial Studies*, Vol. 7 (3), p. 475-506.
- Coffee, J.C. (2002), Understanding Enron: It's About the Gatekeepers, Stupid, Working Paper, *Columbia Center for Law and Economics Studies*, No. 207.
- Coffee, J.C., and H.A. Sale (2008), Redesigning the SEC: Does the Treasury have a Better Idea, Working Paper, *Columbia Center for Law and Economics Studies*, No. 342.
- Committee of Wise Men (2001), Final Report of the Committee of Wise Men on the Regulation of the European Securities Markets, (Lamfalussy Report), Brussels.
- Coval, J., and A.V. Thakor (2005), Financial Intermediation as a Beliefs-Bridge Between Optimists and Pessimists, *Journal of Financial Economics*, Vol. 75 (3), p. 535-570.
- Da Rin, M., and T. Hellmann (2002), Banks as Catalysts for Industrialization, *Journal of Financial Intermediation*, Vol. 11 (4), p. 366-397.
- Datta, S., M. Iskandar-Datta and A. Patel (1999), Bank Monitoring and Pricing of Corporate Public Debt, *Journal of Financial Economics*, Vol. 51 (3), p. 435-449.
- De Bandt, O., and P. Hartmann (2002), Systemic Risk: a Survey, in *Financial Crises, Contagion and the Lender of Last Resort*, eds. C. Goodhart and G. Illing, Oxford University Press, Oxford, UK.
- De Nicoló, G., and A.F. Tieman (2005), Economic Integration and Financial Stability: a European Perspective, Working Paper, International Monetary Fund, No. 06/296.
- Decamps, J., J. Rochet and B. Roger (2004), The Three Pillars of Basel II: Optimizing the Mix, *Journal of Financial Intermediation*, Vol. 13-2, p. 132-155.
- Degryse, H., and S. Ongena (2007), The Impact of Competition on Bank Orientation, *Journal of Financial Intermediation*, Vol. 16 (3), p. 399-424.
- Deidda, L., and B. Fattouh (2008), Banks, Financial Markets and Growth, *Journal of Financial Intermediation*, Vol. 17 (1), p. 6-36.
- Dell'Ariccia, G., E. Detragiache and R. Rajan (2008), The Real Effect of Banking Crises, *Journal of Financial Intermediation*, Vol. 17 (1), p. 89-112.
- Dewatripont, M., and E. Maskin (1995), Credit and Efficiency in Centralized and

- Decentralized Economies, *Review of Economic Studies*, Vol. 62 (4), p. 541-555.
- DeYoung, R., D. Glennon and P. Nigro (2008), Evidence From Informational-Opaque Small Business Borrowers, *Journal of Financial Intermediation*, Vol. 17 (1), p. 113-143.
- Diamond, D. (1984), Financial Intermediation and Delegated Monitoring, *Review of Economic Studies*, Vol. 51 (3), p. 393-414.
- Diamond, D. (1991), Monitoring and Reputation: the Choice Between Bank Loans and Directly Placed Debt, *Journal of Political Economy*, Vol. 99, p. 689-721.
- Diamond, D. (1993), Seniority and Maturity of Debt Contracts, *Journal of Financial Economics*, Vol. 33, p. 341-368.
- Diamond, D., and P.H. Dybvig (1983), Bank Runs, Deposit Insurance and Liquidity, *Journal of Political Economy*, Vol. 91 (3), p. 401-419.
- Diamond, D., and R.G. Rajan (2001), Liquidity Risk, Liquidity Creation and Financial Fragility: a Theory of Banking, *Journal of Political Economy*, Vol. 109 (2), p. 287-327.
- Dinç, I. S. (2000). Bank Reputation, Bank Commitment, and the Effects of Competition in Credit Markets, *Review of Financial Studies*, Vol. 13 (3), p. 781-812.
- Drucker, S. (2005), Information Asymmetries and the Effects of Banking Mergers in Firm-Bank Relationships, Proceedings, Federal Reserve Bank of Chicago, Vol. 140-147.
- Drucker, S., and M. Puri (2005), On the Benefits of Concurrent Lending and Underwriting, *Journal of Finance*, Vol. 60 (6), p. 2763-2799.
- Economic and Finance Committee (2001), Report on Financial Crisis Management, European Economy–Economic Papers 156, Commission of the EC, Directorate-General for Economic and Financial Affairs.
- Economic and Finance Committee (2002), Financial Regulation, Supervision and Stability, document from the Economic and Financial Committee, EF76/ECOFIN 324.
- Eisenbeis, R.A., and G.G. Kaufman (2005), Bank Crises Resolution and Foreign-Owned Banks, *Federal Reserve Bank of Atlanta Economic Review*, Vol. 90 (4), p. 1-18.
- European Central Bank (2003), Memorandum of Understanding on High-Level Principles of Cooperation, Press Release.
- European Central Bank (2005), Memorandum of Understanding on Cooperation Between the Banking Supervisors, Central Banks and Finance Ministries of the European Union in Financial Crises Situations, Press Release.
- Flannery, M. (1998), Using Market Information in Prudential Bank Supervision: a Review of the U.S. Empirical Evidence, *Journal of Money, Credit and Banking*, Vol. 30 (3), p. 273-305.
- Gande, A. (2007), Commercial Banks in Investment Banking, Working Paper, Vanderbilt University.
- Gande, A., and A. Saunders (2005), Are Banks Still Special when there is a Secondary Market for Loans?, Working Paper, New York University.
- Goodfriend, M., and R. King (1988), Financial Deregulation, Monetary Policy and Central Banking, eds. W. Haraf and R.M. Kushmeider, *AEI Studies*, No. 481, UPA, Lanham, MD.
- Gorton, G.B. (1988), Banking Panics and Business Cycles, *Oxford Economic Papers*, Vol.

- 40 (4), p. 751-781.
- Gorton, G.B., and J.A. Kahn (1993), The Design of Bank Loan Contracts, Collateral, and Renegotiation, Working Paper, NBER, No. W4273.
- Gorton, G.B., and G. Pennacchi (1995), Banks and Loan Sales: Marketing Nonmarketable Assets, *Journal of Monetary Economics*, Vol. 35 (3), p. 389-411.
- Goyal, V. (2005), Market Discipline of Bank Risk: Evidence from Subordinated Debt Contracts, *Journal of Financial Intermediation*, Vol. 14-3, p. 318-350.
- Group of Thirty (2009), Financial Reform: A Framework for Financial Stability, Report by the Working Group on Financial Reform, Washington.
- Hauswald, R., and R. Marquez (2006), Competition and Strategic Information Acquisition in Credit Markets, *Review of Financial Studies*, Vol. 19 (3), p. 967-1000.
- Hellmann, T., L. Lindsey and M. Puri (forthcoming), Building Relationships Early: Banks in Venture Capital, *Review of Financial Studies*.
- Hellwig, M. (1991), Banking, Financial Intermediation and Corporate Finance, in *European Financial Integration*, eds. A. Giovanni and C.P. Mayer, Cambridge University Press.
- Herring, R.J. (2008), The U.S. Subprime Crisis: Lessons for Regulators, *Proceedings of the 44th Annual Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, p. 48-55.
- Hoshi, T., A. Kashyap and D. Scharfstein (1993), The Choice Between Public and Private Debt: an Analysis of Post-Deregulation Corporate Financing in Japan, Working Paper, NBER No. 4421.
- Houston, J., and C. James (1996), Bank Information Monopolies and the Mix of Private and Public Debt Claims, *Journal of Finance*, Vol. 51 (5), p. 1863-1889.
- Ingves, S., and Lind, G. (1994), The Management of the Bank Crisis – In Retrospect, *Sverigs Riksbank Quarterly Review*, Vol. 1, p. 5-18.
- Jacklin, C.J. (1987), Demand Deposits, Trading Restrictions and Risk Sharing, in *Financial Intermediation and Intertemporal Trade*, eds. E. Prescott and N. Wallace, University of Minnesota Press, Minneapolis.
- James, C. (1987), Some Evidence on the Uniqueness of Bank Loans, *Journal of Financial Economics*, Vol. 19 (2), p. 217-235.
- Kane, E.J. (1988), How Market Forces Influence the Structure of Financial Regulation, in *Restructuring Banking and Financial Services in America*, eds. W.S. Haraf and R.M. Kushmeider, American Enterprise Institute Press, Washington D.C., p. 343-382.
- Kashyap, A., R. Rajan and J. Stein (2002), Banks as Liquidity Providers: an Explanation for the Co-existence of Lending and Deposit-taking, *Journal of Finance*, Vol. 57 (1), p. 33-73.
- Kroszner, R.S., and R.G. Rajan (1994), Is the Glass-Steagall Act Justified? A Study of the US Experience with Universal Banking Before 1933, *American Economic Review*, Vol. 84 (4), p. 810-832.
- LaPorta, R., L. Lopez-de-Silanes, A. Schleifer and R.W. Vishny (1998), Law and Finance, *Journal of Political Economy*, Vol. 106, p. 1113-1155.
- Lummer, S.L., and J.J. McConnell (1989), Further Evidence on the Bank Lending

- Process and the Reaction of the Capital Market to Bank Loan Agreements, *Journal of Financial Economics*, Vol. 25 (1), p. 99-122.
- Mayer, C. (1988), New Issues in Corporate Finance, *European Economic Review*, Vol. 32 (5), p. 1167-1183, June.
- Mian, A.R., and A. Sufi (2008), The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis, Working Paper, University of Chicago.
- Millon, M., and A.V. Thakor (1985), Moral Hazard and Information Sharing: a Model of Financial Information Gathering Agencies, *Journal of Finance*, Vol. 40-5, p. 1403-1422.
- Ongena, S., and D.C. Smith (2000), What Determines the Number of Bank Relationships? Cross-Country evidence, *Journal of Financial Intermediation*, Vol. 9 (1), p. 26-56.
- Partnoy, F. (1999), The Siskel and Ebert of Financial Markets: Two Thumbs Down for the Credit Rating Agencies, *Washington University Law Quarterly*, Vol. 77, p. 619-712.
- Pearson, P.J. (2003), Comment, in *Financial Supervision in Europe*, eds. J. Kremer, D. Schoenmaker and P. Wierds, Edward Elgar, Cheltenham, UK, p. 51-57.
- Petersen, M., and R.G. Rajan (1994), The Benefits of Lending Relationships: Evidence from Small Business Data, *Journal of Finance*, Vol. 49 (1), p. 1367-1400.
- Petersen, M., and R.G. Rajan (1995), The Effect of Credit Market Competition on Lending Relationships, *Quarterly Journal of Economics*, Vol. 110 (2), p. 407-443.
- Puri, M. (1996), Commercial Banks in Investment Banking: Conflict of Interest or Certification Role?, *Journal of Financial Economics*, Vol. 40 (3), p. 373-401.
- Rajan, R.G. (1992), Insiders and Outsiders: the Choice Between Informed and Arm's Length Debt, *Journal of Finance*, Vol. 47 (4), p. 1367-1400.
- Ramakrishnan, R., and A.V. Thakor (1984), Information Reliability and a Theory of Financial Intermediation, *Review of Economic Studies*, Vol. 51 (3), p. 415-432.
- Ramírez, C. (2002), Did Banks' Security Affiliates Add Value? Evidence from the Commercial Banking Industry During the 1920s, *Journal of Money, Credit and Banking*, Vol. 34 (2), p. 391-411.
- Rochet, J.-C. (2004), Bank Runs and Financial Crises: a Discussion, in *Credit Intermediation and the Macro Economy*, eds. S. Bhattacharya, A.W.A. Boot and A.V. Thakor, Oxford University Press, Oxford, UK.
- Rochet, J.-C., and X. Vives (2004), Coordination Failures and the Lender of Last Resort: Was Bagehot Right After All?, Working Paper, Institut d'Economie Industrielle No. 294, Toulouse.
- Sapienza, P. (2002), The Effects of Banking Mergers on Loan Contracts, *Journal of Finance*, Vol. 57 (1), p. 329-367.
- Schenone, C. (2004), The Effect of Banking Relationships on the Firm's Ipo Underpricing, *Journal of Finance*, Vol. 59, p. 2903-3058.
- Sharpe, S.A. (1990), Asymmetric Information, Bank Lending, and Implicit Contracts: a Stylized Model of Customer Relationships, *Journal of Finance*, Vol. 45-4, p. 1069-1087.
- Shockley, R., and A.V. Thakor (1997), Bank Loan Commitment Contracts: Data, Theory

- and Tests, *Journal of Money, Credit and Banking*, Vol. 29 (4), p. 517-534.
- Simons, H.C. (1936), Rules versus authorities in monetary policy, *Journal of Political Economy*, Vol. 44 (1), p. 1-30.
- Song, F., and A.V. Thakor (2007), Relationship Banking, Fragility and the Asset-Liability Matching Problem, *Review of Financial Studies*, Vol. 20 (6), p. 2129-2177.
- Stein, J.C. (2002), Information Production and Capital Allocation: Decentralized Versus Hierarchical Firms, *Journal of Finance*, Vol. 57 (5), p. 1891-1921.
- Stiglitz, J.E. (2009), Commentary: How to Resue the Bank Bailout, CNNPolitics.com.
- Strahan, P.E. (2007), Bank Structure and Lending: What We Do and Do Not Know, Working Paper, Boston College.
- Thakor, A.V. (1996), Capital Requirements, Monetary Policy and Aggregate Bank Lending: Theory and Empirical Evidence, *Journal of Finance*, Vol. 51 (1), p. 279-324.
- U.S. Senate (2002). Hearings before the Senate Committee on Governmental Affairs: *Rating the Raters: Enron and the Credit Rating Agencies*.
- U.S. Senate Staff Report (2002), *Financial Oversight of Enron: The SEC and Private-Sector Watchdogs—Report of the Staff to the Senate Committee on Governmental Affairs*, Washington, DC.
- von Thadden, E.-L. (1998), Intermediated Versus Direct Investment: Optimal Liquidity Provision and Dynamic Incentive Compatibility, *Journal of Financial Intermediation*, Vol. 7 (2), p. 177-197.

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