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Assessing the Assessment Process:
An Institutional Analysis of the Corporate Bond Rating Industry

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Sociology

by

Jacob Apkarian

March 2015

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The Dissertation of Jacob Apkarian is approved:

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Acknowledgements

This project was greatly enhanced by the feedback and support of my dissertation committee members, Robert Hanneman, Matthew Mahutga, Christopher Chase-Dunn, and Raymond Russell. I also benefited from the contributions of Jana Grittersova in her work as a member of my dissertation prospectus committee. The project was completed with the support of the National Science Foundation and the UC Riverside Graduate Division.

ABSTRACT OF THE DISSERTATION

Assessing the Assessment Process:
An Institutional Analysis of the Corporate Bond Rating Industry

by

Jacob Apkarian

Doctor of Philosophy, Graduate Program in Sociology
University of California, Riverside, March 2015
Dr. Robert Hanneman, Chairperson

This research draws on neo-institutional theories to examine how the power of major bond rating agencies affects the corporate credit rating process. Specifically, it analyzes the extent to which major corporate bond rating agencies encourage engagement in normative practices by corporate firms through the bond rating process. Contrary to initial hypotheses, bond rating agencies discourage firm emphasis on core competencies, shareholder value, and financialization, despite the popularity of these practices in the corporate sector. Additionally, the research finds that the high level of uncertainty and concentration of power that characterize the bond rating industry create an environment in which institutional myths about best practices contribute to rating decisions. Statistical models suggest that specific organizational forms and practices are rewarded by bond rating agencies regardless of their impact on firm health or default. Finally, this research examines how major rating agencies responded to mounting criticism of the financial rating industry using content analysis of 164 bond rating documents published by the two largest bond rating agencies (Moody's and Standard & Poor's), participant observation at

a corporate credit rating workshop conducted by one of these major rating agencies, and statistical analysis. Findings demonstrate that bond rating agencies engage in impression management to bolster their claims to legitimacy, and this has ultimately led to a change in the rating process as they increasingly embrace the performance of objectivity.

Statistical models demonstrate that in the interest of legitimacy, these powerful social actors have reduced the role of less reliably measured indicators of credit risk in the rating process which has ultimately undermined their unique contributions to the industry.

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Chapter 1: The Rise of the Bond Rating Agencies

Scholars claim that nationally recognized statistical rating agencies (NRSROs) have gained extensive power over capital flows in financial markets during the last half century (Kerwer 2002; King and Sinclair 2003; Thomas 2004; Sinclair 2005; Altman 2010). However, there is limited exploration of the impact of this power and how it's maintained in the face of eroding legitimacy. The concentrated power of these major rating agencies has implications for how the rating process is performed and presented to the public. It has implications for the corporate firms that are being rated by these agencies. And finally, it has implications for the effectiveness and usefulness of the ratings produced.

This dissertation uses qualitative analysis and statistical models to analyze the corporate bond rating process at the world's two largest bond rating agencies: Moody's and Standard & Poor's (S&P). Drawing on theories from the new institutional literature regarding legitimacy in organizational fields, institutional isomorphism, and institutional myths, it examines the ways in which these agencies use publicly released documents as a means of impression management to increase their legitimacy in the face of growing scrutiny. It also examines the influence of rating agencies over the corporate firms that they rate. Ultimately, this research explores the possibility of rationalized institutional myths that have come to be taken for granted in the rating process and their significance for the state of the corporate bond rating industry.

1.1 Introduction

This chapter traces the historical rise in power of large bond rating agencies (formally referred to as Nationally Recognized Statistical Rating Organizations, or NRSROs) and argues that they've come to hold a position with which they can potentially influence the behavior of major social actors such as governments and large corporations. Drawing on the new institutional literature, it is argued that these organizations have the means to act as agents of institutional isomorphism, promoting convergence toward trends in corporate behavior. The chapter then briefly explores the rating process and identifies a potential issue that rating agencies must address to maintain legitimacy. It also argues that the lack of checks on the power of these agencies provides an environment where their behavior could potentially become disconnected from performance and instead be guided by institutional myths about credit risk. A discussion of the research questions of the dissertation follows with an outline of how the subsequent chapters address these questions. The chapter concludes with a brief discussion of why this research is important to the field and to the broader financial system.

1.2 Theory and Background

1.2.1 The Power of Rating Credit

Major bond rating agencies are powerful social actors. Due to the changing environment of global capital finance, the oligopoly of top credit rating agencies have

become gatekeepers to capital for corporate firms and are thus able to influence the way corporations conduct business.

An increase in the importance of bond financing has contributed to the rise in power of bond rating agencies. In the 1970s, there began a dramatic shift from bank loans to bond finance among firms in leading industrial nations (Sinclair 2005). The rise in corporate bond issues and other securities has led to a dramatic decrease in corporate borrowing from banks; from 65% of corporate financing in 1970 to 36% by 1992 (Sinclair 2005:55). Meanwhile corporate bond debt has been steadily growing and has more than quadrupled since 1996 (SIFMA 2013).

The incorporation of major bond rating agencies into the regulatory laws of economically powerful nations has also contributed to their rise in power. Many of the nations represented by the G20 have longstanding legislation that they use as a means of regulating bond markets that depend on the ratings of NRSROs (King and Sinclair 2003). A study by the Basel Committee on Banking Supervision found that of their twelve member nations (all global financial leaders), eleven depend on NRSROs for financial legislation (Thomas 2004).

In the US, the Office of the Comptroller of Currency first formally integrated bond ratings into federal regulations after the Great Depression. In order for banks to count publicly rated bond holdings at face value on their balance sheets, the bonds had to be rated at “BBB” or above, otherwise they had to be written down to market value which incurred losses on the banks (King and Sinclair 2003). This greatly constrained the issuance of speculative grade or junk bonds (as bonds rated below BBB came to be

known) and increased the influence of major bond raters in the financial market. In 1975, the term NRSRO emerged in a new regulation set forth by the Securities Exchange Commission (SEC) in Rule 15c3-1. This law made it so that firms had to keep a certain portion of their capital in reserves unless they were rated investment grade (BBB and above) by at least two NRSROs, whereby the mandated minimum reserve capital amount would be lower (King and Sinclair 2003). Laws that give benefits to investors holding bonds rated by NRSROs not only legitimates the ratings provided by these types of agencies, but makes bonds rated by them more valuable and ensures a steady customer base.

Barriers to entry into the bond rating market have ensured that a small number of large actors dominate the bond rating industry. Since 1975, many laws have emerged giving special legal status to bonds that are rated by NRSROs. However, until 2007, the SEC never provided a legal definition of what specific conditions confer NRSRO status. In fact, until 2007, there was no official way of designating NRSRO status to a given rating agency, so the SEC engaged in a practice of issuing “no action” letters in which they specified that they would take no enforcement action against an issuing firm if the firm used a certain rating agency to fulfill the requirements of Rule 15c3-1. This indirectly gave NRSRO status to the agency in question. However, the SEC’s decision making procedure for issuing no action letters was based on rating agencies demonstrating that they were “nationally recognized” and smaller agencies argued that this was almost impossible to do without first having NRSRO status (Sinclair 2005). Finally in 2007, due to the Credit Rating Agency Reform Act, an NRSRO registration

process was introduced by the SEC (US SEC 2011). However, this confusion surrounding entry into the rating industry that existed into the 21st century is one of the main reasons that the bond rating industry is currently oligopolistic with power concentrated in the hands of only a few actors. Moody's and Standard and S&P, have apparently been lobbying against changing legislation related to NRSRO status for decades (Sinclair 2005). This has allowed them to corner the market. The big two alone were responsible for 79% of all outstanding securities ratings as of 2010 (US SEC 2011).

The evolution of bond financing has led scholars to claim that "rating knowledge is a social phenomenon becoming increasingly instrumental" in global finance, and that in turn, a few NRSROs are currently wielding "unconscious power" over capital flows (Sinclair 2005:50). Knowledge produced by these agencies is socially and politically partial yet is objectified in the financial industry giving it the power of authority. Bond rating analysts engage in rhetoric of "neutrality, objectivity, dispassion, [and] expertise" didactically communicating the views of "experts" (Sinclair 2005:66). According to Strange (1994), knowledge becomes significant as knowledge when it speaks to the interests of powerful social actors. It therefore becomes socially validated as valuable knowledge. This is likely to be true in the bond rating industry.

As authorities and producers of valuable knowledge, Sinclair (2005) argues that NRSROs unconsciously engage in displays of power. His definition of power is slightly different than the classic Weberian definition in which powerful actors are those that realize their will in social situations against the resistance of others. Sinclair claims that powerful actors are those that get other social actors to act in ways that they otherwise

wouldn't (with or without the presence of resistance). Major bond rating agencies engage in displays of Sinclair's definition of power by directly and indirectly manipulating the practices of the organizations that they are rating. March would likely call this definition of power a "standard Newtonian version" whereby "power is that which induces a modification of choice by the system" (1966:47). Perrow, like the resource dependence theorists before him, frames organizational power as the manipulation of resource or "valued output" distributions (1986:259). Though Sinclair does not explicitly cite resources in his descriptions of power, he certainly views NRSROs as manipulators of resource distributions, specifically capital distributions. An example of NRSROs engaging in this type of power is when they put a specific firm on credit watch or even downgrade the firm's rating while communicating the firm's specific behaviors that led to the decision. Having threatened potential resource allocation to the firm, the act of power is fully realized if the firm changes its behavior as a result of the decision.

The following historical example demonstrates this form of power at work. During the 1970s, there was debate in the New York State (NYS) legislature about whether or not to adjust the state's financial reporting practices (Carpenter and Feroz 1992). In the early 1970s, the state comptroller proposed a bill to reform the state's accounting practices so that they were more in line with the generally accepted accounting principles (GAAP), a popular standardized form of accounting used in the private sector. The bill did not have support from the legislature and was opposed by the governor. Throughout the decade, the comptroller continued to make suggestions about bringing the accounting practices of the state closer to the form of GAAP but was met

with resistance. In 1979, S&P downgraded New York's General Obligation bonds to AA- from AA. This not only impacted the price of the \$12B in outstanding NYS bonds, but raised interest rates on future borrowing for the state. One of the reasons cited for the downgrade was "continued concerns over the uncertainties associated with the state's cash method of financial reporting" (Carpenter and Feroz 1992:629). Governor Carey who had been opposed to accounting changes for most of a decade called for a "new 'nice, clean, bookkeeping system'" in his State of the State Address in 1980 (630). New legislation was drafted whereby the state planned to fully adopt the GAAP model and the bill was signed into law the following year. Though there were certainly many factors involved when NYS adopted the GAAP method of financial reporting (Carpenter and Feroz 1992; 2001), it is likely that the sanction of getting their credit rating downgraded by an NRSRO that explicitly cited existing financial reporting methods as a strike against them influenced their decision to adopt a more normative approach to accounting.

Recent research has supported the idea that bond rating agencies influence organizational behaviors due to their unique position as gatekeepers to corporate bond financing. Evidence reveals that downgrades of publicly traded firms negatively affect firm stock prices (Dichev and Piotroski 2001; Holthausen and Leftwich 1985) which gets the attention of executives and boards that focus on share-price as an indicator of firm success. Graham and Harvey (2001) find that 57.1% of CFOs report that their corporate credit ratings are important or very important to their decisions regarding the amount of debt they allow their firm to take on. Kisgen (2006) demonstrates that firm decisions about capital structure (debt to net equity) are affected by rating concerns such that those

firms that are on the border between major rating categories are less likely to issue new debt in efforts to avoid downgrades or induce upgrades. Kisgen (2009) also shows that downgrades by rating agencies, who often indicate that being overleveraged is a strike against firms, leads to a reduction in leverage by firms in the year following the downgrade.

By releasing statements that publicly assess the creditworthiness of firms and government bodies, NRSROs are able to directly and indirectly signal to firms which specific organizational forms and practices they should and should not be employing if they hope to improve their credit ratings and increase the likelihood of bond financing. NRSROs have the legitimacy and power to change the practices of corporations and municipalities and appear to do so, intentionally or not. This suggests that they are potentially agents of “institutional isomorphism,” promoting normative organizational behavior and ultimately contributing to the convergence of corporate practices.

1.2.2 Institutional Isomorphism and Normative Organizational Practices

Organizational sociologists have explored why generally accepted organizational forms and practices emerge. Explanations of the emergence of formal organizational structures can be traced back to Weber’s theories of rationalization and bureaucratization (Meyer and Rowan 1977). These theories argued that efficient forms and practices emerge due to increased pressures for coordination via selective processes. Meyer and Rowan offer an alternative to Weber’s explanation and argue instead that norms of rationality guide the emergence of new forms and practices via omnipresent institutional rules. Firms follow these rules because they lead to legitimacy and survival. Tolbert and

Zucker (1983) argue in their stages of institutionalism model, that initially, organizational forms and practices emerge to solve some sort of functional problem, but with time get recast as generally accepted and diffuse through a field.

DiMaggio and Powell (1983) explain how that process of diffusion works via three different isomorphic mechanisms creating a convergence of forms and practices in a given organizational field. One process of institutional isomorphism is a function of uncertainty. When it is unclear what forms and practices lead to success in an industry, firms sometimes resort to copying others that are perceived as successful. This is known as mimetic isomorphism. Another isomorphic process that draws on theories of resource dependence from Pfeffer and Salancik (1978) is coercive isomorphism. This occurs when firms are coerced into changing their formal structures by other actors that directly provide resources to the firms. Finally, convergence of formal structures in a field can be a function of normative isomorphism. In this scenario, actors are socialized often through a process of professionalization whereby they pick up the norms and values of a given industry and conform to them in order to succeed.

Major bond rating agencies may be agents of institutional isomorphism, in that they perpetuate the norms and values of the corporate field by condemning and condoning specific organizational practices via the bond rating process. This could cause a positive feedback effect wherein rating agencies look to reward normative practices, more firms adopt these practices to reap the benefits of receiving higher ratings, the practices become even more taken for granted as normative, rating agencies are even more likely to reward them, and so on. In this way, rating agencies would be

contributing to the convergence of many of the organizational behaviors that are commonly observed in the new institutional literature.

If this is indeed the case, the influence of rating agencies over the corporations they rate could be beneficial to corporate firms. However, it also could be very problematic. If rating agencies do not support practices that are economically rational, firms that adopt these practices could be endangering their future success. Who's to say that NRSROs know what's best for firms and municipalities? To answer this question, we first need to better understand how credit assessment is achieved.

1.2.3 What Determines Creditworthiness?

Moody's and S&P, the two largest bond rating agencies, utilize risk factors that are based on financial accounting ratios (e.g. profitability, leverage, and liquidity) as indicators of firm health and ultimately bond issuer creditworthiness (Moody's 2014a; S&P 2013). However, these indicators basically display a snapshot of firm financial health. At any given moment these indicators can provide a reasonable prediction as to whether or not a given firm can make bond payments *at that time*. Yet NRSROs use these indicators to help them assess whether or not firms will be able to pay off their bond debts at some point in the distant future. Though these indicators are important and probably helpful in predicting default, the NRSROs emphasize that there are a great many additional factors that need to be accounted for.

This has been confirmed by numerous studies that use financial accounting ratios to predict newly issued bond ratings from NRSROs. These studies can accurately predict about two thirds of newly issued bond ratings at best (Ederington 1986). In chapter 3, I

predict Moody's and S&P corporate issuer ratings (ratings that indicate the creditworthiness of corporate entities) for a sample of North American firms in 2004 and 2011 using the aforementioned financial ratios and can only accurately predict just over half of the ratings with these three variables alone. This is evidence that there are plenty of other factors that go into determining issuer ratings. In fact, both Moody's and S&P are adamant about their ratings not being solely based on a "defined set of financial ratios or rigid computer models" (Moody's 2012). They emphasize the qualitative assessments that go into their analysis and claim that their ratings are based on a holistic process performed by highly experienced analysts that have relationships allowing them insider access to bond issuers.

These agencies are in the business of assessing risk so that governments can make sure firms are not endangering national economies with reckless behavior, so that the firms themselves can earn the trust necessary to procure financing, and so that investors can feel secure when they hope to safely loan their capital. In order for the rating agencies to be successful, they must have the trust of all of the different parties that depend on them. If they cannot maintain credibility, and ultimately legitimacy, they will experience severe criticism that could potentially affect their likelihood of survival.

The rating agencies must convince these other social actors that their expertise is valuable without revealing too many details of their methodology. Because these agencies are profit seeking, if they are too transparent, they will yield competitive advantage. Simultaneously, they deny the simplicity of predicting creditworthiness with a few financial accounting ratios because if that truly is an effective enough means of

predicting default, then the agencies themselves are rendered obsolete. Investors and regulators could easily run their own models of credit risk and circumvent this unnecessary third party. NRSROs must therefore maintain a delicate balance between transparency and opaqueness. Rating agencies have to keep interested parties convinced that the credit rating puzzle is a complex one that only their secret, expert, insider knowledge can unlock, simultaneously retain some level of transparency in order to maintain trust, and all the while, convince everyone that what they're doing behind closed doors is legitimate and valid.

The fact that these agencies are state sanctioned goes a long way in validating their claims to expertise. Marron (2007) demonstrates in his analysis of consumer credit rating that an emergence of technocratic, statistically based credit scoring methods used by lenders emerged in the 1970s, many of which became sanctioned by the state. With state support, these methods gained an “objective” character free from contestation, and diffused to the field of credit consumers where they are not necessarily appropriate tools. Baum and Oliver (1991) demonstrate that organizations tied to government entities benefit from the legitimacy of these entities. Meyer and Rowan (1977:347) argue that “rational-legal orders are especially prone to give collective (legal) authority to institutions which legitimate particular organizational structures.” This is certainly true in the case of financial rating agencies and the regulation of corporate bonds. Because NRSROs are written into finance laws in many of the world's richest nations, and they experience little to no accountability (Kerwer 2002), it is possible that some of their methods of rating are not necessarily appropriate tools for predicting default.

The NRSROs do have a scarce resource that they use to legitimate their ratings. Through contracts with issuers (Moody's fee starts at \$73,000 per issuer and S&P's starts at \$80,000; Moody's fees can go as high as \$2,400,000 per issuer; Faux 2011; Moody's 2014b), they are allowed to tour firms, meet with executives, and conduct onsite interviews with employees. These are certainly important sources of information that contribute to the assessment process. The agencies frequently cite this access as a major source of their expertise in their contact with regulators, investors, and casual visitors to their websites. But what they do not do is explain how this information is used. This is where 'credit rating as an art' comes into play. The NRSROs get an inside look at a given firm's management style or long term business strategy along with other organizational forms and practices employed by the firm and use this information to modify their initial models built with financial accounting indicators.

However, this implies that the NRSROs themselves are experts on which organizational forms and practices are best suited to the future health of specific firms. It is impossible for bond rating agencies to know the optimal organizational forms and practices of the thousands of large firms across the dozens of industries that issue bonds. Therefore, they must rely on their understanding of accepted theories of business and industry rules of thumb to act as standards when assessing how formal business structures and practices influence creditworthiness. This uncertainty, coupled with the lack of accountability and state sanctioned legitimacy, leaves the industry susceptible to institutional myths.

1.2.4 Corporate Issuer Rating and the Potential for Institutional Myths

Above, it was discussed that norms of rationality can come to guide organizational behavior via omnipresent institutional rules (Meyer and Rowan 1977). The rules become institutionalized because they are viewed as legitimate, and following them helps firms to survive. Often, these institutional rules are merely rationalized myths that “are taken for granted as legitimate, apart from evaluations of their impact on work outcomes” (Meyer and Rowan 1977:344). These “institutional myths” guide organizational activities, providing legitimacy to firms that adopt the appropriate institutionalized elements. These organizational activities do not necessarily provide fitness for an organization because they improve its operational efficiency, but rather “enable an organization to remain successful by social definition,” and thereby “protect the organization from having its conduct questioned” (Meyer and Rowan 1977:349).

Fligstein (1993) offers an explanation for the processes that generate new norms of rationality. In the corporate world, changing environmental conditions (e.g. state legislation) lead to political struggles between management factions and cause a battle of competing “conceptions of control”. Conceptions of control are worldviews or frames of analysis that are employed by powerful actors in organizations to solve the problems of the organizations. Conceptions of control are centered on “simplifying assumptions about how the world is to be analyzed” (Fligstein 1993:10). These conceptions become legitimate through the “authority relations embedded in the organizational structure” (ibid). In his studies of the emergence of the multidivisional firm, Fligstein (1985; 2000) demonstrated that a shift in the rationalized conception of the function of large firms lead

to a shift in organizational structure which allowed diversified conglomerates to become a generally accepted form. In the 1970s, environmental and institutional factors framed political struggles between different management factions that ultimately led to a shift from a conception of control that viewed corporate firms as producers to one that envisioned firms as investors (Fligstein 1993). This ultimately culminated in the rise of corporate conglomerates where the diversified portfolio investment model was applied to corporate asset holdings. This model gained popularity not because it was necessarily effective at increasing profits or reducing long term risk, but because marketing specialists and financial officers won the struggle for control of firm strategy, convincing management and boards to give them executive positions and adopt their strategies.

As Zuckerman (2000) documents, this trend was short lived and by the second half of the 1980s and on into the 1990s, pressures to de-diversify emerged leading to the collapse of the corporate conglomerate model. Conglomerates were largely ignored by industry analysts causing these diverse firms to have a more difficult time establishing legitimacy in certain industries. When assessing value in the stock market, investors rely on an industry based classification system. As they tried to make product comparisons in attempts to gauge the market position of conglomerates, investors were often confused because a single firm would have products in multiple industries. Therefore, the logic of the stock market ultimately led to the decline of the conglomerate form. Dobbin and Zorn (2005) also discuss the deinstitutionalization of the diversification model. Their argument, similar to Fligstein, is that the ascension of three groups – hostile takeover firms, institutional investors, and securities analysts – led to the emergence of a new

conception of control: shareholder value. This new myth, that giving executives stock options to align their interests with shareholders would ultimately lead to the long term benefit of the firm, replaced the old myth that diversifying a firm's assets, the corporate analog to "portfolio management," would lead to firm growth (Dobbin and Zorn 2005: 181; Lazonick and Sullivan 2000).

Zorn (2004) takes these ideas further in his analysis of the emergence and diffusion of chief financial officer positions at corporations. He builds on Fligstein's theory of shifting conceptions of control and Tolbert and Zucker's stages of institutionalism to argue that the original rationalizations for certain forms and practices can be reinterpreted with time so that they are understood to serve a new function. This allows certain formal structures to remain legitimate and generally accepted even when original rationalizations for their existence have become undermined.

NRSROs likely draw on myths like those mentioned above when assessing firm creditworthiness. Certain conditions need to be in place to make organizational environments conducive to institutional myths. Above it was mentioned that rational-legal orders, such as the modern state, can legitimate the authority of certain institutions such as issuer ratings. Myths can gain a foothold in an industry if they are linked to structures, or in this case symbols, that have official legitimacy due to legal mandates by government entities. When corporate issuer ratings gain legitimacy due to social definition, independent of their performance, the rationalizations used to generate them may become informed by institutional myths.

Uncertainty is important to the emergence and diffusion of institutional myths. In an organizational field that deals with reducing high levels of uncertainty, a reliance on institutionalized rules ('rules of thumb'), and what others in the field are doing, is commonplace (DiMaggio and Powell 1983). In concentrated fields like the bond rating industry, powerful organizations "mold their institutional environments," by spreading rationalizations through relational networks, while modeling appropriate behavior to lower status organizations that mimic larger organizations in attempts to absorb uncertainty (DiMaggio and Powell 1983; Meyer and Rowan 1977:348).

Additionally, the lack of market checks on bond rating agencies decouples firm success from performance. The amount of market concentration in the bond rating industry is severe. Moody's and S&P control over three-quarters of the corporate bond rating industry (US SEC 2011). Therefore, poor performance does less to tarnish the reputation of these major rating agencies than it would in a competitive industry (Kerwer 2002). Also, the primary revenue of these rating agencies comes from the firms that they provide ratings for (Sinclair 2005). Though critics have suggested that this rating system incentivizes inflated ratings, there is evidence that this is not the case (Covitz and Harrison 2003). Regardless, investors, financial analysts, regulators, and the other parties that stand to suffer from the inaccuracy of corporate issuer ratings cannot "take their business elsewhere" effecting market penalties for poor products.

Often, institutionalized practices that are legitimated externally are incorporated in a field and adopted for their perceived legitimacy rather than for their added efficiency (Meyer and Rowan 1977). This was the case in the consumer credit industry discussed

above. An example of this in the corporate bond rating industry is the reliance on diversification as an indicator of corporate credit risk (detailed in Chapter 2). In the same way that the diversification logic model of corporate governance led to the adoption of conglomerate corporate forms in the 1970s, a diversification logic model of credit risk exists today in the corporate bond rating industry. This dates back to the emergence of “portfolio theory” in the 1950s, which has become a widely accepted logic model of investment in the financial world, and was ceremonially legitimated in 1990 when its creator, Harry Markowitz, received a Nobel Prize for this work (Markowitz 1952; Nobelprize.org 2014).

The ambiguity regarding appropriate levels of diversification provides a good example of the potential for institutional myths in the corporate bond rating industry. While it seems logical and rational to expect that firms which are totally invested in a single market are more likely to default on debts than firms that are invested in multiple markets because the latter can more easily absorb economic shocks to single industries, it is difficult to determine how much diversification is enough to prevent default? Is there such a thing as too much diversification? What happens when a firm invests assets in a market in which it cannot successfully compete? Wouldn't it be better off focusing on its core competencies, an increasingly normative trend in corporate governance?

Though the relationship between diversification and default or firm health has been studied (Lubatkin and Chatterjee 1994; Mansi and Reeb 2002), it is complex and without clear cut answers (Pandya and Rao 1998). Diversification is likely an important indicator of corporate credit risk. However, it is an ambiguous one, and in the face of

uncertainty, NRSROs likely employ externally legitimated rule of thumb assessments that may very well be decoupled from the value they add to rating accuracy. Through their insider conversations with industry officials and executives, raters come to believe and ultimately incorporate institutional myths from outside of their field. Like many others in the field of corporate finance, they likely follow theories of economic efficiency claiming that best practices come to exist because these practices are the most effective at increasing performance and avoiding failure. Sociologists have long been critical of neoclassical economic theories such as “agency theory” that assume hyper-rational behavior leads to efficient best practices and the subsequent elimination of suboptimal practices (Fligstein and Choo 2005).

1.2.5 Increased Criticism of Rating Agencies

Despite the arguments above demonstrating the power of major bond rating agencies, there has been mounting criticism of the financial rating industry in recent decades. Rating agencies received partial blame for credit crises in emerging markets including the Tequila Crisis in Mexico in 1994-95 and the Asian financial crises of 1997-98 (King and Sinclair 2003). Shortly afterwards, rating agencies were criticized for their role in the dot-com bubble and corporate scandals of the early 2000s (King and Sinclair 2003). Most recently, the Financial Crisis Inquiry Commission, created by Congress, concluded that major financial rating agencies were partly to blame for the credit crisis of 2008 (Taibbi 2013).

All of this criticism has damaged the reputation of NRSROs. Not surprisingly, the mounting criticism has forced a response from major financial rating agencies,

causing them to change their presentation of the rating process by increasing transparency as well as altering the content of the materials presented. The fine line agencies walk between transparency and opaqueness has gotten finer and has led to a paradox whereby rating agencies need to present conflicting messages about the rating process in order to achieve legitimacy. This paradox is explored in the next chapter.

1.3 Dissertation Contents

1.3.1 Research Questions

This dissertation explores the corporate bond rating industry through an institutional lens. It addresses many questions and concerns that arise from the discussion above, specifically:

1. What are the key risk factors used by major bond rating agencies when assessing corporate credit, and how are they presented to the public?
2. Are major bond rating agencies promoting normative corporate practices, thereby contributing to institutional isomorphism among corporate firms?
3. To what extent are major bond rating agencies potentially guided by institutional myths and employing risk factors that are poor predictors of credit risk?
4. How have major corporate bond rating agencies responded to the mounting criticism from the past few decades in order to maintain their legitimacy?
5. Has the bond rating process itself changed in response to this criticism?
6. If the bond rating process is changing, does it appear to be embracing institutional myths regarding risk factors or leaving them behind?

7. How valuable is the insider knowledge and expertise of the major corporate bond rating agencies?

1.3.2 Chapter Summaries

Chapter 2 is the first empirical chapter and examines corporate credit rating methodology as it is presented by Moody's and S&P. A content analysis is performed on 164 publicly released ratings criteria documents from Moody's and S&P spanning a 17 year period. The content analysis is supplemented with participant observation data from a corporate credit assessment workshop sponsored by a subsidiary of one of the major corporate bond rating agencies. Key credit risk factors used by Moody's and S&P are identified and categorized by how they are measured (reliably measured vs. unreliably measured). Though bond rating agencies have historically faced little repercussion for poor performance, recent criticism has led to increased transparency regarding the rating process at major rating agencies. The chapter finds that rating agencies employ impression management as a response to increasing criticism and demonstrates the ways in which the presentation of the rating process has changed over time as a means of maintaining legitimacy. The paradox of legitimacy faced by bond rating agencies is explained and two of the ways in which it is managed by these agencies are identified. It also presents evidence that the rating process itself is changing in response to mounting criticism by potentially giving greater weight to reliably measured risk factors. This chapter addresses research questions 1, 4, and 5.

The role of NRSROs as gatekeepers to capital for corporations in the bond rating industry has given them the opportunity to influence the organizational forms and

practices of the firms that they rate. Chapter 3 explores the degree to which NRSROs influence corporations, specifically their contributions to major trends in corporate behavior. Three major corporate behavioral trends from the organizational literature are identified: firm emphasis on core-competencies, shareholder value, and financialization. Statistical models and firm data for a sample of 890 firms in 2004 and 758 firms in 2011 are used to predict credit ratings with seven potential risk factors. Four of the risk factors are key reliable risk factors identified in Chapter 2 and used as controls: profitability, leverage, liquidity, and firm size. The other three correspond to increasingly normative corporate behavioral trends studied in the organizational literature. All seven risk factors are found to be significant predictors of Moody's and S&P credit ratings in both years. Though existing economic literature demonstrates that large bond rating agencies alter the practices of many of the firms they rate, the models find that these agencies actually oppose the three growing corporate trends observed in the organizational literature. Additionally, the statistical models demonstrate that the regression coefficients for the three risk factors associated with corporate trends have decreased with time, while the coefficients for the reliably measured risk factors remain relatively unchanged. This is additional evidence that the rating process has changed in response to growing criticism by increasing the weight given to more reliably measured risk factors. Chapter 3 addresses research questions 2 and 5.

The high level of uncertainty present in the bond rating industry, the lack of accountability that comes from state support, and the concentration of power into the hands of only a few rating agencies creates an environment in which institutional myths

about best practices can inform rating decisions. Chapter 4 examines whether or not rating agencies are potentially guided by rationalized institutional myths regarding which corporate behaviors are significant contributors to credit risk. Statistical models are used to predict firm performance in 2011 and likelihood of default by 2011 with firm risk factor data from 2004. The median maturity for long-term corporate bonds is seven years, so this is a reasonable period over which to test the impact of risk factors used by rating agencies to generate long term corporate credit ratings. The seven risk factors from the models in Chapter 3 were used on a subsample of the firms from Chapter 3. It was discovered that only three of the seven risk factors that predict credit ratings were significant predictors of likelihood of default: profitability, leverage, and liquidity. The lack of significant contribution to the variance explained in likelihood of default suggests that the rating agencies may well be informed by institutional myths when relying on certain risk factors to generate ratings.

It was discovered that reliable risk factors are superior predictors of credit risk. Along with the findings from Chapter 3, that Moody's and S&P are placing greater emphasis on these types of risk factors over time, this implies that the change in rating process in response to criticism is probably improving the accuracy of credit ratings. However, it was discovered that the additional predictive power added by credit ratings is very small implying that the additional contributions from credit rating agencies, above and beyond the reliable risk factors available to the public, are minimal. In this chapter, research questions 3, 6, and 7 are addressed.

The final chapter reviews the arguments of the dissertation and discusses implications of the findings. Potential alternative rating industry models are discussed as well as contributions, future directions, and limitations of the research.

1.4 Discussion

Through an analysis of the corporate bond rating industry, this research demonstrates that powerful, legitimated social actors, facing little competition in their field, are likely guided by institutional myths when performing their organizational function. This research directly examines the signaling process used by powerful rating agencies to maintain legitimacy, and discovers that in the case of major bond rating agencies, their need to make a contribution to corporate credit assessment based on unreliably measured risk data in order to achieve legitimacy in the field appears to undermine their rating process. These rating agencies continue to use risk indicators that are not significant predictors of long-term firm default. The findings contribute to leading theories of new institutionalism in sociology that claim there are processes at work in the economic sector that do not follow the hyper-rational laws of economics. An empirical test of these claims is made in order to determine if the practices used by NRSROs to generate credit ratings are economically efficient and statistically correlated with firm failure or not. By using theories of legitimacy to explain some of the variance in credit ratings, we gain a better understanding of how certain economic processes that appear irrational from a neoclassical economic perspective are institutionalized and continue to exist.

Many researchers have explored the extent to which organizational fields have experienced convergence of behaviors due to processes of institutional isomorphism (Ahmadjian and Robinson 2001; Dey et al. 1997; Frumkin and Galaskiewicz 2004; Kraatz and Zajac 1996; Tuttle and Dillard 2007). This dissertation tests whether NRSROs act as agents of institutional isomorphism by promoting increasingly normative corporate governance behaviors identified in the organizational literature. Surprisingly, it is discovered that major bond rating agencies are at odds with corporate governance trends demonstrating that different logics are coexisting in the corporate financial world about which behaviors generate long-term success for firms. The findings suggest that rating agencies do not influence certain corporate behaviors of the firms they rate despite existing evidence that they do influence other corporate practices. This is likely due to an existing hierarchy of priorities by corporate management or to inconsistent signaling from the agencies themselves. These are ways in which isomorphism might be disrupted in organizational fields. These findings are consistent with theories of institutional divergence by Beckert (2010).

Another important contribution of this dissertation is that the additional insider information contributed by rating agencies beyond the firm financial data appears to be minimal. This undermines their role in the capital financing industry. At a time when major rating agencies like Moody's and Standard and Poor's are currently facing heavy scrutiny from the media and world governments for their role in the economic crisis of 2008, this research shifts the spotlight from individual instances of malfeasance as the cause for concern. This dissertation takes a structural approach and examines how myths

about best practices inform the ratings process leading to credit assessments that are based on faulty risk factors. As Krippner (2010:5) argues, in times of “financial exuberance,” credit standards tend to loosen which only exacerbates systemic vulnerability and the potential for speculative bubbles. The reliance on institutional myths along with firm negligence by rating agencies and individual rater malfeasance likely combine to create a rating environment that can compound existing unstable financial dynamics caused by speculation.

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Chapter 2: The Legitimacy Paradox in Corporate Credit Rating

In the past two decades, financial rating agencies have been experiencing a crisis of public confidence as criticism grows from financial investors and government agencies. In order to manage their image, rating agencies have increased the level of transparency surrounding their rating processes. With this increased transparency, agencies are faced with a paradox in which they must present a rating process that depends upon highly subjective indicators of credit risk as objective in order to achieve legitimacy.

This chapter examines the publicly released documents published by major bond rating agencies in efforts to increase transparency and justify their ratings to those reliant on them for financial regulation and investment. A content analysis of rating methodology documents and participant observation of a corporate credit assessment workshop were performed in order to identify and categorize key corporate credit risk factors that will be referenced in subsequent chapters. This analysis demonstrates that in response to mounting criticism from investors, financial analysts, and government regulators, both Moody's and S&P have changed their public descriptions of the rating process (and potentially the rating process itself) in order to present their practices as structured, standardized, and reliable. This demonstrates that organizations facing external threats to legitimacy may strategically perform objectivity as a mechanism for maintaining legitimacy.

2.1 Introduction

Financial rating agencies have received a lot of scrutiny in recent decades for their role in global financial crises. In the 1990s, many critics claimed that rating agencies failed to accurately report the risk of investing in emerging markets (Kerwer 2002). Rating agencies received partial blame after “perceived rating miscalls” prior to the Tequila Crisis in Mexico in 1994-95 and the Asian financial crises of 1997-98 (King and Sinclair 2003). Critics also argued that the overly conservative responses by rating agencies, via rapid successive downgrades, may have exacerbated these crises making it harder for these economies to recover (Ferri, Liu, and Stiglitz 1999). Failure to understand new financial technologies (e.g. credit derivatives) and accounting strategies (e.g. mark-to-market) led to additional perceptions of rating miscalls as corporate scandals like Enron and WorldCom rocked the financial world in the early 2000s (King and Sinclair 2003). Rating agencies had rated many of these companies extremely low risk as little as one month before their filed bankruptcies. In the case of Enron, critics argue that certain rating agencies deliberately delayed publication of negative assessments in efforts to help the company avoid bankruptcy at the expense of shareholders (Kerwer 2002).

Though financial rating agencies faced scrutiny for their role in these crises, they felt little repercussion until the most recent credit crisis of 2008. The Financial Crisis Inquiry Commission, created by Congress in 2009, concluded that the “crisis could not have happened without the rating agencies” (Taibbi 2013). Moody’s and S&P were rapidly assigning AAA ratings for mortgage backed securities (MBS) at a pace that

seemed impossible given the manpower of their analysts. A Senate report demonstrated that fees for MBS quadrupled in the five years prior to the collapse, and profits from MBS rating fees at the three biggest agencies topped \$6B in 2007. Meanwhile, incriminating emails from executives at the top rating agencies revealed that they thought the MBS rating market was a “scam,” a “house of cards,” and that there was “no science behind [the rating process]” (Taibbi 2013). The aftermath of the crisis led to congressional hearings regarding the financial rating industry and even a bill calling for enhanced regulation of NRSROs including mandated increased transparency (U.S. Congress 2009; U.S. Congress 2010). Since the financial crisis, the major financial rating agencies have been sued by banks, shareholders, investors (including a \$125M settlement with CalPERS), the SEC, and the Justice Department (Davidson et al. 2015; Faux 2012; Neumann 2013; Proress 2015). Their recent settlement with the Justice Department of \$1.38B is the largest penalty ever paid by a rating agency (Davidson et al. 2015).

Until recently, financial rating agencies provided minimal transparency. Due to reasons discussed in the previous chapter, power had been consolidated into the hands of two (arguably three) major companies creating an oligopoly in the industry. Market concentration, coupled with fee-from-issuer profits nearly eliminated any checks on inaccurate ratings by market mechanisms. The role of these agencies as ad hoc regulators created a dependency on them by world governments that largely prevented checks on inaccurate ratings via legislation. Furthermore, rating agencies avoided publicly sharing the details of their rating procedures because they were considered company secrets that

would yield market share if revealed. For the most part, it was taken for granted in the financial industry that rating agencies followed reliable, rational, efficient procedures for rating financial instruments. Studies demonstrated that there was value added by bond issuer ratings which are significant predictors of firm default (Czarnitzki and Kraft 2007). However, over the last decade or so, major financial rating agencies have been pressured into releasing new documents to justify and at least partially explain their rating process (US SEC 2014).

Like auditing firms, these rating agencies likely feel the need to legitimate their practices to the social actors dependent on their product, including institutional investors, financial analysts, and government agencies. The auditing profession engaged in impression management following the corporate scandals of the early 2000s, and the financial crisis of 2008 in order to regain trust in the broader financial community and improve the legitimacy of their industry (Holm & Zaman 2012). Threats to the legitimacy of the auditing industry have generated “pressures for the rationalization, formalization, and transparency of the audit process” (Power 2003:392). The industry has embraced standardization and “‘scientific’ assumptions behind structured auditing [that] idealize the audit process as a logical series of steps which can be encoded in algorithmic decision aids” (Power 2003:381). Structured approaches to auditing provide legitimacy for auditing firms yet are “not necessarily consistent with better or more efficient auditing” (Power 2003:381). Like the auditing industry, the financial rating industry is based on subjective assessment, and legitimacy likely stems from perceptions of objectivity brought about by structured, standardized, reliable approaches to credit

rating. In becoming more transparent, agencies have had to display to the public a relatively objective rating process.

However, if rating financial instruments was perfectly reliable and purely a function of transparent and quantified inputs fed through algorithms (i.e. highly standardized and structured), then investors and analysts could easily produce their own assessments rendering rating agencies obsolete. Rating agencies also gain legitimacy with claims that they possess unique insider knowledge and expertise. This, they argue, is their valuable contribution to the rating process. Not only are their rating analysts experts in the industry that they rate, but they are also provided exclusive access to tour firms and interview management. However, expert, insider knowledge tends to produce less reliably measurable risk indicators and might increase perceptions of subjectivity.

As an additional means of achieving legitimacy, rating agencies emphasize that they provide investors and analysts with “forward looking” or predictive assessments. Often, rating agencies are criticized for being “backward looking” and relying too much on historical data. Critics claim that the agencies are reactionary and respond slowly to mounting issues within firms rapidly downgrading firms only after an inevitable collapse is already obvious to the public (Ferri, Liu, and Stiglitz 1999; Sinclair 2005). However, like expert knowledge, “forward looking” approaches are often unreliable and harder to frame as objective.

When facing pressure for increased transparency, rating agencies have to walk a fine line in order to achieve legitimacy. They must present their ratings as objective constructs generated by reliable, standardized, and structured processes. However, they

also need to emphasize expert knowledge and prospective assessments. Therefore, in order to achieve legitimacy, rating agencies need to incorporate what are perceived to be highly subjective rating procedures while simultaneously presenting a picture of objectivity. This tension is referred to as the legitimacy paradox in corporate credit rating.

This research reveals that in order to present an objective rating process while simultaneously incorporating less reliable, highly subjective indicators of credit risk, rating agencies minimize the subjectivity of the rating process and overemphasize reliable, quantifiable risk indicators. Additionally, they provide mechanisms for rating analysts to use significant discretion while simultaneously obscuring this fact within what is presented to be a highly structured and standardized rating process.

2.2 Data and Methods

2.2.1 Content Analysis

This research presents a content analysis of documents released to the public by Moody's and Standard & Poor's, the two largest corporate bond rating agencies. These two agencies alone control almost 80% of the corporate bond rating market (SEC 2011). These major bond rating agencies have been providing public online access to "rating methodology" (Moody's) or "ratings criteria" (S&P) documents since the 1990s (heretofore referred to as ratings criteria documents or RCDs). These documents provide potential bond investors, regulators, and any other interested parties with a peek inside the corporate issuer rating process to give some insight as to how corporate issuer ratings

are generated. Corporate issuer ratings are “forward-looking opinion[s] about [a corporate] obligor's overall creditworthiness” (S&P 2014a). Both Moody’s and S&P make it clear that these documents are to be viewed only as “reference tool[s]” (Moody’s A&D 2013). They do not contain “an exhaustive treatment of all factors that are reflected in a... rating,” but instead highlight the key qualitative and quantitative considerations that go into the rating process. Still, they offer insight into what goes on behind the scenes at these agencies.

The dataset consisted of 80 unique documents from Moody’s and 84 unique documents from S&P, published between 1998 and 2014. Corporate RCDs (i.e. RCDs related to rating corporate entities) were collected at two points in time for Moody’s and four points in time for S&P. The Internet Archive at <https://web.archive.org> was used to collect documents that were no longer available on Moody’s and S&P current websites.

Documents were collected from both firms at the earliest time points available on the Internet Archive. This was the year 2000 for Moody’s. Specifically, the Moody’s website from May 31, 2000 on the Internet Archive was used to collect all available RCDs from 1998-1999. Though Moody’s did not make RCDs available on their website until 2000, RCDs published in 1998 and 1999 were posted under the methodology section of their website. Nineteen unique corporate RCDs were available. All 19 documents were included in the analysis. Websites are able to block “webcrawls” from the Internet Archive and prevent archiving of their website. Unfortunately, Moody’s began blocking webcrawls in 2001. Because Moody’s blocked their website from being archived, the RCDs available on their current website were used for the second time

interval in the content analysis. Moody's provides the latest corporate RCDs on their website by industry. Some have been updated as recently as 2014. Others haven't been updated since 2007. The latest available RCDs for every available industry from 2007 to 2014 were included in the dataset. This totaled 61 unique corporate RCDs for the second and final time interval used for Moody's. Only two of the 61 available RCDs were published before 2009. These documents were accessed and downloaded on November 21, 2014. Eighty total RCDs from Moody's were analyzed.

Only a single corporate RCD was available for S&P in 1998 (S&P 1998). This was collected from the December 12, 1998 version of the S&P website. The second time point that data was collected from S&P was in 2007. This year was chosen because it came after the credit crises of the early 2000s, but prior to the crisis of 2008. Just like at the earlier time point, only a single corporate RCD was available. It was originally published in 2006 and was collected from the May 20, 2007 version of the S&P website. After the credit crisis of 2008, S&P dramatically increased the number of available RCDs on their website. Then, in November of 2013, they did an across the board update to these RCDs. Therefore, the third and fourth time points chosen to collect RCDs from S&P were in 2013 and 2014, before and after the November, 2013 update. There were 36 corporate RCDs from S&P available pre-2013 update and all were included in the dataset. These were downloaded on April 26, 2013 from the S&P website. The final time point that data was collected from S&P was post-2013 update and included 46 corporate RCDs. These were downloaded from the S&P website on November 21, 2014. Eighty-four total RCDs from S&P were analyzed.

Table 1 presents the timeline of how the RCDs were collected. It concisely displays the same information described above. “Webpage Date” shows the date of the webpage that the RCDs were downloaded from. RCDs collected for the first three webpage dates were taken from archived webpages using the Internet Archive. RCDs from the last two webpage dates were taken from the current Moody’s and S&P webpages on those dates. Because older documents are often available, webpages accessed on certain dates contain many RCDs from a range of time (displayed underneath the total number collected in parentheses). For example, on November 21, 2014, 61 Moody’s RCDs were collected that were published between 2007 and 2014. Often, the Internet Archive would archive a webpage on multiple dates throughout a given year. The specific webpage dates used were chosen at random from a given year for the RCDs collected via Internet Archive.

Atlas.ti was used to perform a systematic textual content analysis on the RCDs. The analysis was mostly inductive, with the only initial goal being to describe the corporate credit risk factors and rating process used by Moody’s and S&P. A spiral design was used whereby the data was analyzed, codes were generated, interpretations were made, the data was re-analyzed, additional codes were generated, the data was re-interpreted, etc., until general themes and patterns emerged (Hesse-Biber and Leavy 2006). For the research presented below, a majority of the identified credit risk factors were ignored in favor of the ones most often emphasized by the rating agencies. Once patterns were identified (regarding types of risk factors and specific characteristics of the rating process itself), they were used as a framework for additional analysis.

2.2.2 Participant Observation

Subsidiaries of the major bond rating agencies studied in this chapter often put on credit assessment workshops for financial analysts, institutional investors, and any other interested parties. The author was funded by the National Science Foundation (SES-1408572) to attend a recent workshop regarding corporate credit assessment and engage in participant observation. The role of the author was “participant-as-observer” whereby the author was identified as an academic studying the rating process, but completely engaged in the workshop activities and was treated as an “insider” in the setting (Hesse-Biber and Leavy 2006:250). Extensive field notes were taken with the goal of capturing important corporate credit risk factors and details of how the rating process is performed. This workshop gave the author access to insider information about the rating process that is not available to the public. The findings from the content analysis are supported and elaborated with participant observation data.

2.3 Findings

The initial intent of the analysis was to identify key credit risk factors in the corporate issuer rating process. Along the way, it became clear that the presentation of the rating process has been changing over the past two decades with increasing transparency. It was discovered that there has been an increasing emphasis on presenting the rating process as objective. However, it was discovered that there also is a need for the rating agencies to present themselves as possessing unique insider and expert knowledge that allows them to be “forward looking.” Because this type of knowledge is

considered highly subjective, this creates an inconsistency that rating agencies must rectify. This section discusses the increased transparency via RCDs, the increasing emphasis on objectivity, and the paradox that arises from the need for subjectivity in the rating process. It was discovered that risk factors generally fall into two categories: reliable risk factors and unreliable risk factors. The section concludes by describing how these agencies manage this paradox.

2.3.1 Increasing Transparency in the Form of Ratings Criteria Documents

As RCDs have been updated in the past two decades, they have become more and more detailed and greater in number signifying an increase in transparency by Moody's and S&P. By the end of 1999, Moody's had 19 unique RCDs available specifically for rating corporate issuers (other RCDs were available as well). There was a single document that discussed the rating process for industrial firms (which covers a wide range of industries) and then various other RCDs for what seem like arbitrarily chosen industries, including many industrial industries (e.g. steel) that Moody's must have felt needed their own more detailed documents. It is likely that the industries that received special attention by Moody's were either industries in which they rated many issuers or industries for which their methods had been criticized in the past. In contrast, Standard & Poor's provided only a single RCD on their website that discussed the rating process of all corporate entities in very general terms.

As criticism of rating agencies continued to grow in the 2000s, so did the number of corporate issuer RCDs provided by Moody's. By 2011, Moody's offered over 60 unique industry-specific RCDs for corporate issuer ratings. These RCDs are constantly

being updated and replaced. Most of the growth in number of documents can be attributed to the breaking up of industries into more specific sub-industries¹. For instance, the RCD outlining criteria for the petroleum industry in 1999 has been broken into the “Independent Exploration and Production” industry (i.e. upstream energy), the “Midstream Energy” industry, the “Refining and Marketing” industry (i.e. downstream energy), the “Oilfield Services” industry, and the “Integrated Oil and Gas” industry.

S&P has taken much longer to get on board with an expanded industry-specific set of RCDs. Only after the financial crisis of 2008, did S&P produce industry-specific RCDs. Currently, S&P RCDs describe the rating process in much greater detail than back in 1998, for over 40 unique corporate industries. In addition, Standard & Poor’s did a full-scale across the board update of their corporate ratings criteria (for non-financial firms) as of November, 2013.

2.3.2 Increasing the Perception of Objectivity

RCDs made available online by Moody’s and S&P have not only changed in number over the past two decades, but have changed in content as well. As the rating agencies update their RCDs, they present a rating process that is more formally structured, standardized, and reliable. These changes to the way their rating methodology is presented to the public reflect a growing emphasis on objectivity. These displays of impression management likely stem from motives to increase legitimacy as criticisms continue to mount.

¹ Alternatively, we might call this the breaking up of what we might consider “sectors” today into industries. This is a messy discussion. Even though the Standard Industrial Classification system was created in the 1930s, it is constantly evolving. It has been superseded by the North American Classification System in 1997 which is now being challenged by S&P’s Global Industry Classification system.

Moody's RCDs display an increasingly structured rating process with time. RCDs from the late 1990s begin with an overview of the industry being discussed (or an overview of industry trends in the case of the document broadly discussing industrial firms). They then go on to list and describe "key rating factors" (there is no consistent term for these factors; the preceding term is borrowed from the pharmaceutical industry document) in a somewhat haphazard fashion. At no point do they discuss how the key factors are used to generate an issuer rating. They conclude with a brief summary that essentially relists the key credit factors.

The biggest change to Moody's RCDs in the past two decades is the addition of "rating grids." Moody's added rating grids to all of their industry RCDs in the late 2000s. Rating grids neatly summarize important factors for credit risk by industry. The rating grid is a tool used by Moody's to efficiently structure the rating process. For each industry, analysts isolate different factors (e.g. firm size) composed of sub-factors or measurable indicators of the broader factor they comprise (e.g. total revenue, total operating profit) that indicate credit risk. These sub-factors get chopped up into six to eight intervals (depending on the industry) that correspond to ordinal rating values. The cut points for these intervals are based on the distribution of the values of the specific sub-factor being analyzed for firms in the industry. For instance in the apparel industry, the highest interval for the sub-factor "total revenue", revenue \geq \$40B, corresponds to a "Aaa" rating (the highest rating). Total revenue between \$20B and \$40B corresponds to a "Aa" rating (second highest), and so on. Each rating is assigned a number on an ordinal scale. Each sub-factor is then weighted (total revenue earns a 15% weighting in the

apparel industry whereas it is only weighted 6% in the paper and forest products industry) and then averaged to produce the “grid-indicated rating” (Moody’s 2013a). The new RCDs, with their rating grids, present a smooth, ordered, algorithmic rating process, where quantified inputs are appropriately weighted and averaged to achieve a rational, efficiently generated corporate issuer rating.

S&P has also increased the degree to which their rating process is presented as structured in the past two decades. The single corporate RCD presented by S&P in 1998 is similar to the Moody’s RCDs of the time in that it mostly lists and describes key credit factors that are taken into consideration when determining corporate issuer ratings. It does appear to be slightly more structured than Moody’s RCDs. It organizes risk factors into “business risks” and “financial risks” (S&P 1998). Like the Moody’s RCDs, it does not discuss the actual process of how risk factors, once assessed, are used to generate issuer ratings.

By the mid-2000s, though S&P continued to only offer a single RCD for corporate issuers, the document had become more structured. The categories of business and financial risk had been transformed into dimensions of a matrix. The “business and financial risk profile matrix,” which is still used in S&P RCDs today, is a two-dimensional matrix displaying credit rating values in each cell. The broad risk factors are assigned a value on a five point ordinal scale ranging from “vulnerable” to “excellent” for business risk, and “minimal” to “highly leveraged” for financial risk. Once these values are determined, the business and financial risk profile matrix, a five by five matrix with

overall firm credit ratings (e.g. AAA, AA+, AA-, etc.) in each cell and business risk and financial risk along each axis is used to determine an issuer rating (S&P 2012a).

After the financial crisis in 2008, S&P followed Moody's lead, and started releasing RCDs by industry. They continued to provide a broad cross-industry corporate issuer RCD, but now supplemented it with industry level documents that discussed industry-specific factors as well as how cross-industry factors behaved industry by industry (e.g. some industries have greater barriers to entry than others which affects competitive position, a sub-factor of business risk). At this point, a flow chart was introduced visually outlining the rating process whereby business risk and financial risk sub-factors were assessed to generate business and financial risk scores for each dimension that were then combined to generate a final rating (S&P 2009). Substantively, this process was no different than the matrix introduced earlier, but more easily conveyed a logical, ordered, algorithmic approach to outside observers.

The final major change made to S&P RCDs occurred on November 19th, 2013 when all of the industry-specific RCDs were simultaneously updated. The business/financial risk flow chart was expanded and dubbed the "corporate criteria framework" (S&P 2013a). In this new, much larger flow chart, the business/financial risk matrix is only part of the process. Country risk and industry risk are determined separately, and then combined using a matrix to generate the corporate industry and country risk assessment (CICRA) score. When combined with the competitive position of a firm, the CICRA score helps to produce a company's business risk profile. This profile is combined with the financial risk profile (produced by cash flow and leverage

considerations that are based on financial ratios placing each firm on a scale) to create a firm's anchor rating. The anchor is modified by six additional factors to generate the standalone credit profile (SACP) which is ultimately modified by group or government influence (firms may be helped or hindered by their parent company or nation in which they are headquartered) to generate the final issuer credit rating (ICR). The six additional factors (diversification, capital structure, financial policy, liquidity, management/governance, and comparable ratings analysis) that modify the anchor are visually represented on the flow chart as faders or mechanical sliders that you might find on an audio mixer or an old oscilloscope. This conveys the imagery of a scientific instrument. Compared to the S&P RCD from 1998, the rating process presented in the current documents is much more structured. An interested party can visually imagine the inputs traveling through the flow chart, combined and adjusted along the way in a logical, orderly fashion until the final rating is produced. This flow chart presents as a rational, efficient subroutine similar to a software program.

The RCDs of both Moody's and S&P have also displayed an increasingly standardized rating approach with time. An examination of Moody's RCDs from the late 1990s demonstrates that there was an incredible lack of consistency in presenting the rating process from industry to industry. The only similarities between these documents were that they all provided an industry overview and listed key rating or risk factors (though not necessarily in any specific order or consistent manner). It is clear that at this point in time, analysts for a given industry were provided a lot of leeway in writing the RCDs. As long as they discussed industry-specific risk factors and general industry

trends in some fashion, this was considered an acceptable presentation of the rating process.

In contrast, Moody's currently available RCDs are incredibly consistent in their presentation of the rating process. All of the industry documents begin with a description of the universe of rated entities in the industry being discussed complete with tables and graphs displaying descriptive statistics. They then move onto their discussion of the factors and sub-factors of the rating grid. They discuss how the sub-factors are measured, how the factors are mapped to rating categories, and how overall issuers are mapped to the rating grid. After discussing assumptions and limitations and any considerations not included in the grid, they demonstrate how the overall grid-indicated rating is determined using examples from a sample of firms in the industry. They conclude with a summary of the grid-indicated outcomes of firms in that industry. Every industry-specific RCD is split into sections presented exactly as described above.

Not only is there standardization in the presentation of the rating process, but in the rating process itself as well. In early Moody's RCDs, it was not clear how risk factors were used to generate a rating from industry to industry. This could leave a reader with the feeling that though some of the risk factors were similar across industries (e.g. management quality), the process of reaching a final issuer rating might be dramatically different from industry to industry. The rating grid, along with conveying a structured rating process, conveys a standardized rating process.

Similarly, S&P has embraced standardization in both their presentation of the rating process and the rating process itself. After introducing separate industry

documents, each industry document presents the same sub-factors of business and financial risk in the same order. The sub-factors may be measured differently, or have variable impact from industry to industry (e.g. competitive advantage, a sub-factor of business risk), but the reader can always find them in the same relative place from document to document. This is not true for Moody's. Though all of the Moody's industry-specific RCDs use rating grids, the factors and sub-factors within the rating grids vary by industry. In addition, the consistent use by S&P of the corporate criteria framework flow chart across industries demonstrates to the reader that the rating process is standardized across industries as well.

The final major change in content to RCDs used to promote objectivity of the rating process is an increased emphasis on a reliable rating process. An increased use of charts, tables, and numbers in general is obvious when comparing Moody's and S&P RCDs from the late 1990s to current ones. Presenting more quantitative data, even if this data is purely descriptive and doesn't directly contribute to the production of an issuer rating conveys an empirically founded, concrete, reproducible rating process. For instance, Moody's currently begins industry-specific RCDs with tables and frequency distributions of descriptive statistics for the "universe" of firms that are rated by them in that industry. Moody's RCDs started including the weights used in their rating grid in the 2000s. This demonstrates to the public that they are consistently and repeatedly combining risk factors in the same manner when generating a rating, and not relying on the idiosyncratic intuition or gut feelings of their rating analysts. After the update of 2013, S&P RCDs have adopted many of the features of Moody's RCDs including the

display of sub-factor weights as well as tables presenting the cutoff intervals used to convert certain interval/ratio measured risk factors to ordinal measures.

Also, there has been a shift toward placing a greater emphasis on reliable risk factors (RRFs). Rating analysts use many different types of data to generate credit ratings. Some types of data might be considered more reliable than other types. For instance, the risk factor “leverage,” which is almost universally defined as a firm’s ratio of debt to equity, is probably more reliable than the risk factor “management strategy” in the sense that there are standardized and consistent ways to quantify the amount of leverage a given firm has taken on in the financial industry based on the financial records of the firm. This is not true for management strategy which might be called an unreliable risk factor (URF). The ways in which these different data are used to generate ratings might be equally subjective, but indicators of leverage are almost certainly more reliably measured.

Both major rating agencies have always relied on RRFs, but in their more recent RCDs, they go into greater detail describing how they are measured and emphasize them more in the rating process itself. For example, we can directly compare the latest Moody’s RCD for the steel industry to the one from the late 1990s (Moody’s 1999; Moody’s 2012a). In 1999, the RCD for steel discusses eight significant risk factors for firms in that industry: cyclical demand, scale of operations and product mix, competitive position, labor relations, financial condition and flexibility, management acumen and philosophy, business strategy, and environmental liabilities. Each of these factors was given a roughly equal amount of discussion with none of the factors considered any more

critical than any other. Of these factors, scale of operations and financial condition and flexibility are the only two that can reliably be constructed from firm financial data. Additionally, there is no discussion of reliably measuring any of these factors. In contrast, the Moody's steel industry RCD from 2012 identifies five factors that make up the rating grid: business profile, size, profitability, financial policies, and leverage and cash flow coverage. Of these factors, size, profitability, and leverage and cash flow coverage can be considered RRFs because they can be completely constructed from firm financial data, and Moody's even provides the equations used to do so. These three factors constitute 70% of the sub-factor weights when producing a grid-indicated rating (i.e. the majority of the rating depends on RRFs). Similar comparisons can be made for all of the directly comparable industry RCDs produced by Moody's in the late 1990s and in the last few years.

Both Moody's and S&P currently base a significant portion of their corporate issuer ratings on four of these reliably measured risk factors: profitability, leverage, liquidity, and size. Profitability and size (or scale), as major parts of "competitive position," are some of the key contributors to S&P's "business risk" factor (S&P 2013). The main driver of "financial risk" assessment is firm leverage. After the anchor is set, S&P uses liquidity as one of its post-hoc rating modifiers. Operating efficiency is another RRF that is sometimes used. This is similar to profitability in that it is a measure of firm performance. All of the aforementioned indicators are measured by well-defined financial ratios used by institutional investors and other actors in the finance industry. Often there are multiple ratios that measure the same financial indicator (profitability can

be measured as earnings to total sales, net income to total assets, etc.), and financial actors tend to choose their favorites when measuring these variables. It should be clear though that there are only a handful of legitimate ways to measure these financial variables in the finance industry.

The current RCDs published by Moody's also heavily rely on these RRFs and are much more transparent than S&P about their weight values and how they are measured. Moody's uses some combination of these four RRFs when assessing firm credit risk across industries, though the only ones used in every industry are leverage and liquidity. Ratios measuring leverage and liquidity are almost always combined into a category called "financial flexibility" or "financial strength." These factors together make up 42% of the grid indicated rating on average across industries (median value is 40%). Firm size or scale appears to be the next most important of these ratios used as a risk factor in 88% of the industries rated by Moody's. On average, it carries a weight of 13.7% (median of 15%). Profitability is used as a risk factor in 72% of the industries, with an average weight of 9.6% (median of 10%). Sometimes, profitability doesn't make sense as a performance indicator, for instance in utilities industries or transportation industries such as operational toll roads or government owned railways. In other industries, like the food industry, earnings volatility is more important than profitability. In Moody's RCDs, profitability, leverage, liquidity, and firm size combine to make up 65% of the weight for sub-factors of the grid-indicated rating on average. They make up more than half of the grid-indicated rating in over 80% of the industry docs. This demonstrates heavy reliance, in recent RCDs, on four major RRFs.

From the findings above, it is clear that both major bond rating agencies are engaging in impression management through the publication of rating criteria documents that convey an objective rating process to the outside observer. By using rating grids (Moody's), and matrices and flow charts (S&P), newer RCDs present the creation of issuer ratings as a formalized, structured process. With the demand for more transparency and a growing number of industry specific documents, these agencies have increasingly projected a standardized process that is applied uniformly across industries. Additionally, an increased emphasis on quantitative data and reliably measured risk factors constructed solely from firm financial statements projects an image of a reliable rating process. These three techniques for increasing the perception of an objective rating process are likely motivated by bids for increased legitimacy.

2.3.3 The Need for More Subjective Forms of Knowledge

Though there has certainly been an increased effort through RCDs to emphasize objectivity and reliable risk factors, there are key risk factors not constructed from firm financial data used to assess credit risk by Moody's and S&P. These additional factors are "unreliable" in the sense that their measurement is much less standardized and repeatable. However, certain URFs, more than potentially being useful indicators of firm credit, also contribute to the legitimacy of the rating agencies. On their websites and in their RCDs, both firms are adamant that their analysts are trained experts with insider access to the firms they rate. They also use the phrase "forward looking" throughout their RCDs and website doing their best to emphasize that their rating process is prospective. Certain URFs are much more difficult for outside observers to assess and

therefore by including them in their rating process, Moody's and S&P gain the status that comes with possessing expert and insider knowledge. Additionally, these factors are often important tools for making future projections which allows the agencies to claim that their assessments are forward-looking rather than reactionary.

RCDs sometimes present industry-specific factors that are unreliable but demonstrate the expertise of the rating agencies. For public firms, anyone with access to SEC reported financial records (which can be purchased from a number of companies including Moody's and S&P) can construct the majority of Moody's grid-indicated ratings using RRFs and their weights in the rating grid for the appropriate industry. However, there are industry-specific unreliable, interpretive sub-factors which aren't as straightforward as the RRFs. For instance, in the apparel industry, Moody's claims that having a strong brand name is important to future firm success. Therefore, 12.5% of an apparel company's rating is based on "brand position". For an apparel firm to be designated the highest ordinal value in brand position, it must demonstrate "multiple globally recognized and enduring brands that are synonymous with [its respective product] category", a "long term track record of organic growth," and that "customer loyalty is fanatical" such that customers "would not consider alternatives" (Moody's 2013a). The weakest possible brand position occurs when a firm "sells undifferentiated commodity products" and has "no track record" (i.e. a start-up). Types of assessment like these are not obvious for most investors and other outside observers. There is significant uncertainty attached to knowing whether a firm's customers are truly "fanatical" or whether certain brands are synonymous with a product even for

experienced industry insiders. Though this risk factor is considerably less reliable than the RRFs described above, it presents the rating agency as forward looking with expert knowledge about the apparel industry.

A major URF contributing to corporate credit risk is the risk associated with the industry itself. These agencies offer rating methodology documentation by industry because firms in different industries are likely exposed to different types of risk and opportunities based on a variety of industry-level factors including differences in barriers to entry, government regulation, market volatility, etc. During participant observation at the corporate credit training workshop, the instructor emphasized that industry-level risk factors often trump firm-level ones. Both Moody's and S&P make it clear that some industries are inherently riskier than others and that certain phenomena can be major factors in some industries and irrelevant in others. Industry effects are so important to S&P that they provide a separate RCD strictly to address industry risk (S&P 2013b). The RCD cites two major sub-factors when assessing industry risk. The first factor, cyclical, is based on quantitative historical profit data. But for the second factor, competitive risk and growth, analysts use qualitative prospective assessments of how barriers to entry, profit and growth trends, and disruptive technologies from outside of the industry may affect the overall industry in the future. S&P writes that the second sub-factor is more heavily weighted due to their emphasis on forward-looking assessment and the fact that it is based on analysts' experience observing the industry as well as their insider knowledge.

Moody's is less explicit with their considerations of industry risk. Their RCDs do not include industry risk as a factor in grid-indicated ratings. However, it's clear that industry risk is important to reaching the final issuer rating. At the end of each RCD, Moody's provides a brief discussion of the idiosyncrasies of the given industry, though they are rather vague in explaining how industry-level factors influence firm ratings in the industry being discussed.

One of the most important risk factors for both rating agencies is diversification. At the corporate credit rating workshop, a corporate rating analyst employed by one of the major bond rating agencies was present, and repeatedly emphasized how important product diversity is to lowering the credit risk of a firm. When determining competitive position, a sub-factor of business risk, S&P examines the concentration vs. diversity of a firm's business practices. S&P is concerned with product and services diversity as well as geographic diversity. After S&P establishes an anchor rating (business risk plus financial risk), one of their modifiers is diversification (S&P 2013a). S&P argues that possessing multiple revenue streams from various business activities (e.g. separate product lines) reduces the risk of default if a subset of the revenue streams suffers. Therefore, increased diversity leads to a reduction in credit risk. Rating analysts use a 3-point ordinal scale measuring diversification (significant diversification, moderate diversification, neutral) that applies across industry. The total number of business lines or revenue streams is important, but not the only indicator of diversification. S&P also accounts for the amount of correlation between separate revenue streams as well as their viability. Highly correlated revenue streams or those viewed as poor business prospects

do not necessarily reduce a firm's risk of default. When modifying anchor ratings, diversification as a credit assessment factor can only help a firm's rating, not hurt it. How diversification is measured differs by industry. For example, in the sports industry, a diversity in the use of facilities (think of a sports arena also being used for concerts), sponsorship diversity, and attendance/broadcast diversity (variety of fans including global reach) are all considered by rating analysts (S&P 2014b). In contrast, diversification assessment in the pharmaceutical industry focuses on the production of a variety of types of medicine (injectable, topical, patches, extended release, etc.) as well as having products in multiple global markets (S&P 2014c).

Similarly, diversification is important to Moody's credit assessment as well. Moody's allows for more flexibility across industry, and there does not appear to be a universal requirement that analysts account for diversification. However, 59 of the 61 current corporate industry RCDs presented by Moody's include language positively associating product or geographic diversity with lower credit risk. Moody's analysts argue that diversification can protect against shocks in specific markets caused by economic downturns, competition, or government regulations, and therefore should be inversely associated with credit risk. The government owned rail network operator industry and business and consumer services industry, are the only two industries in which rating analysts do not discuss diversification as a risk factor in their methodology documents. In contrast, many industries formally consider diversification a broad risk factor that is assigned a weight in the rating grid. Analysts in the apparel, gaming, and manufacturing industries argue that diversity deserves a weight of 20% of the grid-

indicated rating while analysts in the pharmaceutical industry, the industry in which ratings appear to be most reliant on diversification, give it a weight of 25%. Many industry analysts claim that diversification is important, but do not appear to directly attempt to measure it. Rather, they argue that it is largely correlated with firm size, and therefore believe that their use of firm size in the grid-indicated rating accounts for diversification.

Diversification is clearly an important credit risk factor for analysts assessing the credit of corporate issuers. However, unlike profitability, leverage, liquidity, and firm size, there is no accepted way of measuring this URF. As noted above, Moody's analysts often assume diversification is correlated with size, and though they consider it important, don't even bother to add it to their assessments. Diversification, unlike the RRFs discussed in the previous section can be interpreted and measured differently depending on the industry. Analysts must determine how important a given RRF is to credit risk and what constitutes a high or low level of that RRF, for each industry. While this is also true for URFs like diversification, analysts have the added burden of determining how to measure a URF for a given industry as well. As the examples above contrasting diversity in the sports and pharmaceutical industries show, a concept as simple as product diversity must be measured differently by industry and is therefore a less reliable measure as it depends heavily on the "expert" decision-making of analysts.

The assessment of corporate management and governance is another unreliable undertaking done by rating analysts when assessing corporate creditworthiness. It is assumed that senior management steers the direction of a firm and can dramatically

influence whether or not the firm will be able to pay off its future debts. At the corporate credit assessment workshop, it was said that management and governance are the most difficult factors to assess. It is considered a very “intuitive” part of the rating process. It often relies on rules of thumb and “red flags” such as the understanding that when a firm doesn’t issue a chairman’s letter, the senior management and the board consist of multiple family members, senior management is obsessed with buying “yachts,” “sports teams,” and other “toys,” or senior management leaves a firm within their first year due to “personal reasons,” these are bad signs for the company’s future.

S&P claims in its RCDs that the fiscal strategy of a firm’s management is often reflected in the firm’s financial ratios (e.g. how leveraged or liquid a given company is). However, S&P analysts always perform a qualitative review of management and governance that modifies their rating anchor (S&P 2012b). Management is evaluated by assessing the sub-factors of strategic positioning, financial/risk management, and organizational effectiveness as positive, neutral, or negative. Governance is evaluated as being neutral or negative. S&P argues that strong governance cannot, by itself, reduce credit risk. So the governance factor can only hurt a firm’s rating. One example occurs when a firm’s board consists of many of the firm’s managers. The rationale is that lack of independence between boards and management can lead to conflicts of interest, lack of oversight, and ultimately riskier behavior.

Moody’s analysts also emphasize the importance of management and governance, but do not include details of their assessments in their methodology documents. Management quality and corporate governance are listed as key risk factors in all RCDs,

but are considered highly subjective by Moody's and therefore not directly incorporated into the rating grid. Management assessment is either indirectly considered as a part of the risk factor "financial policy" or occurs after the grid-indicated rating has been set and the rating is modified if necessary. Financial policy is a URF used in many Moody's RCDs that, in part, gauges management and board tolerance for financial risk. The assessment is based on interactions between Moody's analysts and management, management's track record, and the degree to which their targets appear to be realistic. It is used to assess the future direction of a firm's capital structure and based on insider knowledge acquired via interviews. Moody's also performs "a review of financial incentives afforded to senior management, and specific associated targets (e.g. stock performance, EPS growth, profitability, de-leveraging)" (Moody's 2010a). Analysts negatively view management "with a track record of favoring shareholder returns" (Moody's, 2013b). It is clear from the previous statements that Moody's is wary of an emphasis by management on shareholder value.

RCDs from both rating agencies claim that assessing management and governance help to provide prospective assessments. Getting an understanding as to how committed management is to improving their credit profile and minimizing future earnings volatility is critical to understanding future firm financial risk for Moody's (Moody's 2010b; Moody's 2012b). S&P claims that an important part of assessing management is a "forward-looking evaluation of an enterprise's ability to track, adjust, and control strategic execution" (S&P 2012b). In order to assess this, S&P analysts examine senior "management's ability to communicate its plans to lower management" in

order to get a feel for whether “strategy can be converted into constructive actions that lead to successful financial and operational performance” in the future (S&P 2012b).

Moody’s and S&P both recognize industry risk, diversification, and corporate management and governance as key indicators of corporate creditworthiness despite the fact that these risk factors cannot be reliably measured. However, these factors also bring legitimacy to the rating agencies. Discussions of these three risk factors by RCDs convey that the agencies are utilizing expert or insider knowledge that financial analysts do not likely have access to. The RCDs also explicitly identify assessment of industry trends and management strategy as “forward-looking” indicators which are highly valued in an industry that profits from prediction.

2.3.4 Managing the Paradox: Minimizing Subjectivity and Obscuring Flexibility

The fact that rating agencies need to incorporate what are perceived to be highly subjective rating elements in order to present themselves as forward looking, expert insiders while simultaneously presenting objective rating procedures puts them in a bind. In order to manage this conundrum, there are two techniques that are employed in the RCDs. First, language is used to minimize the perception of subjectivity while simultaneously acknowledging that it is present in the process. Second, discussion of flexibility in the rating process, which is necessary for analysts to utilize their expert, insider knowledge, is very limited and vague so as not to undermine the highly structured, standardized parts of the process.

The Moody’s and S&P RCDs use language that minimizes subjectivity while discussing risk factors, especially those that are less reliable, in order to maintain the

image of objectivity when presenting the rating process. It should be stressed that both agencies acknowledge the subjective considerations that go into producing corporate issuer ratings. However, they both largely downplay the subjective nature of this industry in order to shore up legitimacy.

The RCDs rarely discuss the subjective nature of the rating process, and when they do, the language used to acknowledge subjectivity often implies that the majority of the rating process is actually objective in nature. Moody's only briefly mentions subjectivity in their RCDs when discussing that the rating grid cannot cover every risk factor. Certain "subjective" risk factors such as "the quality and experience of management, the assessment of corporate governance, and the quality of financial reporting" are not included in the grid calculations because "ranking them by rating category in a grid would, in some cases, suggest too much precision" (this quote is present in every Moody's RCD including the following one being cited: Moody's 2014). By using the above language they are acknowledging the existence of URFs that are necessary to make claims about forward looking, expert, insider knowledge. However, this language simultaneously implies that other than the few subjective sub-factors listed, the rest of the sub-factors and the grid-based rating process in general is in fact objective. S&P only briefly discusses subjectivity in their cross-industry corporate RCD. It is never mentioned in any of their 40 industry-specific RCDs.

Also, the RCDs tend to equate quantitative data with objectivity and qualitative data with subjectivity, and spend far more time discussing the quantitative factors. Moody's RCDs mention that certain URFs like litigation risk or potential for acquisition

are too hard to quantify implying that those factors are more subjective. In one of the rare instances where a Moody's RCD mentions subjectivity outside of the quoted example in the previous paragraph, the authors claim that they try to attach "more weight to objective measurability rather than to more subjective and less transparent sub-factors such as quality of ownership or management experience" (Moody's 2007). This allows them to downplay the subjectivity that goes into their risk assessments. However, the RCDs ignore the subjectivity involved in compartmentalizing quantitative data into intervals that arbitrarily correspond to made up rating values that are then weighted at the discretion of analysts to produce a grid-indicated rating that more times than not doesn't reflect the actual long-term rating that is ultimately assigned (more on this last part below). They continue to argue that "some more qualitative factors of potential relevance might be taken into consideration for the final rating outcome if they have a significant influence on the credit quality" (Moody's 2007). This statement directly precedes the previous one, implicitly equating subjective factors with qualitative ones. The language then implies that they only give considerable weight to subjective, qualitative factors when the true credit quality reflects the need to do so. This statement completely removes the subject, rating analyst, from the procedure and ignores the fact that analysts solely determine the degree to which any factors (qualitative or not) contribute to assumed credit quality.

Both rating agencies spend a greater deal of time discussing reliable, quantitative factors and often mention URFs in vague detail. For instance, when examining the competitive position of firms in the chemicals industry, a high degree of vertical

integration (an unreliably measured risk factor) was noted as reducing risk and therefore positively impacting a firm's rating in the S&P chemical RCD (S&P 2013c). However, the details of how this was done were not discussed. One sentence, similar to the one above, was all that was used to make this point. Meanwhile, vertical integration was discussed as impacting business risk in the metals industry as well, yet no general relationship between vertical integration and risk or rating was communicated. Instead, the document pointed out the pros (stable cost base) and cons (higher capital intensity and more expensive internal operations) and suggested that these were taken into account when rating firms in that industry (S&P 2013d). The RCDs never presented how this factor is measured, yet they spent great lengths discussing the measurement of the four RRFs mentioned in section 3.2 above. Vertical integration is clearly a risk factor that is accounted for by S&P analysts when assessing corporate credit risk in certain industries. But the process is not a standardized or reliable one. So it is only very briefly mentioned in the S&P RCDs. Similarly, Moody's tends to focus almost exclusively on their rating grid which by their admission largely ignores many of the unreliable factors that are considered in the rating process, and when it doesn't (e.g. brand recognition in the apparel industry) the majority of the rating is determined by heavily weighted RRFs (see section 3.2 for evidence of this).

Regardless of the levels of objectivity and subjectivity that go into producing grid-indicated ratings, it turns out that these ratings are only rough estimates of the corporate issuer ratings ultimately assigned by Moody's. More often than not, the actual corporate issuer ratings of firms provided by Moody's are different from the grid-

indicated values. The actual long-term ratings for firms rarely match the grid-indicated values for more than half the firms in any given industry. In fact, of the over 60 industries for which Moody's provides RCDs, there are only three industries for which the grid-indicated ratings match the actual issuer ratings for more than half of the firms in the industry: broadcast and advertising, operational toll-roads, and software. On average, the grid-indicated ratings predict actual issuer ratings only 28% of the time. Surprisingly, it is more likely that the actual issuer ratings differ from the grid-indicated rating by at least two alphanumeric rating categories than to match one another.

At first blush, the above facts might seem odd. How useful is the rating grid when the ratings are revised, often considerably, before a final issuer rating is published? Moody's understands that there are inconsistencies between the grid ratings and actual ratings and claims that the grid is only used as a guidance tool. The rating grid is only meant to provide a rough outline or foundation for any specific company's rating. These estimates put a rating analyst in the ballpark, and then Moody's analysts use additional "unpublished factors" along with their "expertise" to arrive at the actual assigned corporate issuer ratings. The RCDs point out that not every relevant risk factor is included in the rating grid and that the grid-indicated ratings are mostly backward-looking and rely on historical data, while the actual ratings incorporate many forward-looking expectations of analysts. Moody's also acknowledges that "outliers" or "companies whose grid-indicated rating differs significantly from the actual rating" do occur (Moody's 2014).

This brings us to the second strategy used by rating agencies to manage the tension of presenting a highly subjective rating process as objective—providing flexible points in the decision making process where analysts can significantly modify firm ratings without bringing a lot of attention to them. Analysts are always using their discretion throughout the rating process, even for parts that are highly structured, standardized, and reliable. However, analysts are almost certainly constrained by the inflexibility of Moody’s rating grids and the S&P corporate criteria framework. Let’s say an analyst has information about a firm via interviews, or some other unreliable measure, that makes him or her believe that the firm is at high risk. If all of the RRFs in the rating grid fall within investment grade intervals and none of the URFs in the rating grid (if there are any) address the issue in question, the analyst would be forced to assign a potentially inflated credit rating. Though Moody’s RCDs spend most the material highlighting the rating grid and how it arrives at a grid-indicated rating, they only briefly discuss in a single sentence or two that a lot of the rating process happens after the grid-indicated rating is set. It is at this point where analysts are given much more discretion and can factor in many of the unsavory (from the standpoint of projecting objectivity) URFs.

S&P’s corporate criteria framework provides a similar mechanism. This framework, displayed as a flow chart, is presented less rigidly than Moody’s rating grids, for which the measurement and weighting of every factor is discussed in great detail. S&P analysts, who follow the corporate criteria framework, appear to have more flexibility to use their discretion than Moody’s analysts. Regardless, S&P also has a

decision point in the framework called the “comparable ratings analysis” where analysts can significantly alter the ratings of a firm based solely on their “holistic view of the company's credit characteristics” (S&P 2013a). This is one of the final steps in the framework between the anchor and final issuer credit rating. However, the details of this specific modifier are very vague and limited. Like Moody’s with their grid indicated ratings, S&P is clear that the anchors, arrived at somewhat systematically, are not necessarily identical to the actual corporate issuer ratings produced for each firm. But they never discuss or display any specific anchors. Unlike the Moody’s documents, there is no way to make comparisons between anchors and actual issuer ratings to see how different they really are. However, S&P claims that adjustments made by analysts during the comparable ratings analysis are very common implying that ratings often change by this mechanism.

The Moody’s rating grids and S&P flow charts provide an easy, straightforward means of producing credit ratings, but also act as tools for generating legitimacy by presenting a largely subjective process as rational and efficient. This is an attempt to objectivate the rating process so that it is viewed as something that exists outside of the human activity that produced it (Berger and Luckmann 1967). Meanwhile, analysts are given leeway behind the scenes to add less reliable, and what would be perceived to be highly subjective, assessments to the rating process. This allows the rating agencies to project an image of objectivity, while simultaneously utilizing less reliable indicators of credit risk that come from forward looking approaches and expert or insider knowledge.

2.4 Discussion

The use of URFs and flexible decision points in the rating process serve the outward function of helping to generate more accurate ratings (assumedly). However, they also provide the rating agencies with the means to generate ratings that cannot be reproduced by outside parties. This is a very important function as well. Though it seems odd that grid-indicated ratings mostly differ from final issuer ratings, it is a necessary condition for the survival of these rating agencies. They must be contributing some added value to the credit assessment process done by investors and regulators, or they would be unnecessary. Though they need to present the rating process as objective and highly structured, they also depend on unreliable risk factors and flexible decision points in order to survive. This leads Moody's and S&P to minimize these factors when presenting the rating process.

Interestingly, as Moody's and S&P increase transparency in order to maintain legitimacy, the RCDs of these firms have converged with time. Moody's had already introduced industry-specific documents by the late 1990s. Eventually, post-2008 crisis, S&P followed suit. Similarly, both have adopted highly structured presentations of their rating procedures. Both have embraced the use of including weights and cut points for financial ratios used to construct RRFs. This is especially true for Moody's who presented hardly any quantitative information at all in their RCDs from the late 1990s. Though there are still plenty of differences in the RCDs of Moody's and S&P, their attempts to enhance legitimacy have caused their methodology documents to become more isomorphic with time.

It is hard for the outside observer to determine whether or not the increased transparency in RCDs is purely an effort to reveal the methods that have been used for the past century (these firms have been assessing creditworthiness since the early 1900s; Sinclair 2005) or whether the corporate credit rating process itself has been changing. At least for S&P it appears that the latter has been true to some degree. Though the broad business risk and financial risk factors have been the foundation of S&P's rating framework for at least as far back as the late 1990s, the combinations of sub-factors that constitute these larger factors has clearly changed since the late 1990s. Also, after S&P overhauled their ratings criteria documents in 2013, it published a note stating that the expected impact of the new documents would cause a change in approximately 5% of outstanding ratings. The company went on to note that 90% of the ratings will only change by a single "notch." This statement seems to imply that not only the presentation of the rating process, but the rating process itself, has been updated which has led to a change in existing corporate issuer ratings.

It shouldn't be surprising that the corporate credit rating process changes over time. This is probably a good thing as predictive methods improve, economic landscapes evolve, and hopefully, lessons are learned from experience. However, if the rating process is largely evolving in response to environmental pressures to increase legitimacy, and achieving legitimacy has become decoupled from performance, this could be problematic. It should be noted that nowhere in the RCDs does either rating agency use empirical support to justify their claims. No previous research by the agencies or other economists is ever cited in regards to the validity of risk factors. It is taken for granted

that a causal relationship exists between the risk indicators used and firm default. In its RCDs, S&P is very casual in justifying the risk factors that it has identified as being important to determining credit risk and on occasion doesn't even bother to. In contrast, Moody's provides a "why it matters" section for every factor in each RCD detailing their rationale for including the risk factors that are used. The Moody's RCDs don't provide any empirical support, but do proffer logical mechanisms for the relationship between risk factors and firm credit risk.

In the preceding chapter, the concept of institutional myth was introduced. It was argued that given the lack of checks on the performance of rating agencies, it is possible that certain risk factors used in the rating process have become decoupled from actual corporate credit risk. Though narratives providing logical mechanisms for the relationship between risk factors and firm credit risk exist in the RCDs, they may have become taken for granted as true independent of their actual impact on firm credit risk. Empirical support for the validity of corporate credit risk factors is needed.

2.5 Conclusion

In attempts to dispel critics, major bond rating agencies have been increasing transparency by releasing and updating ratings criteria documents. In these documents, they are faced with the challenge of justifying their rating process to outside observers without revealing enough company secrets to yield market share to competitors. In order to achieve legitimacy, they must reconcile the fact that many of the important indicators of corporate credit risk that they rely upon for enhanced legitimacy are difficult to convey

as objective information. Both agencies have handled this legitimacy paradox by making explicit claims that ratings are reliant upon insider and expert knowledge while they simultaneously minimize detailed discussions of these factors in RCDs. Instead, RCDs are increasingly focusing on RRFs in great detail. Additionally, they have increasingly obscured the parts of the rating process where analysts are allowed to rely on “intuitive” judgments, while emphasizing the more structured and standardized parts of the rating process.

Increasing transparency is important for improving the financial rating industry. But empirical tests of the validity of the risk factors used in the rating process are also necessary. In the chapters that follow, reliable and unreliable risk factors of corporate credit risk are gathered from a sample of North American firms and used to predict actual corporate issuer ratings from both agencies. Additionally, this data is also used to test whether the weights given to different types of risk factors (reliable vs. unreliable) in developing issuer ratings has changed over time. This allows for consideration of whether the push for increased transparency has led to an increased reliance on RRFs in the rating process. Finally, the validity of the same risk factors is assessed by testing whether or not they significantly influence future firm performance, including whether or not they predict firm defaults in the long-term.

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2.7 Tables

Table 2.1 Data Collection Timeline

Webpage Date	12/12/1998	5/31/2000	5/20/2007	4/26/2013	11/21/2014	Total
Number of Moody's RCDs	---	19	---	---	61	80
(Time Interval)		(1998-99)			(2007-14)	
Number of S&P RCDs	1	---	1	36	46	84
(Time Interval)	(1998)	---	(2006)	(2009-13)	(2013-14)	

Chapter 3: Opposition to Isomorphism? Discouragement of Dominant Corporate Strategies by Bond Rating Agencies

Over the last half century, the corporate strategies of U.S. firms have increasingly emphasized core-competencies, shareholder value, and profits from financial investment. Previous research has identified key groups from the financial sector that have encouraged the adoption of these norms across American firms but has so far ignored corporate bond rating agencies that are known to influence corporate behavior and potentially contribute to institutional isomorphism. This chapter finds that credit rating agencies negatively sanction firms that emphasize core-competencies, shareholder value, and financial investment via the ratings process. This suggests that bond rating agencies do not adhere to the normative beliefs that have come to dominate the corporate landscape and in fact oppose the adoption of these firm behaviors. Evidence demonstrates that inconsistent signaling from rating agencies may explain the disconnection between the negative sanctions attached to these behaviors and the increasing isomorphism of these behaviors in recent decades. Finally, this chapter demonstrates that Moody's and Standard & Poor's (S&P) have been changing their rating process by giving greater relative weight to reliably measured risk factors with time.

3.1 Introduction

Economic and organizational sociologists have placed a major emphasis on studying the influence of the financial industry on the evolution of the American

corporate firm during the last half of the twentieth century. Scholars have examined trends toward firm emphasis on shareholder value and core-competencies (Dobbin and Zorn 2005; Fligstein 2001; Zuckerman 2000) as well as a trend toward the financialization of profits (Krippner 2005; 2011). While their research has demonstrated that powerful, extra-organizational actors from the finance industry and government have directly or indirectly influenced these changes, there has been little exploration of how bond rating agencies might also influence these corporate practices. Previous research has demonstrated that corporate bond rating agencies influence corporate practices indirectly wielding power over most large U.S. corporations through the bond rating process (Carpenter and Feroz 1992; Graham and Harvey 2001; Kisgen 2006, 2009). This research contributes to the aforementioned gap in the literature.

3.1.1 The Power of Corporate Bond Rating Agencies

Scholars who study nationally recognized statistical rating organizations (NRSROs), the agencies that review and rate corporate bonds and more generally corporate credit, claim that these entities have gained extensive power over capital flows in financial markets during the last half century (Altman 2010; Kerwer 2002; King and Sinclair 2003; Sinclair 2005; Thomas 2004). Due to the changing environment of global capital finance, these corporate bond rating agencies have become key gatekeepers to capital for corporate firms and thus influence the way corporations conduct business.

An increase in the importance of bond financing has contributed to the rise in power of bond rating agencies. In the 1970s, there began a dramatic shift from bank loans to bond finance among firms in leading industrial nations (Sinclair 2005). The rise

in corporate bond issues and other securities has led to a dramatic decrease in corporate borrowing from banks; from 65% of corporate financing in 1970 to 36% by 1992 (Sinclair 2005:55). Meanwhile corporate bond debt has been steadily growing and has more than quadrupled since 1996 currently approaching \$10T in outstanding debt (SIFMA 2013). This trend of disintermediation shifts the responsibility of credit risk assessment from those directly financing the firms (banks) to the bond rating agencies who provide information about the riskiness of investment via the credit ratings that they issue.

The incorporation of major bond rating agencies into the regulatory laws of economically powerful nations has also contributed to their rise in power. Many of the nations represented by the G20 have longstanding legislation that they use as a means of regulating bond markets that depend on the ratings of NRSROs (King and Sinclair 2003). A study by the Basel Committee on Banking Supervision found that of their twelve member nations (all global financial leaders), eleven depend on NRSROs for financial legislation (Thomas 2004). Here in the US, the Office of the Comptroller of Currency first formally integrated bond ratings into federal regulations after the Great Depression. In order for banks to count publicly rated bond holdings at face value on their balance sheets, the bonds must have ratings at “BBB” or above, otherwise they are written down to market value which incurs losses on the banks (King and Sinclair 2003). This legislation greatly constrained the issuance of speculative grade or junk bonds (as bonds rated below BBB came to be known) and increased the influence of major bond raters in the financial market. In 1975, the term NRSRO emerged in a new regulation set forth by

the Securities Exchange Commission (SEC) in Rule 15c3-1. This law required firms to keep a certain portion of their capital in reserves unless they were rated investment grade (BBB and above) by at least two NRSROs, whereby the mandated minimum reserve capital amount would be lower (King and Sinclair 2003). Laws that give benefits for those issuing and holding bonds rated by NRSROs not only legitimate the ratings provided by these types of agencies, but make bonds rated by them more valuable and ensure a steady customer base.

Barriers to entry into the bond rating market have ensured that a small number of large actors dominate the bond rating industry. Since 1975, many laws have emerged giving special legal status to bonds that are rated by NRSROs. However, until 2007, the SEC never provided a legal definition of what specific conditions confer NRSRO status. In fact, until 2007, there was no official way of designating NRSRO status to a given rating agency, so the SEC engaged in a practice of issuing “no action” letters in which they specified that they would take no enforcement action against an issuing firm if the firm used a certain rating agency to fulfill the requirements of Rule 15c3-1. This indirectly gave NRSRO status to the agency in question. However, the SEC’s decision making procedure for issuing no action letters was based on whether or not rating agencies demonstrated that they were “nationally recognized,” and smaller agencies argued that this was almost impossible to do without first having NRSRO status (Sinclair 2005). Finally in 2007, due to the Credit Rating Agency Reform Act, an NRSRO registration process was introduced by the SEC (US SEC 2011) making it easier for agencies to earn NRSRO status and compete in the industry. But the confusion

surrounding entry into the rating industry that existed into the 21st century facilitated an oligopolistic power structure in the rating industry where power and prestige has become concentrated in the hands of only a few actors. According to Sinclair, Moody's and S&P have lobbied against changing legislation related to NRSRO status for decades. The big two alone were responsible for 79% of all outstanding securities ratings as of 2010 (US SEC 2011).

Recent research has demonstrated that bond rating agencies influence organizational behaviors due to their unique position as gatekeepers to corporate bond financing. When S&P downgraded New York State bonds and cited "uncertainties" associated with the state's accounting practices as part of their justification for the downgrade, the state adopted generally accepted accounting principles (GAAP), a popular form of financial reporting in the private sector, even though state legislators had been firmly opposed to adopting GAAP for almost a decade (Carpenter and Feroz 1992). Evidence also reveals that downgrades of publicly traded firms negatively affect firm stock prices (Dichev and Piotroski 2001; Holthausen and Leftwich 1985) which likely gets the attention of executives and boards that focus on share-price as an indicator of firm success. Graham and Harvey (2001) find that 57.1% of CFOs report that their corporate credit ratings are important or very important to their decisions regarding the amount of debt they allow their firm to take on. Kisgen (2006) demonstrates that firm decisions about capital structure (debt to net equity) are affected by rating concerns such that those firms that are on the border between major rating categories are less likely to issue new debt in efforts to avoid downgrades or induce upgrades. Kisgen (2009) also

shows that downgrades by rating agencies, who often indicate that being overleveraged is a strike against firms, leads to a reduction in leverage by firms in the year following the downgrade.

By releasing statements that publicly assess the creditworthiness of firms and municipalities, bond rating agencies are able to directly and indirectly signal to organizations which specific practices they should and should not be employing if they hope to improve their credit ratings and increase the likelihood of bond financing. These agencies have the legitimacy and power to change the practices of corporations and appear to do so, intentionally or not.

Bond rating agencies claim to employ “experienced, well informed, impartial” rating analysts (Moody’s 2014). Most analysts have degrees in business (Fracassi et al. 2010), and many have worked as financial analysts for banks prior to working for these agencies (S&P prefers to hire analysts that have “experience from a large commercial bank, investment bank, [or] investing institution”; Standard & Poor’s 2014). Those that rate corporate entities assess which factors best determine the likely success or failure of the firms that they’re rating. These raters are not omniscient beings that possess a perfect understanding of which behaviors are optimal for the various firms and industries that they provide ratings for. These actors have been professionalized by and are embedded within the corporate finance industry and are therefore likely influenced by the dominant institutional logics of the industry. As certain corporate practices become normative and taken for granted as successful forms of corporate behavior, we might expect rating agencies to echo these sentiments. This research examines whether rating agencies

promote or discourage certain normative corporate strategies identified in the organizational and economic sociology literature.

3.1.2 Normative Corporate Strategies

Scholars have argued that firm emphasis on core-competencies, shareholder value, and profits from financial investment has grown dramatically since the 1970s and 1980s. These normative corporate strategies have emerged as a result of the changing political environment in the U.S. along with the influence of extra-organizational actors from the finance industry.

There has been a shift among U.S. firms away from corporate conglomerates since the 1980s that can be attributed to hostile takeover firms, institutional investors, and financial analysts (Dobbin and Zorn 2005; Fligstein 2001). Deregulation of merger restrictions in the Reagan era as well as the high levels of inflation from the 1970s created a profitable niche for hostile takeover firms. High inflation allowed hostile takeover firms to target companies whose physical assets totaled more than their market value incentivizing the divestment of assets. The rise of hostile takeover firms pressured CEOs to focus on de-diversification – or a focus on “core competency”. Institutional investors were also linked to this shift in corporate logic and strategy. These influential investors bought into the commonly held belief that diversified firms had “artificially low” stock prices and therefore promoted a return to “core-competencies,” which became formal business theory in 1990 (Dobbin and Zorn 2005:188,190). Concurrently, financial analysts undermined the legitimacy of the multidivisional form during the same period (Zuckerman 2000). When assessing value in the stock market, financial analysts relied

on an industry based classification system. As they tried to make product comparisons in attempts to gauge the market position of conglomerates, these groups were often confused because a single firm would have products in multiple industries. By ignoring corporate conglomerates, which were denied “buy” recommendations by financial analysts, these analysts indirectly discouraged this corporate form (Zuckerman 2000).

The shift away from the “finance conception of control” that emphasized corporate conglomerates led to the emergence of a “shareholder value conception of control” that emphasized stock price maximization (Fligstein 2001). Profits made by institutional investors largely come from stock portfolios. Therefore, it was in their interest to encourage firms to compensate executives with stock options and link bonuses to stock performance. Investors lobbied corporate boards to adopt stock-based incentives for management often citing agency theory which was popularized in the late 1970s. Because financial analysts emphasized stock prices, they were also instrumental in the creation of the “shareholder value myth” (Dobbin and Zorn 2005). By publishing profit projections, even firms that were losing money could raise their stock prices by hitting analysts’ targets.

Another emerging U.S. corporate strategy studied in the literature is firm emphasis on generating profits from finance. This firm emphasis on financial profits is what Krippner (2011) refers to as financialization. Krippner (2005:176) argues that the increase in profits coming from financial investments, more than the shift to a service sector economy, is the “key development in the US economy in recent decades.” In an effort to resolve a crisis of resource distribution in the 1960s and 1970s, US

policymakers, through key legislation, deregulated the financial industry. As a result, even non-financial firms are embracing finance. Iconic American manufacturing and retail firms including General Electric, Sears, General Motors, and Ford spun off their financial divisions that originally functioned as customer finance units into subsidiaries whose profits rivaled those of their parent firms (Krippner 2011). As it became more and more popular for financial directors to sit on the boards of non-financial corporations, profits from financing, production, and sales became “integrated activities” and non-financial firms increasingly began to “resemble financial corporations” (Krippner 2005: 201-202).

These shifts towards focusing on core-competencies, emphasizing shareholder value, and firm financialization have become normative trends in U.S. corporate behavior in recent decades. It is possible that bond rating agencies, who indirectly wield power over many large U.S. corporations through the bond rating process, may be contributing to these trends. They often cite “management growth and operating strategy” as important indicators of risk used to generate their ratings indicating that emphasis on core-competencies, shareholder value, and financial investment by firm management may factor into corporate credit ratings (Standard & Poor’s 2009).

3.1.3 Hypotheses

This research tests two sets of competing hypotheses. The first relates to whether corporate credit rating agencies support or discourage the aforementioned trends in corporate behavior. Rating agents, like the financial analysts discussed in the above literature on normative corporate trends, are embedded in a culture that has come to view

focusing on core-competencies, shareholder value, and profits from financial investment as efficient, effective, profit producing management strategies. Most rating analysts at the big two have business degrees and have been trained in popular corporate strategy. They are likely familiar with Prahalad and Hamel's (1990) popular theory of core competence. Many of these rating analysts have previously worked at large investment banks and have been professionalized in a climate that regards "shareholder value [as] morally and economically the right thing to do" (Ho 2009:125). Finally, they are likely aware of how financial investments have solved the profits crisis of Western firms in the late 20th century for both financial and non-financial firms alike (Krippner 2011). If corporate credit rating analysts, like the rest of the corporate finance world, believe that focusing on core-competencies, shareholder value, and profiting from financial investment are economically efficient corporate strategies, we would expect them to reward these behaviors with higher ratings. Therefore, the first hypothesis (H1) claims that high levels of firm emphasis on core-competency, shareholder value, and financial investment should independently lead to higher corporate bond ratings.

Alternatively, rating analysts may view these practices as detrimental to the long-term viability of firms. Unlike financial analysts, these agencies are not tasked with predicting how profitable firms will be from day-to-day but instead whether or not they will be able to pay their debts in the distant future. Though the relationship between core-competence and future firm health has been studied (Lubatkin and Chatterjee 1994; Mansi and Reeb 2002), it is complex and without clear cut answers (Pandya and Rao 1998). The logic of portfolio theory, discussed in Chapter 1, would predict that firms

which are totally invested in a single market are more likely to default on their debts than firms that are invested in multiple markets because the latter can more easily absorb economic shocks to single industries. If rating analysts share this view, then they are likely to discourage behavior that emphasizes core-competencies. They may condemn emphasis on shareholder value as well. Many organizational scholars have been critical of the shareholder value “myth” in corporate America and even blame it for the “irrational short-term exuberance” that led to the tech-bubble crash in the early 2000s (Dobbin and Zorn 2005:184). Finally, rating agents may be wary of the financialization of profits. There is debate in the literature as to whether an increasing investment in financial operations at the expense of physical investment is an effective approach to long-term capital accumulation (Heilpern et al. 2009; van Treek 2009). Certain non-financial firms, such as General Motors, ultimately defaulted on their debt after the credit crisis in 2008 due to an over investment in financial assets. It is possible, especially after 2008, that corporate credit rating agents believe financial investment (vs. investment in physical assets) is a detriment to non-financial firms and therefore discourage firm financial investments via the rating process. The second hypothesis (H2) posits that high levels of firm emphasis on core-competence, shareholder value, and financialization of profits should independently lead to lower corporate bond ratings.

The second set of hypotheses relates to how rating methods may have changed over the last decade. Because firms continue to emphasize core-competencies, shareholder value, and financial investments, these behaviors have gained legitimacy over time as they become taken for granted. If rating agents, along with other industry

experts, have come to accept these behaviors as best practices, we'd expect support for these practices (as measured by higher ratings) to grow over time as they become more and more isomorphic. Alternatively, it is likely that the 2008 credit crisis has led agencies to be more cautious in regards to and even distrustful of these corporate behaviors. In this scenario, we'd expect support for these practices to diminish after 2008. Therefore, the third hypothesis (H3) predicts that the effects of these behaviors on corporate credit rating become more positive with time, while the fourth hypothesis (H4) predicts that the effects of these behaviors on corporate rating become more negative with time.

The following research examines the degree to which these agencies have tended to support or discourage the aforementioned trends in corporate strategies during the last decade. Ordered probit regression models are used to predict credit rating and test whether emphasizing core-competencies, shareholder value, and financial investments are rewarded or punished by these agencies via the rating process before and after the financial crisis of 2008.

3.2 Data and Methods

3.2.1 Bond Ratings

Credit ratings were measured using the S&P and Moody's corporate long term issuer ratings¹. This indicator was used by Cantor and Packer (1995; 1997) because it is

¹ For Moody's data, there were some firms in the sample without issuer ratings. For these firms, the corporate family rating (CFR) was used instead. A CFR is a long-term debt rating assigned to a "financial institution association or group, where the group may not exercise full management control, but where strong intragroup support and cohesion among individual group members may warrant a rating for the

available for all rated firms at the same point in time (unlike new bond issue ratings) and because it ignores the influences of bond types (e.g. debenture vs. asset backed, fixed rate vs. floating rate, etc.). It indicates the rating of a firm's most representative long term securities. Research predicting credit ratings using ordinal measures typically collapse the total number of categories in order to increase the number of cases in each category (Blume et al. 1998; Cantor and Packer 1995; 1997; Ederington 1986). Thus, the 21 point ordinal rating scale was collapsed to four rating groups: less than BB, BB, BBB, greater than BBB (see Figure 1 for 2004 S&P ratings data; 2011 S&P data and Moody's data were similarly distributed). Ratings with modifiers were first collapsed into the general rating category before aggregation (e.g. BB- and BB+ were considered BB). This created an ordinal response with at least 113 data points per category in all models. These rating groups are analytically meaningful given that the qualitative distinction between speculative grade and investment grade bonds occurs at the transition from BB to BBB. The rating groups can therefore be conceptualized as "low speculative grade" (< BB), "high speculative grade" (BB), "low investment grade" (BBB), and "high investment grade" (> BBB).

3.2.2 Key Explanatory Variables

Indicators were constructed to measure firm emphasis on core-competencies, shareholder value, and financial investments. The specialization ratio (SR) was used as an indicator of firm emphasis on core-competencies (Pandya and Rao 1998; Rumelt

group or association." It is almost always one alphanumeric category higher than an issuer rating (this was true in over 90% of the instances where both were present in the sample). Therefore one ordinal value below the CFR (prior to rating aggregation) was used. This was performed for only 2.6% of firms in the FY2004 models and 11.2% of firms in the FY2011 models.

1982; Shaikh and Varadarajan 1984). The SR “reflects the importance of the firm’s core product market to that of the rest of the firm” (Pandya and Rao 1998:70). It is measured as the firm’s annual revenues from its largest discrete product-market activities (4-digit SIC) to its overall revenues. A low SR value indicates a highly diversified firm similar to the corporate conglomerates that rose in popularity following the Second World War. A high SR value indicates a firm focusing on core-competencies.

Firm emphasis on shareholder value was measured as total shareholder return (TSR):

$$TSR = \frac{(P_t - P_0 + D_t)}{P_0} \quad (1)$$

where P_0 is the firm’s stock price per share at some initial time, P_t is the firm’s stock price per share after some amount of time t has elapsed, and D_t is the amount of dividends paid out per share by the firm during the elapsed time t (Institute of Management Accountants 1997). The initial time chosen was two years before the fiscal year of the model. This provided enough time to wash out the noise of the stock market². Increasing stock prices and paying out large dividends indicate which firms are emphasizing shareholder value. However, this is an indirect measure of shareholder value, and these measures are confounded by other factors such as firm size and profitability, which are controlled for in the model. Any effects of total shareholder

² As a check for robustness of the measure, total shareholder return was also calculated using an initial time of one year prior to the fiscal year of the models and they yielded similar findings.

return on firm credit ratings net of firm size and profitability are therefore assumed to reflect firm emphasis on shareholder value.

An emphasis on financial investment to generate profits by financial and non-financial firms alike is an indicator of the financialization of the US economy. Total short-term investments (STI) is used as an indicator of individual firm emphasis on financial investments. STI is an accounting line that is required reporting for firms that measures total short-term financial assets such as stocks and bonds that can be “converted to cash within a relatively short period of time”, certificates of deposit, commercial paper, marketable securities, assets in money market funds, assets in real estate investment trusts, and treasury bills (Xpressfeed Compustat Online Data Manual 2014). Though this indicator is a direct measure of short-term financial investment by firms, it also influences the liquidity of firms which is an important predictor of credit ratings. The models control for liquidity in order to parse out any effect that emphasis on financial investment might have on ratings outside of the established positive impact that liquidity has on ratings.

3.2.3 Control Variables

Covariates were used to account for the proportion of rating variance explained by those financial accounting ratios known to be correlated with credit rating. Based on ratings criteria documents provided by Moody’s and S&P (see Chapter 2), along with previous studies that predict credit ratings (Blume et al. 1998; Cantor and Packer 1997; Ederington 1986), profitability, leverage, and liquidity were used as controls. The more profitable a company is, the less likely it should be to default on its loans. Profitability is

measured as the ratio of net income to total assets (also known as return on assets).

Leverage tells us how much debt a firm has in relation to its assets. Firms that are highly leveraged are more likely to default. Leverage is measured as long-term debt to assets.

Interest coverage was used as a measure of liquidity. Interest coverage tells us whether a company is generating enough cash from its operations to meet the interest payments on its bonds. This variable is measured as the ratio of earnings before interest, taxes, depreciation, and amortization (EBITDA) to interest expenses.

Firm size, measured as total assets (in millions USD), was also included in the model. The size of firms is indicated as being an important corporate credit risk factor in Moody's and S&P RCDs (see Chapter 2). It is also often used as a covariate in economic models predicting credit ratings (Blume et al. 1998; Ederington 1986; Morgan 2002; Pottier and Sommer 1999). Some studies do not find a significant effect from size net of other covariates, though it is often found that larger firms receive better ratings. This variable is hardly explored theoretically, but Blume et al. argue that larger firms "tend to be older, with more established product lines" (1998: 1394) and therefore less likely to default. It is possible that larger firms are more visible and more likely to be legitimate actors. These firms might get the benefit of the doubt by a rater when their final rating lands them on the border between two rating categories. Also, studies on the "liability of smallness" (Barron et al. 1994; Hannan & Freeman 1989) suggest that larger firms have the benefit of reducing their scale during periods of poor performance which may reduce their likelihood of failure.

To eliminate unobserved sector-specific effects, sector dummies were included. This follows Mora (2006) who approximated fixed country effects when predicting sovereign credit ratings by using country dummies in ordered probit models and allowing intragroup correlation of standard errors. These sector dummies, in a sense, approximate fixed sector effects. However, because a fixed-effects estimator is not being used, there is the potential for coefficient bias caused by incidental parameters. Monte Carlo simulations show that bias caused by incidental parameters decreases with increasing cluster size (Greene 2004). Simple extrapolation of Greene's simulation data shows that clusters containing at least 50 cases should have coefficient bias $\sim < 2\%$. There were greater than 50 firms per sector in all models which provides confidence that the estimates are consistent (Stata 2014). The Global Industry Classification Standard (GICS) was used to cluster firms by the following nine sectors: Energy, Materials, Industrials, Consumer Discretionary, Consumer Staples, Health Care, Financials, Information Technology, and Telecommunication Services & Utilities³.

3.2.4 Sample

All firm financial data and S&P ratings came from the COMPUSTAT North American financials data set and all Moody's ratings came from the Moody's Inc. website. COMPUSTAT is a widely used source of public and private firm financial data boasting "more financial and industry-specific data items than any other data provider" (S&P Capital IQ 2014). The ratings from these two specific rating agencies were used as dependent variables based on the fact that they control most of the bond rating market. Moody's and S&P accounted for more than three quarters of all corporate bond ratings in

³ The GICS treats Telecommunication Services and Utilities as separate sectors, but they were combined due to small cluster sizes. These sectors are often treated as similar; e.g. the Standard Industrial Classification (SIC) system combined utilities and communications into a single sector.

2010 (US SEC 2011). A matched sample of firms that were rated by both Moody's and S&P was used for direct comparison of the two leading agencies.

Time points before and after the credit crisis of 2008 were chosen in order to observe any changes in rating assessment that may have occurred. Data from fiscal years (FY) 2004 and 2011 were used. Both of these years were relatively stable economic years with few corporate defaults and dynamic ratings. By 2011, the stock market had almost completely recovered to pre-crash levels. List-wise deletion of corporations from the US and Canada that were rated by both major agencies led to sample sizes of 890 for the FY2004 models, and 758 for the FY2011 models.

3.2.5 Ordered Probit Regression Models

Because the dependent variable is ordinal and the latent risk function is assumed to be continuous, bond ratings are predicted using ordered probit regression models. The values for firm size, TSR, and STI were logged to reduce positive skewness and better approximate Gaussian distributions.

The ordered probit models can be conceptualized in terms of a latent response y_{ij}^* for firms i in sectors j such that:

$$y_{ij}^* = \beta_1 prof_{ij} + \beta_2 liq_{ij} + \beta_3 lev_{ij} + \beta_4 \ln(size)_{ij} + \beta_5 SR_{ij} + \beta_6 \ln(TSR)_{ij} + \beta_7 \ln(STI)_{ij} + \alpha_j + \epsilon_{ij} \quad (2)$$

Where i indexes the firms and j indexes the industries. The α_j are the industry dummies, and β_1 - β_7 capture the effects of the explanatory covariates. Because the

response is ordinal, the above latent response equation translates into the following proportional odds model:

$$\Pr(y_{ij} > s | x_{ij}, w_j) = \Phi(\beta_1 prof_{ij} + \dots + \beta_7 STI_{ij} + \alpha_j - \kappa_s) \quad (3)$$

where $s = 1, 2, \dots, S - 1$, x_{ij} are the covariates ($prof_{ij}$, liq_{ij} , etc.), Φ is the standard normal cumulative distribution function, and κ_s are category-specific parameters that act as thresholds subdividing the latent response scale. Because credit rating has been collapsed into four categories, $S = 4$.

3.3 Results

Table 1 shows the regression coefficients for the S&P FY2004 models. The first three models predict S&P ratings using indicators for firm emphasis on core-competencies, shareholder value, and financial investments one at a time. The fourth model combines all three of these variables and there isn't much change to the coefficients and standard errors. Models 5 through 8 add the control variables to each of the first four models.

In Models 5 through 8 we see that the control variables are all significant predictors of issuer rating and in the expected directions. Profitability, liquidity, and firm size have significant positive effects on S&P corporate credit ratings, while leverage has a significant negative effect. The coefficients for the sector dummies were left out of the table, but they are almost all significantly different from the reference category,

Consumer Discretionary, and therefore are probably taken into account by S&P when generating ratings.

The coefficient for specialization, an indicator of firm emphasis on core-competencies, is negative and significant in all of the models where it's present, though the effect size is reduced once the control variables are introduced. The coefficient for shareholder return, an indicator of firm emphasis on shareholder value, is also negative and significant, but the effect size grows by almost 50% once the controls are added. Finally, short-term investment, an indicator of firm emphasis on financialization, is positive and significant in the models without controls, and negative and significant in the models with controls.

The coefficients for the variables reflecting firm emphasis on core-competencies, shareholder value, and financial investments are all significant and negative in the full model (Model 8). This suggests that the rating analysts view engaging in these practices as detrimental to firms in the long-term. Firms with high specialization ratios, that therefore earn most of their profits from a single or limited number of industries, are less likely to receive higher credit ratings from Standard & Poor's net of covariates. S&P appears to discourage emphasis on shareholder value as well. Those firms with higher levels of shareholder return in the two years prior to their rating are less likely to receive higher ratings net of their size and level of profitability. Finally, those firms with more short-term financial assets are less likely to receive higher ratings net of the liquidity that those assets provide.

The changes in the three key explanatory variables across models in Table 1 are consistent with expectations. Firm size and specialization have a significant negative correlation ($r = -0.19$ in 2004; $r = -0.24$ in 2011) which should not be surprising considering that multidivisional firms tend to be larger in size. When firm size is introduced into the model, the negative effect of specialization is reduced because the influence on ratings due to its correlation with smaller firms is parsed out. Similarly, shareholder return is significantly correlated with profitability ($r = 0.21$ in 2004; $r = 0.24$ in 2011). Profitable firms are more likely to pay dividends and have increasing stock prices. Therefore, the negative effect of shareholder return on credit ratings is suppressed in Models 2 and 4 because profitability has a positive impact on ratings. When profitability is added to the model, the negative effect of shareholder return grows because the suppressor has been removed. Finally, short-term investment is significantly correlated with liquidity ($r = 0.22$ in 2004; $r = 0.19$ in 2011). Stocks, money market funds, short-term bonds, and other similar financial assets are very easy to cash in. In Models 3 and 4, the interaction between these two variables causes short-term investment to appear to be positively correlated with ratings. However, once liquidity is controlled for, the true relationship between financialization and ratings becomes clear. Financial assets outside of the liquidity that they bring to a firm are frowned upon by S&P.

The parallel-regressions assumption is violated for firm size and short-term investment. This implies that the regression coefficients for these variables differ across each threshold (i.e. these variables affect the probability of being in a higher rating category differently depending on the rating category). Firm size is always a positive

significant predictor of rating regardless of the threshold, and STI is negative and significant except when predicting across the low to high investment grade threshold where it is no longer significant.

When we compare the 2004 Moody's models in Table 2 to the S&P models in Table 1, we can see that the agencies are very consistent in their treatment of the model variables when generating ratings. All of the variables in the Moody's models are significant and in the same direction as the S&P models. In general, the effect sizes are greater and the overall fit of the model is slightly better when predicting Moody's ratings.

When the same models are run on a different cross-section in FY2011, the results are similar (see Tables 3 and 4). The coefficients for the control variables don't appear to change much from FY2004 to FY2011 other than liquidity, for which the magnitude of the coefficient decreased rather significantly in the S&P models. In the full models (Table 3, Model 8 and Table 4, Model 8), the magnitude of the coefficients for the variables measuring firm emphasis on core-competencies, shareholder value, and financial investments are reduced to about half of what they were in FY2004 for both agencies and the coefficient for short-term financial investments is no longer significant in the S&P full 2011 model. Like the FY2004 models, there was little difference between the cross-agency FY2011 models. This was not a surprise given that Spearman's rho showed a correlation between the aggregated S&P and Moody's corporate ratings of 0.91 in the 2004 sample and 0.92 in the 2011 sample. The agencies were most consistent when rating the financial sector, and least consistent when rating information technology and industrials.

By using sector dummies and allowing the residuals to covary within sector, coefficient bias is being introduced into the model. However, based on the findings of Greene (2004), this bias should be minimal. Regardless, findings from additional models that treat the dependent variable as continuous and use an efficient fixed-effects estimator pooling on sector are substantively the same as those using ordered probit models with sector dummies. All of the regression coefficients are in the same directions and are statistically significant to similar levels of confidence.

3.4 Discussion

Research has demonstrated that firms are aware of their corporate ratings and often change their behavior to potentially affect future rating decisions. This implies that bond raters, another group of influential financial market actors, might be contributing to the recent trends in corporate governance and strategy studied by organizational and economic sociologists. Chapter 1 discussed at length the possibility that powerful bond rating agencies, with indirect control over capital flows, might very well be acting as agents of institutional isomorphism and promoting normative practices via corporate issuer ratings. The above models provide evidence that major bond rating agencies do account for firm emphasis on core-competencies, shareholder value, and investment in financial assets when making rating decisions. However, these trends in corporate behavior have continued *despite apparent resistance* from bond rating agencies in the form of lower credit ratings. The models support H2 over H1. Major bond rating agencies negatively sanction these firm behaviors, standing in opposition to these isomorphic trends.

Both major bond rating agencies, Moody's and Standard & Poor's, discourage emphasis on core-competencies. They provide significantly lower ratings to those firms that focus on generating profits in a single or few industries. While it seems logical to expect that firms which are totally invested in a single market are more likely to default than firms that are invested in multiple markets because the latter can more easily absorb economic shocks to single industries, it is more difficult to determine how much diversification is enough to prevent default. Is there such a thing as too much diversification? What happens when a firm invests assets in a market in which it cannot successfully compete? Wouldn't it be better off focusing on its core-competencies? Though the relationship between diversification and default is unclear, major bond rating agencies appear to be at odds with the dominant institutional logic in recent decades that focusing on core-competencies leads to efficient firm growth and survival. These results are not terribly surprising, however, given the findings from Chapter 2. Moody's and S&P both claim that diversification should reduce corporate credit risk in their rating criteria documents. Based on the models presented, they appear to be consistent with their RCDs and reward more diverse firms with higher ratings.

Moody's and S&P also punish firms that emphasize shareholder value. The above models find that the more that firms produce increases in share prices and dividend payouts to shareholders independently of profits and firm size, the less likely they are to receive higher ratings. These agencies may share the concern of Dobbin, Zorn, and others who have pointed out the potential negative effects of corporate management's short-sighted obsession with keeping stockholders happy by beating analysts' projections.

Since the bursting of the tech bubble and the outbreak of corporate scandals (Enron, WorldCom, etc.) in the early 2000s, there has been plenty of evidence that stock prices do not necessarily reflect future firm performance. As Dobbin & Zorn (2005) point out, a corporate culture that emphasizes shareholder value incentivizes malfeasance (e.g. accounting fraud) and keeps management's attention on financial figures for the upcoming quarter rather than on long-term firm survival. It appears that Moody's and S&P share this or a similar understanding of the relationship between emphasizing shareholder return and long-term firm health. Also, evidence from Chapter 2 supports this conclusion. A Moody's analysis of the Protein and Agriculture Industry views management "with a track record of favoring shareholder returns" as a credit risk (Moody's 2013).

Finally, both major bond rating agencies have been negatively sanctioning financial investments beyond the added liquidity that they provide. The major rating agencies note that short-term investments can be good for a firm. According to Moody's, "market securities and other short-term investments" are important assets that help to keep firms liquid (Moody's 2010). S&P also lists short-term investments as a good source of "backup liquidity" (Standard & Poor's 2010). If firms have a certain portion of their assets in stocks, short-term bonds, and other securities that can quickly be sold for cash, they are more likely to be able to pay off their debts in a timely manner if for some reason their core product market goes through a rough spell. However, the above models find that those firms with more short-term financial investments are less likely to receive higher ratings when we control for liquidity. This implies that as far as rating agencies are

concerned, there is such a thing as excess financial investment. Apparently, the major bond raters believe that short-term financial investments are a detriment to long-term firm health outside of their potential to generate cashflow. This is likely related to the financialization of non-financial firms demonstrated by Krippner (2011). After 2008, it became clear that overinvestment in financial securities by manufacturing giants such as General Motors, who filed for Chapter 11 after the market collapse, could be detrimental to their survival.

These findings demonstrate that what is deemed economically rational in the corporate world is inconsistent between types of social actors. Dominant corporate logics have led to the adoption of certain strategies that are believed to be rational, efficient means for growth and future firm success. In contrast, major bond rating agencies can view the very same practices to be detrimental to future firm health.

An obvious question emerges from this analysis. If bond rating agencies have the power to (and have been demonstrated to) influence corporate behaviors, and they generally oppose firm emphasis on core-competencies, shareholder value, and financialization, as evidenced by the ratings that they produce, why do organizational sociologists observe convergence towards these behaviors by firms rather than away from them?

There are different possible explanations for this apparent contradiction. It is likely that corporate managers, who have been demonstrated to account for corporate ratings in their decision making, have a hierarchy of corporate strategies that they rely on when making decisions based on competing incentives. Though their firm's bond rating

is important to managers, satisfying their board or even their own pocketbooks may take greater priority. If they are being financially incentivized to increase shareholder value, then they are likely willing to take the hit to their corporate rating for emphasizing shareholder return if it leads to a larger bonus in the short-term.

Another explanation is that corporate managers are not fully aware of the corporate behaviors that influence their ratings. It is clear from the work of Graham and Harvey that CFOs are sensitive to corporate debt and how it affects their rating, but they might not realize how strategies regarding other aspects of the firm are important to their rating. In order for a bond rating agency to have influence over corporate behaviors, they must signal to corporations which behaviors they condone and which they condemn. Moody's and S&P make it very clear that they view leverage as bad for long-term firm health and therefore for a firm's issuer rating. So it should be no surprise that CFOs control their debt to equity ratios (an indicator of leverage) as a means of indirectly controlling their ratings. However, if bond rating agencies are unclear or contradictory in their public presentation of certain corporate risk factors then it shouldn't be surprising when firms adopt practices that undermine their ratings.

This second explanation appears to have some empirical support when concerning firm emphasis on diversification vs. core-competencies. Though the RCDs of both Moody's and S&P are pretty clear that diversity is good, they often contradict these sentiments in their rating action briefs. These briefs are made publicly available whenever an NRSRO upgrades, downgrades, or changes the financial outlook of a firm they rate. Because they are directly tied to positive and negative sanctions, firms may be

more responsive to these documents than to RCDs. If these documents are inconsistent, they could cause confusion amongst firms.

Sometimes these documents are consistent with the RCDs and promote diversification. In one instance, Moody's revised the outlook of a division of Stanley Black & Decker and positively assessed the company's "increasing diversification of its customer base... and success with new product introductions" (Moody's 2004a). Moody's praised CommScope Inc.'s acquisition of Avaya's Connectivity Solutions for potentially providing "greater business diversification (reduced dependence on a concentrated, slow growth end market)" (Moody's 2004b). Similarly, when Moody's upgraded Shin-Etsu Chemical Co., they pointed out that "The company also continues to strategically expand and invest in other core business areas to strengthen its market position and avoid concentration risk of production facilities going forward" (Moody's 2005). These statements appear to be endorsements of a management strategy focusing on diversification vs. core-competencies and are consistent with the findings in the tables above (higher specialization leads to higher ratings).

However, in other instances, Moody's discourages product diversification and appears to promote a focus on core competencies. When Microsoft issued new corporate bonds in 2008, Moody's highlighted the negative impact of risk associated with the losses incurred by Microsoft's online services businesses as it attempted to expand into the search engine market (Moody's 2008). In another instance, Moody's called Barnes & Noble's decision to divest its ownership of GameStop, a video game retailer, a "positive strategic decision" which will allow it "to focus on its core book business going forward"

(Moody's 2004c). These statements signal to firms that focusing on core-competencies is a preferred corporate strategy.

Though the relationship between product diversity and firm success is likely complex and may be mostly explained by the idiosyncratic characteristics of specific firms in specific markets as reflected by the above statements from Moody's, both major rating agencies significantly discourage firm emphasis on core-competencies and promote product diversity in general despite the popularity of core-competence business models in recent decades. The fact that these agencies are not consistent when signaling to firms the ways in which specialization impacts corporate ratings, can in part, explain this apparent contradiction.

The second set of competing hypotheses yields an equally interesting finding. Though the models predicting corporate issuer rating in 2011 are similar to 2004, there is a decrease in effect size among the key explanatory variables while there is no consistent change in the effect of the control variables. All three of the coefficients for the variables indicating firm emphasis on core-competencies, shareholder value, and financial investment are reduced to less than half of their magnitude by 2011 in the Moody's and S&P full models except for specialization in the Moody's models which is reduced by 40%. Meanwhile the only coefficient for the control variables that is significantly reduced across the time period is liquidity in the S&P model, while the effects of most of the other controls remain unchanged or increase. This evidence supports H3 over H4 as the effect of firm emphasis on core-competencies, shareholder value, and financial investment on corporate ratings has become less negative (more positive) with time.

Though rating agencies view these behaviors as risks to long-term firm health, it appears that in the last decade they have become less important in determining credit rating. It is possible that industry myths regarding these specific behaviors have become strong enough to influence bond raters' decisions about how important these factors are in determining the riskiness of firm default. Bond rating agents are typically analysts with strong ties to the firms in the specific industries that they rate. They use insider information to generate nuanced ratings that can't be reproduced easily by investors. This is what makes their ratings valuable. As conceptions of control regarding the importance of core-competencies, shareholder value, and financialization take hold across industries, these practices might become more and more normalized even to rating analysts that oppose them, lessening their impact in the rating process.

However, another possible explanation is that the rating process is changing in accordance with the findings from the previous chapter. As rating agencies seek to increase legitimacy by presenting their rating process as objective and reliable, they appear to be changing the rating process as well. The models from this chapter provide evidence that both rating agencies are placing greater emphasis on reliably measured factors, like profitability, leverage, liquidity, and firm size, and lesser weight on unreliable factors such as emphasis on core-competencies (or diversification), shareholder value, and financialization.

3.5 Conclusion

This chapter contributes to the organizational literature on finance and corporate governance. It identifies an important group of actors from the financial sector, bond rating agencies, which have been demonstrated to influence corporate behavior. Statistical models indicate that both of the leading bond rating agencies, Standard & Poor's and Moody's, penalize firms via poor ratings for engaging in behaviors that have been growing in popularity during the last few decades: emphasis on core-competencies, emphasizing shareholder value, and investing in financial assets. However, these rating penalties appear to have declined over the last decade indicated by the decreasing magnitude of the regression coefficients for these variables when predicting ratings for FY2011 as compared to FY2004.

It is not clear why these specific practices continue to thrive when credit ratings are negatively affected by engaging in these practices and previous research has demonstrated that firms adjust their behavior in attempts to avoid poor credit ratings. It is possible that to corporate managers, the perceived benefit from engaging in these practices is greater than the sanction of reduced ratings. Also, evidence from statements by bond rating agencies suggests that rating agencies are not consistent in signaling to firms that these behaviors negatively impact ratings. This provides insight into the process of firm socialization. It is likely that clear, consistent signals must be sent from bond rating agencies, professional organizations, industry leaders, or any other agents that influence firm learning. Future research by the author will seek to expand on this explanation.

Finally, this chapter provides evidence that the rating process is changing in a manner consistent with findings from Chapter 2. As major bond rating agencies face growing criticism from the outside, they have increasingly emphasized a more objective, reliable rating process. This includes an increasing emphasis on reliably measured risk factors. As this chapter demonstrates, the rating process itself appears to be changing whereby Moody's and S&P are placing a greater relative emphasis on reliable indicators in 2011 than they were in 2004. The next chapter examines whether this is potentially increasing or decreasing the accuracy of ratings by assessing the effectiveness of the risk factors above.

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3.7 Figures and Tables

Figure 3.1. Distribution of S&P ratings data before and after aggregation, 2004

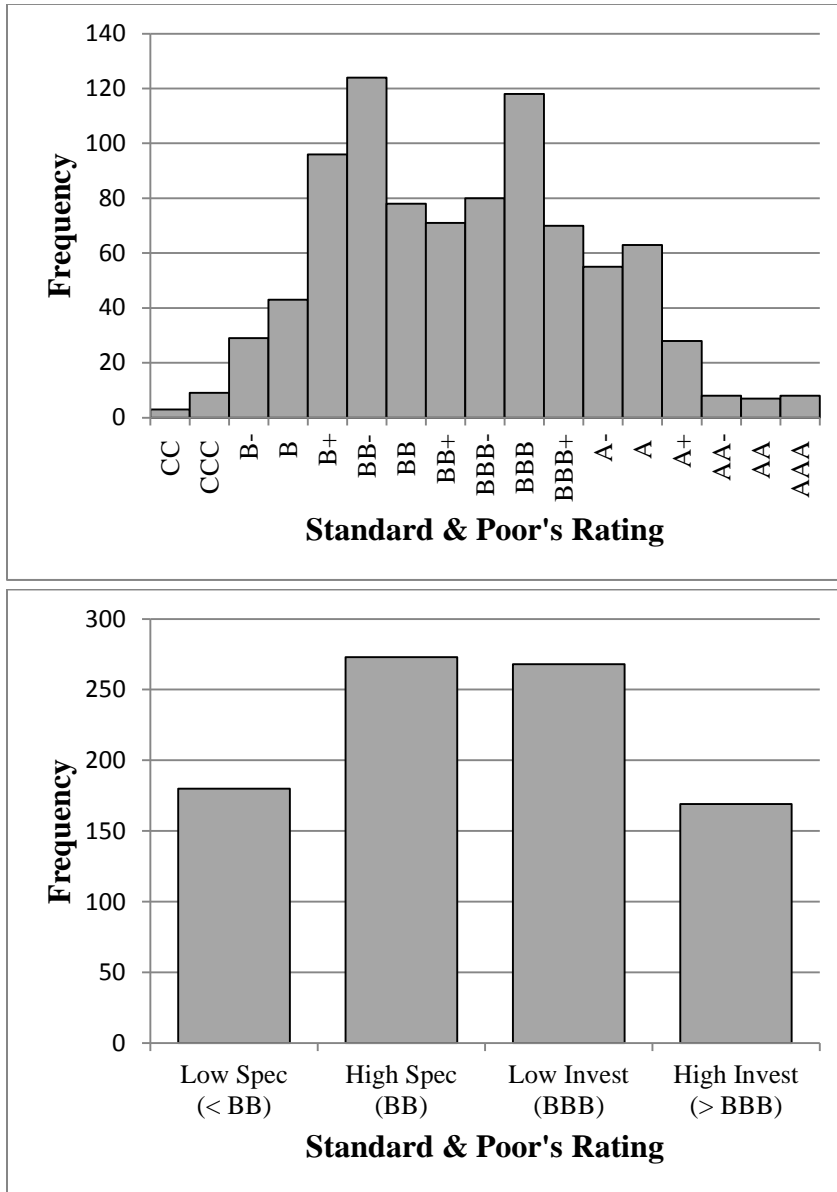


Table 3.1 Predicting S&P Corporate Bond Ratings, 2004

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	-1.06** (0.16)			-1.09** (0.16)	-0.75** (0.20)			-0.88** (0.20)
Shareholder Return		-0.44** (0.07)		-0.46** (0.07)		-0.65** (0.16)		-0.65** (0.15)
S-T Investment			0.08** (0.01)	0.08** (0.01)			-0.09** (0.02)	-0.08** (0.02)
Profitability					3.70** (0.87)	5.56** (1.08)	3.45** (0.87)	5.57** (1.01)
Leverage					-1.97** (0.69)	-2.16** (0.71)	-2.15** (0.64)	-2.04** (0.65)
Liquidity					2.33** (0.68)	1.73* (0.77)	2.45** (0.66)	2.21** (0.82)
Firm Size					0.54** (0.08)	0.55** (0.08)	0.62** (0.08)	0.60** (0.08)
<i>N</i>	890	890	890	890	890	890	890	890
<i>Pseudo-R</i> ²	0.02	0.03	0.02	0.06	0.28	0.31	0.29	0.33
<i>Wald chi-square</i>	46.3**	34.2**	32.3**	132.6**	---	---	---	---

** p < 0.01, * p < 0.05; † p < 0.10; two-tailed. Robust standard errors in parentheses; Standard errors in Models 5 through 8 allow for intragroup correlation by sector; Sector dummies not shown.

Table 3.2 Predicting Moody's Corporate Bond Ratings, 2004

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	-1.09** (0.16)			-1.11** (0.16)	-0.77** (0.25)			-0.88** (0.27)
Shareholder Return		-0.53** (0.08)		-0.55** (0.08)		-0.92** (0.15)		-0.92** (0.14)
S-T Investment			0.10** (0.01)	0.10** (0.01)			-0.08** (0.02)	-0.07** (0.02)
Profitability					4.53** (1.23)	7.24** (1.26)	4.34** (1.24)	7.34** (1.18)
Leverage					-2.27** (0.76)	-2.50** (0.77)	-2.49** (0.71)	-2.41** (0.73)
Liquidity					1.97** (0.53)	1.38** (0.53)	2.00** (0.52)	1.68** (0.61)
Firm Size					0.60** (0.09)	0.63** (0.09)	0.68** (0.08)	0.67** (0.09)
<i>N</i>	890	890	890	890	890	890	890	890
<i>Pseudo-R</i> ²	0.02	0.03	0.02	0.07	0.31	0.34	0.31	0.36
<i>Wald chi-square</i>	46.5**	44.1**	49.3**	150.6**	---	---	---	---

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Robust standard errors in parentheses; Standard errors in Models 5 through 8 allow for intragroup correlation by sector; Sector dummies not shown.

Table 3.3 Predicting S&P Corporate Bond Ratings, 2011

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	-1.06** (0.16)			-1.01** (0.16)	-0.41 [†] (0.24)			-0.41 [†] (0.24)
Shareholder Return		-0.05 (0.07)		-0.03 (0.07)		-0.19* (0.08)		-0.20* (0.08)
S-T Investment			0.13** (0.01)	0.13** (0.01)			-0.03 (0.02)	-0.03 (0.02)
Profitability					8.30** (1.16)	8.56** (1.01)	8.12** (1.05)	8.76** (1.06)
Leverage					-1.93** (0.52)	-2.04** (0.51)	-2.02** (0.53)	-2.01** (0.51)
Liquidity					1.04** (0.31)	0.99** (0.28)	1.05** (0.29)	1.04** (0.31)
Firm Size					0.67** (0.06)	0.68** (0.06)	0.70** (0.05)	0.68** (0.05)
<i>N</i>	758	758	758	758	758	758	758	758
<i>Pseudo-R</i> ²	0.02	0.00	0.04	0.06	0.36	0.36	0.36	0.36
<i>Wald chi-square</i>	42.3**	0.68	83.2**	119.4**	---	---	---	---

** p < 0.01; * p < 0.05; [†] p < 0.10; two-tailed. Robust standard errors in parentheses; Standard errors in Models 5 through 8 allow for intragroup correlation by sector; Sector dummies not shown.

Table 3.4 Predicting Moody's Corporate Bond Ratings, 2011

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	-1.10** (0.17)			-1.05** (0.17)	-0.52* (0.23)			-0.53* (0.22)
Shareholder Return		-0.09 (0.07)		-0.08 (0.07)		-0.29** (0.07)		-0.30** (0.07)
S-T Investment			0.13** (0.01)	0.13** (0.01)			-0.04† (0.02)	-0.04† (0.02)
Profitability					8.81** (0.99)	9.21** (0.84)	8.61** (0.91)	9.50** (0.81)
Leverage					-1.99** (0.32)	-2.13** (0.34)	-2.13** (0.31)	-2.13** (0.29)
Liquidity					1.21** (0.38)	1.15** (0.34)	1.22** (0.35)	1.21** (0.37)
Firm Size					0.65** (0.09)	0.66** (0.09)	0.69** (0.08)	0.67** (0.08)
<i>N</i>	758	758	758	758	758	758	758	758
<i>Pseudo-R</i> ²	0.02	0.00	0.04	0.06	0.35	0.36	0.35	0.36
<i>Wald chi-square</i>	41.2**	1.78	83.0**	114.4**	---	---	---	---

** p < 0.01, * p < 0.05; † p < 0.10; two-tailed. Robust standard errors in parentheses; Standard errors in Models 5 through 8 allow for intragroup correlation by sector; Sector dummies not shown.

Chapter 4: Assessing Corporate Credit Risk Factors and the Potential for Institutional Myths

This chapter evaluates the seven risk factors that were demonstrated to significantly predict corporate credit ratings in the preceding chapter. By predicting future firm performance and likelihood of default using these seven risk factors, it is discovered that many of the risk factors employed by Moody's and S&P are not significantly tied to credit risk. This implies that institutional myths are at least partially guiding the rating process. Additionally it was discovered that reliably measured risk factors are better predictors of default than less reliably measured ones indicating that the growing emphasis on reliable risk factors by these agencies may be improving the accuracy of credit ratings. Finally it was discovered that the additional contributions of rating agencies above and beyond the reliable risk factors used appears to be minimal. By increasing their emphasis on these risk factors, major bond rating agencies are ultimately undermining their contributions to the industry.

4.1 Introduction

Chapter 2 demonstrated that major bond rating agencies (specifically Moody's and Standard & Poor's who together control over three-quarters of the bond rating market; US SEC 2011) engage in impression management via publicly available rating criteria documents (RCDs) in efforts to enhance legitimacy after two decades of mounting criticism. In order to achieve this, they minimize the perceived subjectivity of

the rating process and emphasize the use of reliable risk factors (RRFs). Chapter 3 examined how certain risk factors influenced the credit ratings produced by these agencies using statistical models. It was discovered that though the regression coefficients of the four major RRFs (profitability, leverage, liquidity, and size according to the RCDs in Chapter 2) have remained relatively stable over the past decade, the coefficients for the unreliable risk factors (URFs) examined—emphasis on core-competencies, shareholder value, and financialization— have decreased in magnitude over time, even losing statistical significance in the case of financialization. This supports the conclusion discussed in Chapter 2 that the rating process itself, rather than just the presentation of the rating process, has shifted toward a greater emphasis on RRFs.

This brings to light an interesting question. If rating agencies are actually altering their ratings such that the weight of URFs is decreasing relative to RRFs, what are the effects of this change? Are they losing precious information and thereby weakening ratings by de-emphasizing important URFs? This chapter examines the extent to which the risk factors studied in the last chapter are significant predictors of future firm performance, including whether or not a firm ultimately defaults on its obligations. This will provide insight as to which risk factors are important and should be emphasized when producing corporate credit ratings.

4.1.1 Institutional Myths in Credit Rating?

Chapter 1 introduced the idea of institutional myths. Organizational sociologists have long argued that many normative rules and behaviors in a given organizational field emerge because they provide organizations with a means to achieve legitimacy and

ultimately survival (Meyer and Rowan 1977). Often, these norms become taken for granted as legitimate apart from their impact on organizational goals and outcomes. At this point, they have become “institutional myths”.

The bond rating industry, like any other, is susceptible to institutional myths. Rating agencies are private enterprises trying to generate profits in order to survive in their niche within the financial industry. However, it is possible that survival has become disconnected from performance (as indicated by the production of valuable ratings). Due to the increase in bond financing by corporations, the dependence of world governance on financial ratings for regulations, and the market concentration in the bond rating industry, there has been a significant reduction of checks, by both market mechanisms and government legislation, on financial rating agencies until only very recently (see Chapter 1). This provides an ideal environment for institutional myths.

Credit assessment is not a static process. The RCDs in Chapter 2 and the statistical models in Chapter 3 demonstrate this fact. As the rating process changes, new risk factors are introduced, old ones are discontinued, and the weights of existing ones are altered. This is reasonable to expect considering that the financial industry is constantly evolving, and rating agencies are hopefully fine tuning their procedures.

In Chapter 2, it was argued that major rating agencies are trying to maintain legitimacy in the face of criticism by increasing transparency and emphasizing the objective nature of the rating process in their increasingly transparent methodology documents. It was also argued that the rating process itself is changing whereby certain risk factors are emphasized more than others in this quest for objectivity. Chapter 3

provided evidence that this is in fact occurring (the role of certain URFs in generating ratings has been reduced over time). Therefore, the opportunity exists for institutional myths about which risk factors are valuable indicators of credit risk to emerge.

Chapter 2 also discussed the fact that rating criteria documents do not provide empirical support for the risk factors used in credit assessment. These are the very documents that are meant to provide transparency and ultimately to legitimate the rating process to outside observers. Without empirical evidence that the risk factors used by major bond rating agencies are in fact good predictors of credit risk, it is very possible that certain risk factors have become taken for granted, rationalized indicators of credit risk independent of their ability to predict bond repayment.

This chapter uses empirical models to test certain risk factors used by Moody's and S&P when generating corporate issuer ratings. If risk factors are good predictors of credit risk, they should be significantly correlated with future firm performance. Most importantly, they should be significant predictors of firm default which is the ultimate outcome that investors hope to avoid when purchasing corporate bonds. If instead, certain risk factors are not correlated to these outcomes, it might be the case that institutional myths are at least partially guiding the behavior of rating agencies and that these risk factors have become taken for granted indicators of credit risk in the bond rating industry independent of the value they add.

4.1.2 Hypotheses

Chapter 3 demonstrated that seven specific potential indicators of corporate credit risk are significantly correlated to corporate issuer ratings implying that Moody's and

S&P use these or similar risk indicators when generating credit ratings. The first four indicators have been discussed at length in Chapter 2—profitability, leverage, liquidity, and firm size. The RCDs from these rating agencies claim that profitability, liquidity, and size should be negatively associated with credit risk, and that leverage should be positively associated with risk. The models from Chapter 3 demonstrate that the ratings produced by these agencies are consistent with what they claim in their RCDs.

The relationships between the final three risk indicators examined in Chapter 3—core-competencies, shareholder value, and financialization—and credit risk according to Moody's and S&P are more complicated. As Chapter 3 discovered, though emphasis on core-competencies, shareholder value, and financialization have become popular corporate strategies (Dobbin and Zorn 2005; Fligstein 2001; Krippner 2011), Moody's and S&P have been negatively sanctioning these behaviors by providing significantly lower ratings to firms that exhibit them. This implies that Moody's and S&P believe these behaviors to be detrimental to future firm performance and long-term success.

All seven of these risk factors have been demonstrated to predict corporate issuer ratings and are therefore believed to be indicators of credit risk by major bond rating agencies. Assuming that rating agencies are incorrectly assessing credit risk by using these risk factors to generate credit ratings, we would expect to find support for the following hypothesis:

(H0) There is no significant relationship between the seven risk indicators described above and future firm performance or default.

Alternatively, if we assume that rating agencies are correctly assessing credit risk by using the above risk factors, we would instead expect to find support for the following hypotheses:

- (H1a) Profitability increases future firm performance;
- (H1b) Profitability reduces the likelihood of firm default;
- (H2a) Leverage reduces future firm performance;
- (H2b) Leverage increases the likelihood of firm default;
- (H3a) Liquidity increases future firm performance;
- (H3b) Liquidity reduces the likelihood of firm default;
- (H4a) Firm size increases future firm performance;
- (H4b) Firm size reduces the likelihood of firm default;
- (H5a) Emphasis on core-competencies reduces future firm performance;
- (H5b) Emphasis on core-competencies increases the likelihood of firm default;
- (H6a) Emphasis on shareholder value reduces future firm performance;
- (H6b) Emphasis on shareholder value increases the likelihood of firm default;
- (H7a) Financialization reduces future firm performance;
- (H7b) Financialization increases the likelihood of firm default.

The above alternative hypotheses are based on the findings from Chapter 3. Evidence supporting the alternative hypotheses indicates that Moody's and S&P are using indicators of credit risk that are indeed significant predictors of credit risk. If these rating agencies are following institutional myths regarding credit risk, we'd expect to find support for H0.

4.2 Data and Methods

4.2.1 Future Firm Performance and Default

Firm performance in 2011 and whether or not a firm defaulted by 2011 were predicted using credit risk indicators from 2004. The period of time over which to perform the analysis was chosen to be representative of the actual maturities of corporate bonds. Jewell & Livingston (1999) found that the median year to maturity for both Moody's and S&P rated corporate bonds was seven years. This suggests that seven years is a reasonable amount of time over which to track firm performance. Seven years qualifies as long term debt and is a representative point estimate of the maturity of rated corporate bonds. When generating corporate issuer ratings, these agencies are using current firm data to make predictions about the state of the firms in the long-term future, roughly seven years. Therefore, when generating ratings in 2004, Moody's and S&P are using 2004 data to make predictions about the state of the firms in 2011. This research will evaluate the validity of using risk factors based on 2004 data for predicting the state of the firm in 2011.

Profitability is a commonly used measure of performance or firm financial health in the economics literature (Hunton et al. 2003). Profitability was measured as net income to total assets (also known as return on assets, ROA). There is no commonly accepted definition of what constitutes a default in the financial world (Langohr and Langohr 2008:27). The default variable was constructed using company deletion and long-term issuer rating codes from the COMPUSTAT data set¹. It was dichotomously coded “1” if at least one of the following conditions were true between December 2004 and December 2011: the firm was given a “default” rating by S&P or the company was deleted from the COMPUSTAT database because of bankruptcy or liquidation. This amounted to 7% of the firms in the sample. The variable was coded “0” otherwise. All of the firms for which default was present were researched independently to confirm that they failed to repay at least part of their debt during the time period examined.

4.2.2 Independent Variables

The risk factors were measured the same as they were in the preceding chapter. All of these variables were constructed using 2004 data. Profitability was measured as the ratio of net income to total assets. Leverage tells us how much debt a firm has in relation to its assets. Leverage was measured as long-term debt to assets. Interest coverage was used as a measure of liquidity. Interest coverage, or debt service coverage, tells us whether a company is generating enough cash from its operations to meet the interest payments on its bonds. This variable was measured as the ratio of earnings before interest, taxes, depreciation, and amortization (EBITDA) to interest expenses.

¹ This method was recommended by COMPUSTAT.

Firm size was measured as total assets (in millions USD). The forms of operationalization used above are common in the economics literature (Blume et al. 1998; Ederington 1986; Hunton et al. 2003; S&P 2014).

The following risk factors are not as commonly measured as those above. The specialization ratio (SR) was used as an indicator of firm emphasis on core-competencies (Pandya and Rao 1998; Rumelt 1982; Shaikh and Varadarajan 1984). The SR “reflects the importance of the firm’s core product market to that of the rest of the firm” (Pandya and Rao 1998:70). It is measured as the firm’s annual revenues from its largest discrete product-market activities (4-digit SIC) to its overall revenues. A low SR value indicates a highly diversified firm similar to the corporate conglomerates that rose in popularity following the Second World War. A high SR value indicates a firm focusing on core-competencies.

Firm emphasis on shareholder value was measured as total shareholder return (TSR):

$$TSR = \frac{(P_t - P_0 + D_t)}{P_0} \quad (1)$$

where P_0 is the firm’s stock price per share at some initial time, P_t is the firm’s stock price per share after some amount of time t has elapsed, and D_t is the amount of dividends paid out per share by the firm during the elapsed time t (Institute of Management Accountants 1997). The initial time chosen was two years before the fiscal

year of the model. This provided enough time to wash out the noise of the stock market². Large increases in stock price and large dividend payments relative to others indicate which firms are emphasizing shareholder value. However, these measures are confounded by other factors such as firm size and profitability, which are also included in the model. Any effects of total shareholder return on firm credit ratings net of firm size and profitability are therefore assumed to reflect firm emphasis on shareholder value.

An emphasis on financial investment to generate profits by financial and non-financial firms alike is an indicator of financialization. Total short-term investments (STI) is used as an indicator of firm emphasis on financial investments. STI is an accounting line that is required reporting for firms that measures total short-term financial assets such as stocks and bonds that can be “converted to cash within a relatively short period of time”, certificates of deposit, commercial paper, marketable securities, assets in money market funds, assets in real estate investment trusts, and treasury bills (Xpressfeed Compustat Online Data Manual 2014). Though this indicator is a direct measure of short-term financial investment by firms, it also influences the liquidity of firms which is an important predictor of credit ratings. The models include liquidity which should parse out any effect that emphasis on financial investment might have on ratings outside of the established positive impact that liquidity has on ratings. Though liquidity and STI are significantly correlated, Pearson’s-R = 0.11. Therefore, the potential overlap in explained variance of the dependent variables should be minimal.

² As a check for robustness of the measure, total shareholder return was also calculated using an initial time of one year prior to the fiscal year of the models and they yielded similar findings.

To eliminate unobserved sector-specific effects, a sector variable was included. The Global Industry Classification Standard (GICS) was used to cluster firms by the following nine sectors: Energy, Materials, Industrials, Consumer Discretionary, Consumer Staples, Health Care, Financials, Information Technology, and Telecommunication Services & Utilities³.

4.2.3 Sample

All firm financial data came from the COMPUSTAT North American financials data set. List-wise deletion on the population of the S&P and Moody's rated corporations in the US and Canada (2,286) led to a sample size of 771. In order to directly compare to the findings from Chapter 3 (i.e. to examine a similar sample of firms from models predicting credit rating), this sample is a direct subsample of the firms used in Chapter 3. The missing firms did not have data on the dependent variables and could not be included in the analysis.

Data for the dependent variables came from fiscal year 2011 (FY2011). The responses were predicted using independent variable data from FY2004. Both of those years were relatively stable economic years with fewer corporate defaults and dynamic ratings.

4.2.4 Regression Models

The first model is a linear regression model predicting performance in FY2011 (measured as profitability) with risk indicators from FY2004. Sector effects are

³ The GICS treats Telecommunication Services and Utilities as separate sectors, but they were combined due to small cluster sizes. These sectors are often treated as similar; e.g. the Standard Industrial Classification (SIC) system combined utilities and communications into a single sector.

controlled by using a fixed-effects estimator. The values for firm size, TSR, and STI were logged to reduce positive skewness and better approximate Gaussian distributions.

The linear model can be written as:

$$y_{ij} = \beta_0 + \beta_1 prof_{ij} + \beta_2 liq_{ij} + \beta_3 lev_{ij} + \beta_4 \ln(size)_{ij} + \beta_5 SR_{ij} + \beta_6 \ln(TSR)_{ij} + \beta_7 \ln(STI)_{ij} + \alpha_j + \epsilon_{ij} \quad (2)$$

where i indexes the firms (from 1 to $n = 771$) and j indexes the sectors (from 1 to $k = 9$). The α_j are the fixed sector intercepts, and $\beta_1 - \beta_7$ capture the effects of the explanatory covariates.

Because the dependent variable in the second model is dichotomous and the latent risk function is assumed to be continuous, default by 2011 was predicted using a probit regression model. Fixed sector effects were approximated using sector dummies and allowing for intra-sector correlation among standard errors⁴. The probit model can be written as:

$$\Pr(y_{ij} = 1 | x_{ij}) = \Phi(\beta_0 + \beta_1 prof_{ij} + \dots + \beta_7 STI_{ij} + \alpha_j) \quad (3)$$

where x_{ij} corresponds to the covariates ($prof_{ij}$, liq_{ij} , etc.) and Φ is the standard normal cumulative distribution function.

⁴ This follows Mora (2006) who approximated fixed country effects when predicting sovereign credit ratings by using country dummies in probit models and clustered robust standard errors. Monte Carlo simulations show that bias caused by incidental parameters decreases with increasing cluster size (Greene, 2004). Simple extrapolation of Greene's simulation data shows that clusters containing at least 50 cases should have coefficient bias $\sim < 2\%$. There were greater than 50 firms per sector in all models which provides confidence that the estimates are consistent (Stata, 2014).

4.3 Results

Table 1 shows the regression coefficients and robust standard errors for the linear regression model predicting firm performance, as measured by profitability, in FY2011 using risk indicators from FY2004. The first seven models predict performance with each independent variable separately. The final model is the full model. All of the models include sector dummies which together contribute 0.07 to the model pseudo- R^2 .

Three of the risk factors are significant predictors of future firm performance in the full model: short-term investment, profitability, and firm size. Profitable firms in 2004 are more likely to be profitable in 2011, as expected (H1a). However, the other significant coefficients do not predict future firm performance as expected. Larger firms in 2004 are significantly less likely to be profitable in 2011, and highly financialized firms are more likely to be profitable, standing in direct contradiction to H4a and H7a. It should be noted that the model R^2 is only 0.04 for the seven risk factors indicating that the risk factors in general are not very effective at predicting future firm performance.

Interestingly, firm size is not a significant predictor until profitability is controlled for. Collinearity exists between these variables. Larger firms tend to be more profitable. However, because these variables positively covary, and have opposite independent effects on performance, it appears the interaction between them caused the coefficient for profitability to be inflated while the coefficient for firm size was suppressed. In the full model, the true effects are revealed. Similarly, short-term investment and liquidity covary. Short-term investments are liquid assets. In Model 3 it appears that short-term investment is not a significant predictor of performance, and in Model 6 it appears that

liquidity is. However, when they are both used in the full model, we can see that the explanatory power of liquidity likely came from the fact that liquid assets are often financial assets, and it is financialization that predicts performance, not liquidity.

Table 2 displays the results from the probit models predicting likelihood of default by FY2011, using risk indicators from FY2004. Three of the seven risk factors are significant predictors of firm default seven years out in the full model: profitability, leverage, and liquidity. All three regression coefficients are in the expected directions providing support for H1b, H2b, and H3b. Profitable firms, liquid firms, and firms that are not highly leveraged in 2004 are less likely to default by 2011. The remaining risk factors are not significant predictors of default and do little to improve the pseudo- R^2 .

When predicting default by itself, specialization has a marginally significant effect size. This is due to collinearity with firm size. Larger firms tend to be less specialized. Because these factors are inversely related, and have opposite effects on default, they are jointly explaining the outcome and have inflated effect sizes when not in the same model. In the full model, it becomes clear that part of the variance explained by specialization is due to firm size and it is ultimately not a significant predictor of default.

Unfortunately, the Wald chi-square value and test for its significance cannot be computed for the probit model with sector dummies because of the choice to use clustered robust standard errors in a model that has more coefficients than clusters. Tests for robustness are therefore necessary and additional results are included in the Appendix. Table A1 displays the full probit model from Table 2 (Model 8) with and without the sector dummies. Both models yield similar results and the model without

sector dummies has a significant model chi-square which provides confidence that the model with sector dummies is also a good fit of the data. Additionally, Table A2 compares the full model from Table 2 (Model 8) with a logistic model that uses the fixed effects estimator clustering on sectors. As we know, the logit link function provides larger coefficients than the probit link function when used on the same data such that the coefficients generated by a logit link are approximately 1.8 times larger (Powers and Xie 2008). Taking this into account, the results are incredibly similar. However, the effect of liquidity is not significant in the logit model.

Note that the total sample sizes for the models in Table 2 are larger than for those in Table 1. This is due to the fact that 53 firms that existed in 2004 had defaulted by 2011 and were removed from the sample used for the models predicting future firm performance. One might wonder whether examining the subsample of the firms that survived by 2011 would generate selection bias in favor of healthier firms in the future firm performance models (Table 1). Therefore, Heckman selection models were used to determine whether there were significant selection effects in the models predicting future firm performance. No significant bias of model coefficients was found in the Heckman models implying that the models in Table 1 are free from selection effects.

4.4 Discussion

Because there have been limited checks on the performance of major bond rating agencies until only very recently, it would not be surprising to find that institutional myths have emerged in the bond rating industry, whereby certain risk factors have

become taken for granted as significant predictors of future firm health when, in fact, they are not. Chapter 3 demonstrated that seven risk factors (emphasis on core-competencies, emphasis on shareholder value, financialization, profitability, leverage, liquidity, and firm size) are significant predictors of credit ratings and therefore used by rating agencies when assessing corporate credit. The above models demonstrate that only a subset of these risk factors indeed significantly predict future firm performance and default.

First we should discuss the differences in findings between Table 1 and Table 2. By generating long-term corporate issuer credit ratings, bond rating agencies are assuming that there is some underlying “counterparty risk” level inherent in the behavior of firms that influences whether or not they will meet the terms of some financial contract in the long-term (Langohr and Langohr 2008: 42). They imagine this underlying risk curve to be a continuous function of a variety of different behaviors. Those firms engaging in riskier behaviors map onto the “high risk” part of this counterparty risk curve. No firm is guaranteed to meet their financial obligations just as no firm is guaranteed not to (Langohr and Langohr 2008:24). Credit ratings are an approximation of this risk curve which is divided into ordinal categories.

The counterparty risk curve is an intangible heuristic device however, which makes assessment of risk factors difficult. It is a continuous function that intends to provide information about a future dichotomous state: not able to make bond repayments (in default) or able to make bond repayments (not in default). In Table 1, we have associated a continuous variable, firm performance, with firm health and ultimately risk

of default. Profitability is frequently used as an indicator of performance and firm health in the economics literature. It seems logical that a firm that is performing well (i.e. highly profitable) is probably a healthy firm and should be more likely to be able to repay its immediate debts. This firm is likely to be higher than other firms on the counterparty risk curve and therefore further away from the possibility of future default. Therefore, if risk factors in 2004 are predictive of profitability in 2011, they are good indicators of whether or not firms are at risk of default seven years out.

In Table 2, default is directly measured and predicted using the same risk factors. Here, there is no need for speculation about whether or not the dependent variable, if measured correctly, is a valid measure. The fact that default is directly predicted in the models from Table 2, however, does not necessarily make the models in Table 1 inconsequential. Performance as a proxy for default risk potentially provides us with more information in the same way any continuous variable is preferred to a dichotomous one. The models in Table 1 differentiate between those firms that are much closer to default than others, outside of actually defaulting. That being said, the performance models do not directly address the concerns of rating agencies, and despite the widespread use of profitability as a measure of performance and firm health, it may not be a valid measure of long-term counterparty risk. Therefore, in an analysis about which risk factors are truly effective indicators of default risk, more weight should probably be given to the results from the default models in Table 2. Also, remember that the three significant risk factors in Table 1 only explained 4% of the variation in performance while the risk factors in Table 2 seem to better predict the dependent variable.

When evaluating the findings in Tables 1 and 2, we should keep Table 3 in mind. Table 3 displays the results from the FY2004 models from chapter 3. Ordered probit models were used to predict the firm issuer ratings produced by both S&P and Moody's. All seven risk factors were found to be significant predictors of issuer ratings. This table should be used as a point of comparison against Table 1 and 2 in this chapter because it is the source of our hypotheses. Every independent variable was operationalized in an identical manner and the sample of firms used in this chapter is a subsample (87% overlap) of the exact firms used to generate the models in Table 3. Some of the firm data from the larger sample in Chapter 3 was not available in FY2011.

Based on both sets of models (performance and default), it appears that profitability is an indicator of long-term credit risk as expected. Profitability is a positive significant predictor of future profitability, as well as a negative significant predictor of the likelihood of default which supports hypotheses H1a and H1b. It might seem trivial that profitability at one point in time is predictive of profitability at a later point in time, but this should not be taken for granted. According to NBER (2014), the average business cycle since 1949 is just under six years. Therefore, the fact that profitability is significantly correlated from one business cycle to another is a nontrivial finding, given the noise and volatility of business cycles (Ball 2004).

Interestingly, profitability is the only consistent predictor across the two sets of models, suggesting that the two dependent variables are not necessarily indicating the same phenomenon. Contrary to hypothesis H4a, we can see that there is a significant inverse relationship between firm size and future performance. In Chapter 3, we

discussed reasons that firm size might help future firm performance by indicating which firms are perceived to be legitimate due to the status associated with longevity and leadership. In addition, the RCDs argue that economy of scale comes into play, whereby the added efficiency that results from mass production and discounts from suppliers makes it easier for larger firms to generate profits. These findings undermine the argument that larger firms experience benefits due to perceptions of legitimacy in the industry, at least in regards to long-term profitability. However, because there are other covariates in the model, the economy of scale argument is not necessarily inconsistent with the results. Because we are controlling for profitability, it make sense that when examining equally profitable firms, smaller firms are more efficient. For example, imagine two firms in 2004 that are equally profitable, but differ in size. If both firms are growing, the smaller firm has greater potential to benefit from increasing economy of scale than the larger firm because of diminishing returns on scale. All else being equal, smaller firms in the performance models have a long-term advantage because they are already performing as well as larger firms, but doing so at a smaller scale.

The other finding that contradicts our expectations is that firms with greater amounts of assets from financial investments are better off seven years later. This too should not be very surprising when one considers that stock indexes in general were higher in 2011 than in 2004. Therefore, those firms with a lot of assets in stocks should have seen more profits *ceteris paribus*. Though our indicator represents short-term investments, some of which will certainly have matured during the seven years prior to

the collection of data for the dependent variable, stock investments and money market funds will have generally gained over that time.

By contradicting hypotheses H4a and H7a, these findings undermine the use of these two risk factors by rating agencies who employ these, or similar indicators when making judgments about corporate credit risk. One might argue that just because the relationships between these indicators and long-term profitability are the inverse of how they are used by rating agencies does not indicate that they are poor predictors of credit risk because performance, as measured by profitability, is not a valid indicator of credit risk. Though profitability might not be the perfect indicator of credit risk, Table 2 demonstrates that profitability is a significant predictor of default, so at the very least, risk factors predicting future profitability are indirect predictors of default.

Table 2 displays the risk factors that are direct predictors of default. Profitability, leverage, and liquidity are all significant predictors in the expected directions. This supports the use of these three risk factors by rating agencies when assessing corporate credit risk. However, it is important to note that not all of the risk factors predicting default were found to be significant.

By comparing Tables 1 & 2 to Table 3, we can see that many of the risk factors used by Moody's and S&P to generate long-term issuer ratings in 2004 were not significant predictors of the performance of those same firms seven years later. More importantly, only a few of the risk factors were significant predictors of whether or not those firms could repay their debt seven years later. This implies that there is a

disconnection between some of the risk factors used by major bond rating agencies and the usefulness of those risk factors as tools for credit assessment.

It appears that certain risk factors have become taken for granted as effective indicators of corporate credit risk, even though this is not necessarily the case. For example, diversification, the opposite of specialization (a measure of emphasis on core-competencies), is a significant predictor of credit rating. Both Moody's and S&P discuss at great length in their RCDs the importance of product diversity in reducing credit risk across industry (see Chapter 2). They provide a very sound and logical rationalization for the inclusion of this risk factor in the corporate credit assessment process. However, this risk factor, the identically operationalized one that predicts credit rating, is not a significant predictor of firm default. Though the story makes sense, empirical reality does not appear to bear this out.

Now we must be careful when dealing with non-significance. If H5b were true, we would expect specialization (diversification) to be a significant predictor of default, especially considering the fact that other risk factors that predicted credit rating were significant predictors (profitability, leverage, and liquidity), and we're dealing with a nearly identical set of firms in both sets of models. Yet, to accept the null hypothesis as it relates to specialization would be erroneous. We cannot be certain, given the information in Table 2, that this risk factor is not a statistically significant predictor of firm default. However, the fact that identical predictors were used on an almost identical sample of firms, and specialization is a strong significant predictor of issuer rating but not a significant predictor of default certainly raises red flags about this risk indicator.

Additionally, the pseudo- R^2 in the default models is only improved by 0.008 when this variable is added. Statistical significance aside, it appears that the key risk factor of diversification trumpeted in the RCDs is a negligible predictor of default at best⁵.

Chapter 2 differentiated between types of risk factors: reliable risk factors and unreliable risk factors. By applying this typology to the risk factors examined in Chapter 3 and this chapter, we find that the first four risk factors—profitability, leverage, liquidity, and size—are the four RRFs most important to credit assessment according to RCDs (see Chapter 2). These are measured in standardized, reliable ways in the financial industry using firm financial data.

Two of the other three risk factors examined in the previous chapter—emphasis on core-competencies and shareholder value—cannot be considered reliable indicators since there is no accepted way to measure these variables. There are many different types of diversification (the inverse of specialization, or “emphasis on core-competencies”) as well as different ways to measure them. Commitment to, or emphasis on shareholder value is partially determined qualitatively via interviews with corporate executives. Management interview data cannot be easily quantified and statistically modeled. Though these risk factors are difficult to quantify, the operational definitions used in the previous chapter are at least similar to the ways that they are measured by rating agencies given the findings of the models in Table 3. They may be incomplete in that they only

⁵ Robustness checks were performed to make sure that non-significance was not due to a lack of power from multicollinearity or heteroskedasticity. All VIFs were less than two and tests for heteroskedasticity showed no significant effects.

partially reflect the ways that Moody's and S&P measure commitment to core-competencies or shareholder value by firms.

Financialization, or the level to which a firm's profits come from investment in financial instruments, does not easily fit into this typology. One would expect that measuring the total amount of firm investment in financial instruments is as simple as reading a line off of company tax forms, and maybe it is. However, when evaluating firm emphasis on or commitment to financialization, there are many qualitative assessments that factor into this as well. Just because a firm is heavily invested financially in the short-term doesn't mean they necessarily will be in the future. Interviews with management regarding firm portfolios, level of financial investment relative to capital projects, and other related business strategies are likely considered when measuring financialization. In this sense, level of firm financialization is an unreliably measured risk factor. However, regardless of the complexities of measuring financialization, Table 3 demonstrates that rating agencies believe that the amount of financial investments on the books is relevant to the credit assessment process and ultimately the credit ratings produced.

Understanding that the first four risk factors in the above models are reliable risk factors, and that the remaining three are less reliably measured, we can notice the general pattern in Table 2 that RRFs are better predictors of firm default than URFs. Three of the four RRFs are significant predictors of firm default in the direction employed by rating agencies when producing credit ratings. None of the URFs in the models are significant predictors of default. This has important implications for credit ratings, especially

considering the findings from Chapters 2 and 3. Chapter 2 discovered that when pressure was applied to rating agencies to increase transparency, an increase in number and detail of RCDs emerged. More importantly, a greater emphasis on presenting the rating process as objective, which involved playing up RRFs, followed. Chapter 3 went further and empirically demonstrated that the rating process itself was evolving over the last two decades placing a greater reliance on the same RRFs used in the performance and default models from this chapter.

This leads us to the conclusion that increasing pressure for transparency, led to changes in the rating process, as major bond rating agencies scrambled to reclaim legitimacy. Rather than doubling down on rationalized myths regarding risk factors that aren't tied to corporate credit risk, rating agencies have instead emphasized those factors that are most reliably measured in the financial industry. As it turns out, these indicators happen to be the best predictors of firm default. Therefore, this industry that was free from serious scrutiny for such a long time appears to have been improved by increased scrutiny.

Certain potential limitations of these models must be discussed. It was mentioned above that the observed non-significance in the models cannot be misinterpreted to mean that we can be certain that there is a lack of significant relationships between the URFs and future performance and likelihood of default. However, it should be reiterated that many precautions were taken (identical operationalization of independent variables, nearly identical sample of firms, robustness checks for multicollinearity and heteroskedasticity) to make the models in this chapter comparable to those in Chapter 3

and reduce the likelihood that non-significance is due solely to issues of statistical power. Also, three of the risk factors are significant predictors of default in a systematic way (they all happen to be RRFs and the directions are consistent with our expectations from the models in Chapter 3). A greater concern is the lack of other important URFs in the performance and default models. It may be the case that certain other URFs that have been left out of these models are strong predictors of default risk despite the findings above. Regardless, Chapter 3 demonstrated a reduced emphasis on three URFs that are significant predictors of credit ratings, while this chapter demonstrates that these same three factors are not significant predictors of default risk, implying that rating agencies are right to reduce their role in the rating process (if not remove them completely).

The potential problem that this causes for bond rating agencies was outlined in Chapter 2. If it is only RRFs that matter, then what is it that these agencies bring to the table? Why are they even necessary if the URFs they use to justify their insider and expert knowledge are not valuable indicators of corporate credit risk? This brings us to a final set of default models found in Table 4. The probit models in Table 4 are identical to the full probit model in Table 2, except that they also include an additional variable for long-term corporate issuer rating. Issuer ratings for each firm are treated as a continuous predictor of default. There are 19 different values present for the Moody's issuer rating variable (ranging from C to AAA) and 18 different values for S&P issuer ratings (ranging from CC to AAA).

From Table 4, we can see that issuer rating is indeed a significant predictor of likelihood of default above and beyond the risk factors used in the models. This tells us

that S&P and Moody's are contributing information relevant to credit risk that is not being captured by the default models in Table 2. That being said, the pseudo- R^2 for the models in Table 4 have only increased by 0.04 from the full model in Table 2 which lacks the issuer rating variable. This implies that the additional information provided by the issuer ratings is not much when predicting default. The three RRFs together generate a pseudo- R^2 of about 0.17. Adding the rest of the independent variables provides an additional 0.08 improvement in model fit⁶. Meanwhile the issuer ratings only improve the pseudo- R^2 by an additional 0.04.

Though it is clear from Table 4 that rating agencies are providing useful information above and beyond the RRFs and industry variables used in this model, their additional contribution is minor. This implies that the value that rating agencies add to the corporate bond industry might not be enough to justify the record profits they have made in the past few decades as well as all the damage they contributed during the financial crisis of 2008.

4.5 Conclusion

Ultimately, the models in this chapter reveal three things. First, there are risk factors that are used by major bond rating agencies to generate corporate issuer ratings that are not significant predictors of default. This implies that these rating agencies might be perpetuating rationalized myths in the bond rating industry that certain risk factors are useful predictors of corporate credit risk when they are not. Second, in conjunction with

⁶ This is due almost entirely to the industry effects.

the models from Chapter 3, the models in this chapter demonstrate that the reduced emphasis on certain URFs with time is probably a good move by rating agencies, and likely increasing the accuracy of credit ratings. That being said, the final discovery from this chapter is that the contributions of rating agencies, above and beyond their utilization of readily available RRFs, is not very much.

This last finding is important because the RRFs and industry coefficients that were demonstrated to be significant and strong predictors in this chapter (relative to the other factors in this model including credit ratings), are readily available to institutional investors and any other parties interested in generating their own corporate credit assessment models. We found in Chapter 2 that major bond rating agencies rely on URFs as sources of legitimacy. URFs allow these agencies to claim expert, insider, forward-looking knowledge that outsiders do not have access to. But if factors based on this knowledge explain very little of the variance in default rates (as measured by the contribution of issuer rating in Table 4) or worse, they are not significant predictors of default (like the URFs in Table 2), then it appears that rating agencies aren't bringing much to the table in terms of the "value-added" of credit ratings. This has major implications for the financial securities industry and suggests that alternative models to credit assessment should be seriously considered. The next chapter will summarize the findings of the dissertation and briefly explore some potential alternatives to the existing credit rating industry.

4.6 References

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4.7 Tables

Table 4.1 Linear Models Predicting Firm Performance in 2011 Using Risk Indicators from 2004

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	0.001 (0.014)							0.001 (0.011)
Shareholder Return		-0.002 (0.006)						-0.004 (0.006)
S-T Investment			0.003 (0.002)					0.003 [†] (0.002)
Profitability				0.134** (0.056)				0.114 [†] (0.056)
Leverage					-0.054 (0.038)			-0.035 (0.035)
Liquidity						0.013* (0.006)		0.007 (0.005)
Firm Size							0.000 (0.002)	-0.004** (0.001)
<i>N</i>	718	718	718	718	718	718	718	718
<i>R</i> ²	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.04
<i>F-ratio</i>	0.0	0.1	3.0	5.8**	2.0	4.7*	0.0	4.4**

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Robust standard errors in parentheses; All models use fixed effects estimator clustering on GIC sector.

Table 4.2 Probit Models Predicting Firm Default by 2011 Using Risk Indicators from 2004

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Specialization	0.80 [†] (0.46)							0.62 (0.46)
Shareholder Return		-0.14 (0.10)						0.02 (0.06)
S-T Investment			0.00 (0.05)					0.03 (0.04)
Profitability				-5.57** (0.88)				-4.82** (0.78)
Leverage					1.79** (0.43)			1.27** (0.35)
Liquidity						-2.36* (1.11)		-0.72* (0.36)
Firm Size							-0.14 (0.09)	-0.07 (0.06)
<i>N</i>	771	771	771	771	771	771	771	771
<i>Pseudo-R</i> ²	0.08	0.07	0.07	0.18	0.15	0.11	0.08	0.25

** p < 0.01, * p < 0.05, † p < 0.10; two-tailed. Robust clustered standard errors in parentheses; Coefficients for sector dummies not shown.

Table 4.3 Ordered Probit Models Predicting S&P and Moody's Corporate Bond Ratings, 2004

Independent Variable	S&P	Moody's
Specialization	-0.88** (0.20)	-0.88** (0.27)
Shareholder Return	-0.65** (0.15)	-0.92** (0.14)
S-T Investment	-0.08** (0.02)	-0.07** (0.02)
Profitability	5.57** (1.01)	7.34** (1.18)
Leverage	-2.04** (0.65)	-2.41** (0.73)
Liquidity	2.21** (0.82)	1.68** (0.61)
Firm Size	0.60** (0.08)	0.67** (0.09)
<i>N</i>	890	890
<i>Pseudo-R</i> ²	0.33	0.36

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Clustered robust standard errors in parentheses; Coefficients for sector dummies not shown.

Table 4.4 Probit Models Predicting Firm Default by 2011 Using Risk Indicators and Corporate Issuer Ratings from 2004

Variable	No rating	S&P	Moody's
Specialization	0.62 (0.46)	0.32 (0.49)	0.59 (0.57)
Shareholder Return	0.02 (0.06)	-0.07 (0.08)	-0.04 (0.08)
S-T Investment	0.03 (0.04)	0.00 (0.04)	0.04 (0.04)
Profitability	-4.82** (0.78)	-3.32** (0.97)	-3.52** (1.21)
Leverage	1.27** (0.35)	0.98** (0.37)	1.05** (0.29)
Liquidity	-0.72* (0.36)	-0.12 (0.38)	-0.34 (0.60)
Firm Size	-0.07 (0.06)	0.11 [†] (0.06)	0.01 (0.06)
Issuer Rating		-0.17* (0.07)	-0.12* (0.06)
<i>N</i>	771	771	617
<i>Pseudo-R</i> ²	0.25	0.29	0.29

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Clustered robust standard errors in parentheses; Coefficients for sector dummies not shown.

4.8 Appendix

Table A1. Probit Models Predicting Firm Default by 2011 Using Risk Indicators from 2004, with and without Sector Dummies

Variable	Model 1	Model 2
Specialization	0.49 (0.46)	0.62 (0.46)
Shareholder Return	0.04 (0.06)	0.02 (0.06)
S-T Investment	-0.00 (0.05)	0.03 (0.04)
Profitability	-3.83** (0.67)	-4.82** (0.78)
Leverage	1.34** (0.29)	1.27** (0.35)
Liquidity	-0.51 [†] (0.30)	-0.72* (0.36)
Firm Size	-0.04 (0.06)	-0.07 (0.06)
<i>Sector</i>		
Energy		-0.27** (0.05)
Materials		0.33** (0.09)
Industrials		-0.37** (0.03)
Consumer Staples		-0.16** (0.05)
Healthcare		-1.83** (0.30)
Financials		0.09 (0.16)
Information Technology		-1.00** (0.12)
Utilities		-0.93** (0.07)
<i>N</i>	771	771
<i>Pseudo-R</i> ²	0.17	0.25
<i>Wald chi-square</i>	58.6**	---

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Reference sector is “Consumer Discretionary”; Clustered robust standard errors in parentheses (intragroup correlation by sector is allowed).

Table A2. Models Predicting Firm Default by 2011 Using Risk Indicators from 2004, Comparing Probit with Sector Dummies to Logit with Fixed Sector Effects

Variable	Probit	Logit
Specialization	0.62 (0.46)	1.09 (0.76)
Shareholder Return	0.02 (0.06)	-0.02 (0.21)
S-T Investment	0.03 (0.04)	0.05 (0.08)
Profitability	-4.82** (0.78)	-8.83** (1.84)
Leverage	1.27** (0.35)	2.16** (0.70)
Liquidity	-0.72* (0.36)	-1.32 (1.29)
Firm Size	-0.07 (0.06)	-0.14 (0.14)
<i>N</i>	771	771
<i>Pseudo-R</i> ²	0.25	---
<i>Chi-square</i>	---	68.1**

** p < 0.01; * p < 0.05; † p < 0.10; two-tailed. Reference sector is “Consumer Discretionary”; Clustered robust standard errors in parentheses (intragroup correlation by sector is allowed) for probit model.

Chapter 5: Conclusion, Contributions, and Future Directions

5.1 Chapter Review

This dissertation studied the corporate bond rating industry through an institutional lens. The research mostly focused on examining the rating process; specifically, how it is presented, how it has changed over time, and how it may be informed by institutional myths. The dissertation also explored the potential of powerful corporate bond rating agencies to contribute to normative trends in corporate behavior.

In the first chapter, the power of major bond rating agencies (or, NRSROs) in the financial industry was introduced. During the last half century, there has been an increased dependence on bond financing for corporations, an increased reliance on bond ratings in financial regulations, and significant barriers to entry into the industry. This has created an industry dominated by two to three major bond rating agencies that wield incredible power over corporate capital flows. Moody's and S&P's control over three-quarters of the corporate bond rating market (US SEC 2011).

This has implications for the corporations that receive corporate credit ratings. Drawing on neo-institutional theory regarding institutional isomorphism, it was argued that these powerful agencies have the potential to influence the behaviors of the corporations that they rate and possibly contribute to a convergence of behaviors in the field. NRSROs actively sanction those they provide ratings for by condemning or condoning certain practices with lower or higher ratings. Therefore, they could be potentially contributing to normative trends in corporate behavior by promoting some

practices and discouraging others. The neo-institutional literature has demonstrated that organizational fields have experienced convergence of behaviors due to various forms of institutional isomorphism (Ahmadjian and Robinson 2001; Dey et al. 1997; Frumkin and Galaskiewicz 2004; Kraatz and Zajac 1996; Tuttle and Dillard 2007). Major bond rating agencies have been demonstrated to influence organizational behavior with their credit ratings by applying normative pressure via rating upgrades/downgrades (Carpenter and Feroz 1992; 2001; Graham and Harvey 2001; Kisgen 2006; 2009). Therefore they could be potentially acting as agents of institutional isomorphism by promoting normative corporate behaviors contributing to convergence of corporate forms and practices.

Additionally, the first chapter drew on new institutional theories to argue that rating decisions may be informed by rationalized institutional myths. The concentration of power into the hands of only a few NRSROs and the lack of checks by market and governmental forces on the accuracy of corporate credit ratings reduces the accountability of these agencies. It is possible that a decoupling between process and performance has led to the development of certain elements of the rating process that do not significantly contribute to predicting credit risk.

The new institutional literature argues that often, organizational behaviors are guided by institutional rules rather than economic efficiency (Meyer and Rowan 1977). When this is true, certain practices can become viewed as rational and legitimate independent of their outcomes (Dobbin and Zorn 2005; Fligstein 1993; 2000; Zorn 2004). This can be especially true in fields with high uncertainty, or when organizations are backed by “rational-legal orders” like the modern state (Meyer and Rowan 1977).

Therefore, in the highly subjective corporate bond rating industry, there's potential for certain risk factors to become institutionalized as part of the ratings process, independent of their contributions to rating accuracy.

Despite the power held by major bond rating agencies, the first chapter briefly discusses the growing criticism they've been facing over the past two decades. This has led to a crisis of legitimacy whereby rating agencies have been forced to increase transparency, and therefore justify their rating process. This issue is elaborated in the second chapter.

Chapter 2 served multiple functions for this dissertation. First, through a content analysis of rating methodology documents and participant observation of a corporate credit assessment workshop, it identified key corporate credit risk factors used by Moody's and S&P and how they are presented to the public. Many of the risk factors identified were used in subsequent chapters to address research questions regarding institutional isomorphism and institutional myths.

Chapter 2 also discussed the ways in which Moody's and S&P have responded to increasing criticisms and calls for transparency. Both agencies have increased the number of publicly available RCDs over the last 17 years. Increasing pressures for transparency meant that these agencies needed to provide relatively detailed outlines of their rating process including expanded discussions of risk factors and where they fit into the process. This led to the legitimacy paradox in corporate credit rating.

Similar research has shown that in other assessment industries, threats to legitimacy have led to impression management via performance of objectivity (Holm and

Zaman 2012; Power 2003). Auditing firms embrace structured, standardized, reliable approaches to their assessments of financial statements. The content analysis in Chapter 2 demonstrates that Moody's and S&P have been increasingly presenting a structured, standardized, and reliable rating process in order to display objective assessments. However, unlike the auditing industry, it is important for corporate bond rating agencies to rely on less reliably measured assessment factors in order to make the case that they are contributing unique information to the rating process. Another way in which major bond rating agencies achieve legitimacy is by offering expert, insider knowledge. Unfortunately, it is difficult to map this kind of information onto a template that is structured, standardized, and reliable. This is the conundrum these rating agencies face. Moody's and S&P address this issue by acknowledging the subjectivity involved in the rating process, but minimizing discussions of subjectivity and unreliably measured risk factors, while maximizing discussions of the more reliable parts of the rating process. Also, they obscure the flexibility in the rating process by minimally discussing parts in the process that are highly dependent on rater discretion, instead emphasizing the highly structured elements.

Finally, Chapter 2 briefly presented evidence that the rating process itself is changing. It should not be surprising that the rating process evolves. However, during times of intense scrutiny, Moody's and S&P may be changing parts of the rating process in efforts to increase legitimacy rather than performance. The ratings criteria documents clearly placed increasing emphasis on reliably measured risk factors, like those measured

using financial ratios. Therefore, recent changes in the rating process may have led to increased emphasis on reliably measured risk factors when generating ratings.

Chapter 3 addressed the issue of a potentially changing rating process by examining how different types of risk factors have influenced the rating process over time. Using ordered probit models and samples of over 700 firms from 2004 and 2011, Moody's and S&P's corporate issuer ratings were predicted using seven potential risk factors. Four of the risk factors can be characterized as reliably measured: profitability, leverage, liquidity, and firm size. Three of the risk factors can be considered unreliable risk factors in that there is not a uniform, accepted, repeatable way of measuring these risk indicators: firm emphasis on core-competencies, shareholder value, and financialization. Findings demonstrated that while the reliably measured risk factors are significant predictors of issuer ratings in both 2004 and 2011 with relatively stable regression coefficients, the coefficients for the unreliable risk factors are dramatically reduced over time, to the point of losing significance in some cases. This finding is consistent with Chapter 2, and indicates that greater relative weight is being given to more reliably measured risk factors over time.

The main research question being addressed by Chapter 3, however, was whether or not Moody's and S&P are promoting normative corporate behaviors via the credit ratings they produce. The three unreliable risk factors used to predict issuer ratings are widely studied corporate strategies that have become increasingly normative in the last few decades (Dobbin and Zorn 2005; Fligstein 2000; Krippner 2005; 2011). These are also strategies that Moody's and S&P take into account when generating their ratings.

Contrary to hypotheses predicting that Moody's and S&P are promoting these practices, evidence indicates that they are in fact discouraging of these increasingly normative practices and negatively sanctioning those engaging in these strategies with lower credit ratings. They are, however, decreasing the role these risk factors play in their rating process with time. As discussed above, this might be due to a shifting emphasis toward a greater reliance on reliable risk factors.

Chapter 4 attempts to test whether or not the lack of checks on Moody's and S&P's performance, along with the concentration of power in the industry has led to a reliance on institutional myths in the ratings process. The same seven risk factors and a sub-sample of firms from Chapter 3 were used to predict firm performance and likelihood of default, seven years out. The firm data for the risk factors was collected in 2004, which we know from Chapter 3 is a time when both Moody's and S&P were basing their issuer ratings on those seven risk factors: profitability, leverage, liquidity, firm size, specialization (indicating emphasis on core-competencies), total shareholder return (indicating emphasis on shareholder values), and total short-term investments (indicating level of financialization). The firm data from 2004 was used to predict firm performance in 2011 as well as whether or not a firm defaulted by that time. A seven year span was chosen because it is a typical maturity for long-term bond issues. It was discovered that only three of the seven risk factors were significant predictors of default which is the ultimate outcome that bond issuer ratings are attempting to provide information about. Not only were the other risk factors not statistically significant predictors, but they contributed negligible amounts of variance explained. This demonstrates that

rationalizations used to justify certain risk factors that are used in corporate credit assessment are decoupled from empirical reality, and implies that ratings may be informed at least in part by institutional myths about which risk factors are valid predictors of bond repayment.

Reliable risk factors were generally better predictors of default than unreliable ones. Three of the four risk factors categorized as reliably measured were significant predictors of default with independent relationships in the expected directions. None of the unreliable risk factors were significant predictors. This indicates that efforts to increase reliance of issuer ratings on reliable risk factors might be improving the accuracy of the ratings.

Finally, the models in Chapter 4 found that adding issuer ratings from Moody's and S&P into the models predicting likelihood of firm default added very little to the explained variance of the dependent variable. This implies that above and beyond the reliable risk factors and sector dummies (used to control for the variable risk across sectors), the corporate issuer ratings by the "Big Two" bond rating agencies don't improve predictions of default by much.

5.2 Research Questions Revisited

The following research questions were put forth at the end of Chapter 1:

1. What are the key risk factors used by major bond rating agencies when assessing corporate credit, and how are they presented to the public?

2. Are major bond rating agencies promoting normative corporate practices, thereby contributing to institutional isomorphism among corporate firms?
3. To what extent are major bond rating agencies potentially guided by institutional myths and employing risk factors that are poor predictors of credit risk?
4. How have major corporate bond rating agencies responded to the mounting criticism from the past few decades in order to maintain their legitimacy?
5. Has the bond rating process itself changed in response to this criticism?
6. If the bond rating process is changing, does it appear to be embracing institutional myths regarding risk factors or leaving them behind?
7. How valuable is the insider knowledge and expertise of the major corporate bond rating agencies?

This dissertation attempted to answer the seven research questions above. The second chapter addressed the first research question concerning the rating process. The major risk factors used by Moody's and S&P were identified so that they could be used to help answer subsequent research questions. A rough typology was created arguing that some risk factors can be considered "reliable risk factors" (RRFs) because they are measured very reliably using firm financial data (typically financial ratios) in a relatively standardized, consistent manner across the fields of finance and economics. Other risk factors were argued to be unreliable (URFs) because there is no obvious or consistent way to measure these variables. The data used to measure them can vary by industry and by rating agency. Often, they are qualitatively measured and therefore harder to

standardize and incorporate into structured models. Though there is no evidence that one of these types of variables is more or less objective or subjective, risk factors categorized as RRFs were consistently presented as objective by ratings criteria documents and URFs were presented as subjective. The categorization presented here makes no claims about objectivity or subjectivity – only that RRFs are easier to quantify in a consistent manner.

Chapter 3 attempted to answer the second research question regarding whether or not rating agencies contribute to the convergence of normative corporate practices (i.e. institutional isomorphism). Empirical studies demonstrate that bond rating agencies can influence organizational practices. Despite these studies, Chapter 3 found that three major corporate trends that have become more and more normative in recent decades are apparently being opposed by rating agencies. Rating agencies give lower credit ratings (net of covariates) to firms that emphasize core-competencies, shareholder value, and financialization.

Two explanations for these findings were provided. First, it's possible that corporate management has a hierarchy of priorities when making management decisions. Satisfying rating agencies appears to be on that list of priorities (Graham and Harvey 2001). However, when pressure from rating agencies conflict with higher management priorities, they may lose out. This might be happening in the case of firm emphasis on core-competencies, shareholder value, and financialization. One can make a logical argument, at least for firm emphasis on shareholder value, that management's own individual interests might be the determining factor here. If management compensation is tied to shareholder value, than risking a lower issuer rating by pushing shareholder

value might be a totally rational move by corporate managers depending on their hierarchy of priorities. If this is true, then we would expect negative sanctions by rating agencies to go ignored.

Another possible explanation is that inconsistent signaling from rating agencies leads to confusion by corporate managers, who end up making their decisions based on criteria other than the firm's issuer rating. Evidence for this explanation was provided in regards to firm emphasis on core-competencies using public documents called rating action briefs. These briefs publicly justify changes to issuer ratings and issuer outlooks. Examples of inconsistent signaling by Moody's regarding whether or not firms should emphasize core-competencies or diversify their product lines were provided. Both of the explanations given above likely contribute to instances where firms ignore the sanctions of major bond rating agencies.

The third research question is examined in Chapter 4. Evidence was found that at least four risk factors used by Moody's and S&P to generate corporate issuer ratings are not significant predictors of default: firm size, emphasis on core-competencies (or inversely, diversification), emphasis on shareholder value, and level of financialization. The risk indicators used by corporate bond rating agencies when generating corporate issuer ratings are supposed to be indicators of the probability of corporate bond repayment. If they can't contribute anything meaningful to predictions of firm default, then they are useless as indicators of corporate credit risk. This indicates that these two rating agencies might be guided by institutional myths about which risk factors are valid measures of credit risk. It was discussed in Chapter 1 that portfolio theory, a successful

tool for guiding investment behavior in the stock market, was imported into models of corporate governance and led to the emergence of the corporate conglomerate or multi-division firm (Fligstein 1985; 2000). Chapter 2 demonstrated that this logic model has been adopted by the major bond rating agencies, who emphasize the importance of diversification in their RCDs. Based on the models from Chapter 4, product diversification as a means of reducing credit risk appears to be an institutional myth. Though it might be true for specific firms in specific industries, diversification is not a universal significant predictor of long-term default as it is treated by Moody's and S&P when assessing credit risk.

Chapter 2 answered the fourth research question by examining the change in publicly available RCDs over time. It was found that Moody's and S&P have increased the number and detail of their RCDs in response to mounting criticism due to the role that rating agencies played in many of the credit crises of the last two decades. In attempts to reclaim legitimacy, they have increasingly attempted to present their respective rating processes as objective by emphasizing the ways in which they are structured, standardized, and reliable. This appears to be a common means of dealing with threats to legitimacy by organizations who serve the function of providing assessments.

Chapter 2 went on to address the fifth research question by arguing that the rating process itself is likely changing due to mounting criticism. S&P admits to overhauling their rating process in 2013, and claims that some of their outstanding corporate issuer ratings were adjusted because of this. However, Chapter 2 could only speculate how the rating process was changing based on how the presentation of the rating process by RCDs

changed in the past two decades. The models in Chapter 3 provide empirical support for this claim by demonstrating that major RRFs have remained prominent in generating issuer ratings at Moody's and S&P between 2004 and 2011. Meanwhile, certain URFs seem to have lost favor and are given less relative weighting in the ratings process. This is consistent with the explanation that in response to criticism from outside parties, these agencies have not only increased emphasis on reliable risk factors in their presentation of the rating process, but in the actual rating process as well.

The sixth research question was jointly addressed by Chapters 3 and 4. In Chapter 3 it was demonstrated that rating agencies are relying more heavily on RRFs with time. In Chapter 4, it was found that the RRFs are the more valid indicators of credit risk. This implies that rating agencies are potentially increasing the accuracy of their corporate issuer ratings. It may be the case that Moody's and S&P are fully aware of the superiority of certain risk factors and therefore have been altering their ratings in attempts to improve them. However, the models in Chapter 3 show that some of the URFs that were demonstrated to be poor predictors of default continued to be significant or marginally significant by 2011. Similarly, though firm size is not a significant predictor of default and a negative predictor of future performance, Moody's and S&P continue to use it as an indicator of creditworthiness. It is more likely that increased criticism of the industry and calls for transparency forced rating agencies to emphasize reliable indicators in their rating process. As it turns out, most of the key RRFs (profitability, leverage, and liquidity) happen to be better predictors of credit risk than some of the URFs that are being de-emphasized.

However, this brings us back to the legitimacy paradox in corporate credit rating. Rating agencies should be bringing a lot to the table when it comes to corporate credit assessment given their annual profits. They currently employ incredibly complex models filled with dozens of risk factors to generate credit ratings. They also charge incredible sums to bond issuers in order to provide them a rating (Faux 2011; Moody's 2014). But many of the reliably measured factors, particularly the ones based on financial ratios, can easily be calculated and used in models by anyone with access to a few firm financials. If these factors make up the bulk of the predictive power of corporate issuer ratings, then how much is gained by the insider, expert knowledge of the major bond rating agencies? This is essentially the final research question and the final set of models in Chapter 4 provides us with a rough answer. When Moody's and S&P's issuer ratings are added to the models predicting default, they are of course significant predictors. This implies that there is other information about credit risk that they provide that isn't accounted for in the default models from Chapter 4. This should not be surprising, because only a handful of risk factors were tested. The surprising part is how little the addition of the issuer ratings contributes to the explained variance of default. The overall model only improves by 16%¹. And we know that the only significant contributors to the variance explained are the RRFs (specifically profitability, leverage, and liquidity) and the sector variables. This tells us that beyond a few easily reproducible credit risk indicators, the rating agencies contribute very little extra to the rating process.

¹ The Pseudo-R² increases from 25% to 29%. $100 * 4/25 = 16\%$ improvement.

5.3 Discussion

5.3.1 Accountability: The Major Problem with the Bond Rating Industry

One of the main problems that most critics have with the financial rating industry is the lack of accountability faced by the major players in the industry. This has been improved in the past decade, as criticism continues to mount. Moody's and S&P have both been sued by multiple parties for their roles in the credit crisis of 2008, and both have had to settle financially. It should be noted, however, that S&P's recent settlement with the Department of Justice (the largest ever for a rating agency), for \$1.38B, is only a little more than half of their 2013 revenue (Davidson et al. 2015). It's likely that they still made a nice profit on their illegal dealings in the years leading up to 2008.

The lack of accountability has in large part been due to lack of regulations on these agencies. There has been recent work by Congress to push towards an increase in monitoring of their behavior (US Congress 2010), which will potentially reduce deviant activity. However, lack of accountability doesn't just breed deviance. It allows for institutional myths to be perpetuated. Though major financial rating agencies like Moody's and Standard & Poor's are currently facing heightened scrutiny, the spotlight has focused on individual instances of malfeasance as the cause for concern (Taibbi 2013). This dissertation has taken a structural approach and demonstrates that the disconnection between particular risk factors being used by these agencies and likelihood of firm default might also be a cause for concern, potentially undermining the financial rating system.

Though lack of accountability in part stems from insufficient regulation of the industry, there is also a lack of checks from the market. In 1975, the SEC made a rule that in order for banks to count bonds at face value on their books, the bonds must be rated by at least two NRSROs (King and Sinclair 2003). It is probably not a coincidence that at the time, only two agencies (Moody's and S&P) controlled almost the entire market. If the law called for ratings from three NRSROs or maybe even more, this would have created room for additional competition². If the law called for ratings from only a single NRSRO, this would have created more competition between the Big Two. But instead, it kept a steady supply of customers headed towards both Moody's and S&P without actually forcing them to compete. As discussed in Chapter 1, the lack of a formal method of attaining NRSRO status until 2007 created additional barriers to entry that continued to perpetuate market concentration and minimal competition. Moody's and S&P acted not so much as competitors, but more like business partners as they fought against formal definitions and requirements for NRSROs (Sinclair 2005).

One of the leading criticisms of the financial rating industry is that it follows the "issuer payer" model (vs. the "subscriber payer" model). In the 1970s, when issuers began to be legally coerced into getting at least two ratings from NRSROs, the industry shifted toward a payment model where the bulk of profits for rating agencies came from the issuer, who paid to be rated. Prior to that, profits for rating agencies came mostly from subscribers, or those that used the ratings to make investments (Alessi et al. 2013). Many critics complain that this has the potential to lead to inflated ratings, as NRSROs

² Fitch Ratings has actually become reasonable competition in the decades that followed, but remains a distant third at best (Sinclair, 2005).

known to give better ratings should draw more customers and more profits. However, studies show that there isn't evidence for this effect (Covitz and Harrison 2003).

Regardless, the issuer payer model, like market concentration, reduces the amount of checks on rating agencies by market mechanisms. Those that are hurt by a poor product (i.e. inaccurate ratings) are investors, who are no longer the influential customers of these agencies. By shifting the payment model, NRSROs have successfully unloaded much of their accountability to those reliant on the accuracy of their product.

Another factor leading to lower levels of accountability in the financial rating industry is the need for opacity in the rating process. Though there has been a dramatic increase in transparency in recent decades, much of the ratings process is described rather vaguely. Though Moody's is fairly explicit in their discussions of their rating grids, there is hardly any discussion of the factors outside of the grid which have a major impact on issuer ratings. S&P is even more cryptic about their rating process only roughly detailing the different steps and modifiers of their "corporate criteria framework" flowchart. Given their situations, the rating agencies should not be blamed for the continued opacity of much of their rating processes. They are trying to maximize profits just like every other corporate entity and yielding information also yields competitive advantage. In discussions of the paradox of corporate credit assessment, it was alluded to that rating agencies must keep some secrets or their methods can be replicated, probably fairly cheaply, by either government regulating bodies or by investors trying to assess risk. This implies that the for-profit model of credit ratings itself, at least the way it is currently designed, partially contributes to accountability issues in the industry.

5.3.2 Alternative Rating Industry Models

In order to address these issues of accountability, there needs to be changes in the financial rating industry. Increased monitoring of these agencies by government entities (e.g. SEC) will likely have some positive impact. However, though this should increase the likelihood that the rating process remains more or less “kosher,” evidence from this dissertation suggests that definitions of what it means to be “kosher” might be subject to institutional myths. Until the rating methodology itself is held accountable, rather than just the rating analysts, there is cause for concern.

Organizational scholars often speak of two ideal types for social organizing that fall on ends of a continuum: pure markets and pure hierarchies. We know that organizations are complex and don’t fall into one of these categories or the other (Powell 1990). However, in the case of the rating industry, it appears that a shift toward either pole would be beneficial.

One solution is to increase competition in the industry creating a “freer” market. First, there would need to be competition between rating agencies for customers, so a shift back to the subscriber payer model (probably the most obvious and publicly supported change) would probably be necessary. Potential competitors would need to be granted legitimacy by customers and regulators. The State of New York was apparently influential in the rise of Fitch by going with them for bond ratings in the 1990s (Sinclair 2005). Or, the government could take what are often considered extreme measures and break up the largest of financial rating agencies. With greater competition and financial sanctioning by customers, transparency shouldn’t be necessary at all, and the market

should potentially reward better performers. This would increase the accuracy of ratings and potentially weed out institutional myths that at least partially guide the rating process. Though most sociologists agree that not even the most “free” of markets are purely rational and efficient, increased competition would likely improve accountability in the financial rating industry.

Alternatively, and much more radically, a transition to a publicly run financial rating industry could potentially eliminate many of the issues that currently plague it. A single bureaucratic organization could rate all financial issues eliminating the inefficiencies of the need for multiple ratings. The elimination of the pursuit of profit could potentially eliminate many of the incentives for corruption and the widespread deviant behavior that contributed to the crisis of 2008. Full transparency of the rating process could exist which would allow outside analysts to weigh in on credit assessment decisions and risk factors could be constantly evaluated in order to limit the influence of institutional myths. Though the state would be taking on a large financial burden, they could collect fees from issuers who are being rated and from investors that want access to ratings. This would be similar to how the system is currently running, but could be potentially cheaper for issuers who currently pay two exorbitant fees (starting at \$73,000; Faux 2011) to rating agencies who reap massive profits. Additionally, the potential to avert credit crises like those that have occurred repeatedly in the past two decades could save the major world economies enough to carry this added financial burden. Critics of government agencies might argue that this financial rating entity would become bloated, corrupted in other ways, and guided by its own myths, but there should be no reason to

throw this idea out without consideration. Especially since the current industry already displays these characteristics. We do not entrust the safety assessments of the food industry to a for-profit oligopoly whose customer base is made up of the food producers being scrutinized. Does it make sense to entrust the safety assessments of our credit investments to one?

5.4 Contributions, Future Directions, and Limitations

This dissertation makes many contributions to our understanding of powerful bond rating agencies as well as to the organizational literature in sociology. One of the major contributions of this research is the evidence undermining certain risk factors employed by Moody's and S&P when generating corporate issuer ratings. These findings suggest that there are likely rationalized institutional myths guiding some parts of the corporate credit assessment process. This is an important finding because it demonstrates that inefficiencies likely exist in the bond rating market independent of the deviant instrumental behaviors of individuals. Additionally, it was discovered that rating agencies are not contributing much more to the predictive power of firm default than the easily constructed RRFs of profitability, leverage, liquidity. These findings demonstrate the structural consequences of insufficient accountability and suggest that changes to the industry are necessary.

Another major finding of the dissertation is that even though there has been a significant consolidation of power in the bond rating industry, whereby two to three

major agencies control almost the entire market and experience very little accountability, they are not as powerful as many critics might believe.

First off, a series of credit crises over the last two decades has generated mounting criticism of the financial rating industry. This has led to increased transparency by the major bond rating agencies which is a concession that they have made in an effort to retain legitimacy. Further, they have embraced a performance of objectivity whereby both firms have increasingly presented the rating process as structured, standardized, and reliable. By presenting an objectivated rating process, the subjectivity that goes into corporate credit assessment is minimized, and the flexibility given to the analysts in order to produce the ratings is obscured. This in turn appears to have influenced the rating process itself, which was more reliant upon the major reliable risk factors identified in the ratings criteria documents in 2011, than in 2004. These findings imply that major bond rating agencies, despite their power in the industry, have been forced to alter their presentation of self and their procedures in response to critics.

Interestingly, it was discovered that the changing rating process is likely a good thing, in that it should be improving the accuracy of ratings. This research provides evidence that the major reliable risk factors employed by these agencies when generating ratings are more effective at predicting firm default than some of the less reliable risk factors that they use. As Moody's and S&P increasingly emphasize these reliable risk factors in their rating process to project objectivity, they are likely making their ratings more reflective of credit risk. This is an example of how increasing criticism of organizational practices can lead to a scramble for legitimacy, deinstitutionalization of

specific practices (i.e. reliance on certain URFs), and ultimately better alignment between process and performance.

These findings contribute to the literature on deinstitutionalization. The process of the diminishing role of certain risk factors in the rating industry appears to be an instantiation of a particular antecedent found in Oliver's (1992) theory of deinstitutionalization. Mounting political pressures have led to a performance crisis which has led to the deinstitutionalization of specific practices. However, unlike in Oliver's model, this appears to have happened on the industry, or environment level, rather than on the organizational level. The industry as a whole, rather than a specific firm, is responding to pressures arising from a performance crisis. In efforts to restore perceptions of the "value or legitimacy of an institutionalized organizational activity," specifically the rating process, bond rating agencies have adopted more reliable, and what are perceived to be more objective, practices (Oliver 1992:570).

The great irony that this dissertation presents is that in their attempts to retain legitimacy, Moody's and S&P are altering their practices in a way that undermines their contributions to the industry. One possible response to mounting criticism would be to dig in their heels, argue that increasing transparency isn't necessary, and that other than their failure to predict a few systemic anomalies, they have been relatively accurate with their predictions. Rating agencies do publish research demonstrating that default is significantly correlated to their issuer ratings, which demonstrates that ratings are indeed useful. This may have been their approach to the limited criticism they've received for most of the 20th century in which they provided relatively little transparency of the

ratings process and were viewed as expert arbiters of instrumental knowledge existing external to the financial industry (Sinclair 2005).

However, in the past two decades, and especially since 2008, they've dramatically increased transparency, and increasingly emphasized reliable risk factors in their rating process likely in response to what is almost certainly the highest level of criticism the industry has ever received. In the process, they have apparently de-emphasized many of the less reliable factors that represent their unique contributions to corporate credit assessment. This means that it has become easier for other parties to replicate their process, which in part undermines their function in the world of credit assessment.

This research demonstrates that rating agencies aren't as powerful as they seem in another way as well. Despite indications that S&P and Moody's influence the behaviors of the organizations that they rate, this research finds that these firms are not contributing to the growth of certain normative corporate practices – in fact, they oppose them. It was hypothesized that powerful bond rating agencies, using credit ratings as sanctions, might be acting as agents of institutional isomorphism by driving normative corporate practices. It was discovered instead that Moody's and S&P negatively sanction three specific normative corporate practices that have been studied in the organizational literature. Despite their very real sanctions (engaging in these behaviors results in significantly lower ratings), firms have been either unaware or ignoring this fact, undermining the power of credit rating agencies in the financial industry.

This finding contributes to the literature on institutional isomorphism as well. Beckert (2010) uses institutional theory to demonstrate that many of the pressures leading

to isomorphism can also lead to divergence of practices in a field as well. Beckert argues that the “attraction” of institutional models to institutional entrepreneurs is a driving force behind both convergence and divergence. He argues that different institutional models can be differentially attractive to different social actors and considered “a rational institutional form, in the sense that it best serves their particularistic material or ideal interests or the functional fulfillment of a task set for the institution” (Beckert 2010:156). Though Beckert uses cross national examples, this research provides support for this theory on the organizational level. It appears that corporate managers pick and choose between institutional models of rational firm behaviors. At times, their models align with those of major bond rating agencies (Kisgen 2006; 2009). At other times, when conflicting interests exist, their rationalizations might diverge from major bond rating agencies. This might explain why there is a divergence in views between bond rating agencies and corporate management regarding emphasis on core-competencies, shareholder value, and financialization.

Apparently, there are competing logics in the world of finance. Among corporate management, embracing normative practices such as firm emphasis on core-competencies, shareholder value, and financialization is rational and efficient, leading to increased profitability, growth, and ultimately long-term survival. However, major bond rating agencies appear to agree with organizational scholars that are critical of these practices. By negatively sanctioning these corporate behaviors, Moody’s and S&P are demonstrating that they believe these practices to be detrimental to the long-term survival of firms. This is evidence of “embedded rationality.” What is rational in a given sector,

organizational niche, or region of a social network is likely a function of the prevailing local institutional logics. Definitions of rationality are also dynamic as demonstrated by the decreasing emphasis on URFs in the rating process over time.

Future research by the author will attempt to identify how these rationalized myths emerged, and where they came from. Through contacts made at a corporate credit assessment workshop, the authors plans to interview employees at one of the major bond rating agencies, including rating analysts, in order to isolate the rationale behind these agencies' wariness of specialization, shareholder return, and financialization, despite the lack of empirical evidence demonstrating a connection between these factors and default.

Additionally, further evidence will be gathered in regards to the inconsistent signaling by major bond rating agencies in their publicly released rating action briefs. As discussed above and in Chapter 3, rating action briefs are used by bond rating agencies to justify changes in opinions about firms or changes to the ratings of firms. These documents are likely the major way in which firms communicate to the corporate world which behaviors they condemn and condone. Inconsistent signaling likely causes confusion surrounding institutional norms in a field and disrupts socialization processes. This phenomenon may be one of the leading mechanisms of attenuation of institutional isomorphism limiting the spread of certain institutional practices in organizational fields.

One of the major limitations of this research is that it only focuses on Moody's and S&P while ignoring Fitch Ratings. Though Moody's and S&P have produced over three-quarters of outstanding corporate bond ratings, Fitch is definitely a significant competitor. However, given the isomorphism between the rating process and the issuer

ratings of the Big Two (Pearson's R is 0.91), it would be surprising if Fitch's RCDs and ratings were dramatically different.

Another limitation is in regards to the statistical models in Chapter 3 and 4. Due to data limitations, only seven risk factors were operationalized. Certainly, based on findings from Chapter 2, there are other important factors that were not included in the models such as corporate governance and management strategy (though it should be noted that the three URFs tested in Chapters 3 and 4 are actually indicators of specific governance strategies). There are likely many URFs that aren't discussed at all in the RCDs as well. As evidenced by the added contribution of issuer ratings to the default models in Chapter 4, there are factors accounted for by rating agencies that were left out of the models. That being said, the additional variance explained by the issuer ratings was minimal.

A final limitation of this research is its emphasis on broad cross-industry risk factors especially while it criticizes the value-added of issuer ratings. One of the major criticisms of major bond rating agencies in this research is that beyond the obvious financial ratios included in their assessments, they contribute very little else to predictive models of firm default. However, there may be certain industries for which rating agencies contribute a considerable amount of additional predictive power to models of default that are washed out in the sector-wide models used in Chapters 3 and 4. Future models might investigate which industries receive more accurate ratings as well as in which industries issuer ratings contribute considerably more to the variance of firm default than the RRFs.

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