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The Center for the Study of Financial Regulation at the University of Notre Dame has as its mission to promote sound economic analysis of current and proposed financial regulation. Poorly conceived financial regulations can impose large costs on the economy and may harm America's leadership in the financial industry by driving financial transactions offshore. We believe that more independent economic analysis of financial regulation is needed.

If you have comments on this newsletter please contact the Center's Director, Paul Schultz, at pschultz@nd.edu. We welcome your input, advice and suggestions.

COUNTERPARTY RISK AND THE ES- TABLISHMENT OF THE NEW YORK STOCK EXCHANGE CLEARINGHOUSE

By Asaf Bernstein

On September 14th, 2008 dealers from every major Wall Street firm involved in the \$600 trillion over-the-counter (OTC) derivatives market came into work on a Sunday for an unprecedented emergency trading session. The goal? A frantic effort the day before Lehman Brothers declared bankruptcy to try and net counterparty risk in bilateral over-the-counter contracts and limit the knock-on losses of Lehman's collapse on other financial institutions. Lehman's global OTC derivatives position at the time was estimated at \$35 trillion in notional, which included being a counterparty in 930,000 derivatives transactions representing \$24 billion in counterparty liabilities. This ad-hoc attempt at clearing was described by market participants as "a bust", with very little successful netting prior to Lehman's bankruptcy filing. The result was an unprecedented rise in counterparty risk, contagion, and financial instability among global financial market participants.

The collapse of Lehman Brothers and the subsequent spillovers brought the role clearinghouses could play in reducing market turbulence to the forefront of public policy debate. In particular, policymakers in the United States and European Union have tried to address counterparty risk concerns not only by substantially increasing counterparty risk-based capital requirements for banks with Basel III, but also by

mandating centralized clearing of the majority of OTC derivatives via the Dodd-Frank and European Markets Infrastructure Regulation Acts. Despite the response of policymakers, theoretical research on the effect of centralized clearing on market stability are ambiguous and empirical identification of the effect of centralized clearing on counterparty risk is challenging since the introduction of centralized clearing tends to occur at the same time as major macroeconomic disturbances. For example, when some securities markets introduced clearinghouses following the recent financial crisis and those asset prices rose, it is hard know whether the price increases were caused by the introduction of a clearinghouse or a general improvement in fundamental value coming from the market recovery.

Fortunately, history provides a novel experiment to study the effects of a clearinghouse on counterparty risk where we can directly control for fundamental value. During the late 19th and early 20th centuries, the Consolidated Stock Exchange (CSE) was a major stock exchange just across the street

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OVERALL, OUR RESULTS INDICATE THAT CLEARINGHOUSES CAN PLAY A SIGNIFICANT ROLE IN IMPROVING MARKET STABILITY AND INCREASE ASSET VALUES BY REDUCING NETWORK CONTAGION AND COUNTERPARTY RISK. *Continued*

"Overall, our results indicate that clearinghouses can play a significant role in improving market stability and increase asset values by reducing network contagion and counterparty risk."

from the New York Stock Exchange that traded many NYSE-listed securities, and averaged more than a 50 market percent share during the 1890s. While the CSE netted stock transactions, without mutualization of risk, through a clearinghouse as early as 1886, the NYSE did not until May of 1892. In a recent research paper with Hughson, Weidenmier (2014)¹, we examine the change in counterparty risk of NYSE stocks after the introduction of a clearinghouse in 1892, by comparing them against identical securities listed just across the street on the CSE.

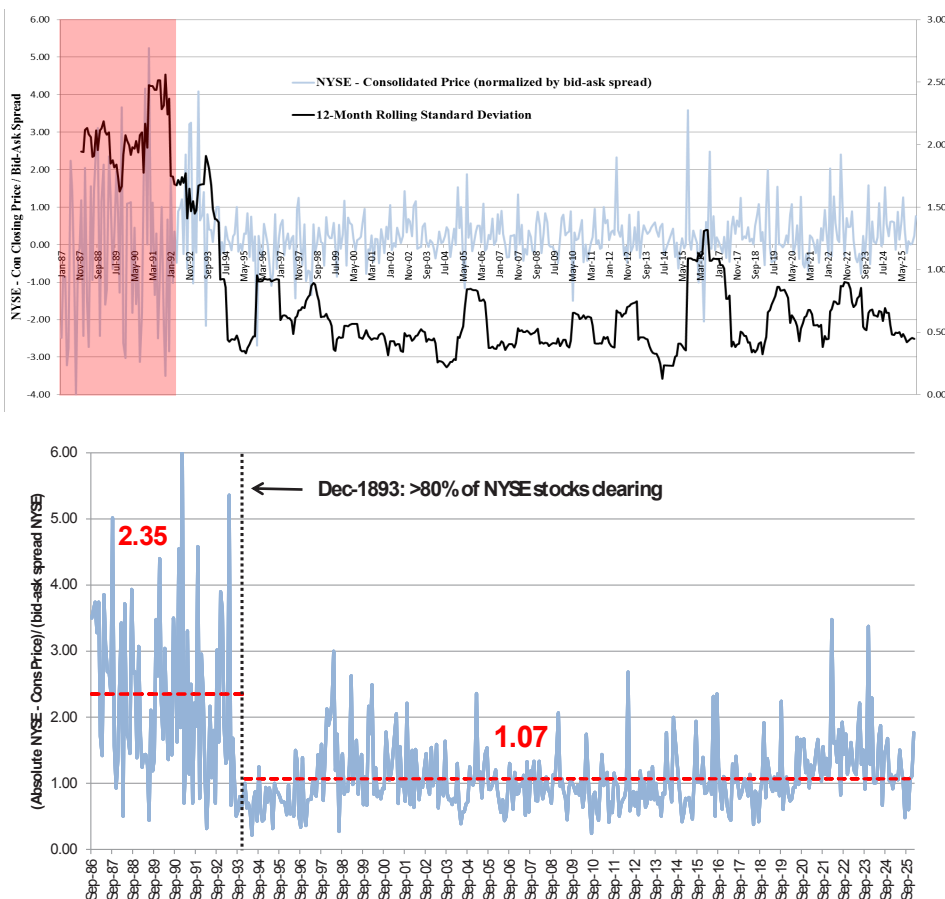
We find that the introduction of netting on the NYSE increased the value of stocks relative to the CSE by 24bps. Just like today, brokers had to fund positions overnight, so daily borrowing rates were a major determinant of counterparty risk and this price spread. Prior to the introduction of clearing, a one standard deviation (3.7 percentage point) increase in the overnight collateralized borrowing rate for brokers, also known as the call loan rate, is associated with an 8bp decline in the value of a stock on the NYSE relative to the identical security on the CSE. After the introduction of clearing, shocks to the call loan rate no longer affect prices on the NYSE relative to the CSE, suggesting a decline in the volatility of NYSE prices. Consistent with this prediction, we find that relative to the CSE, annualized NYSE return volatility is reduced by 90-173bps immediately following the introduction of clearing and remains low, even during financial crises, in the subsequent 34 years. This is especially striking in figures 1 and 2 which show the rolling standard deviation of price deviations and the average absolute value of price deviations, respectively. Both figures suggest that volatility from counterparty risk fell dramatically once the majority of securities on the NYSE traded

through a clearinghouse and stayed low throughout the subsequent crises of the late 19th and early 20th century.

Clearing on the NYSE was also introduced in stages, so we examine the staggered introduction and find that at least half of the average reduction in counterparty risk is driven by a reduction in contagion risk through spillovers in the trader network. In other words, counterparty risk in security A falls, even though it isn't cleared yet because other assets clear and your counterparty now faces less counterparty risk on those other transactions which could spill over into his ability to pay your security A transaction. We run a series of robustness tests to demonstrate that our results are driven by changes in counterparty risk

coming from the introduction of clearing, rather than changes in asynchronous trading, market liquidity improvements on the NYSE, a decrease in market liquidity on the CSE, or financial crises. Our results do not hold, however, without using the CSE as a control, demonstrating the importance of controlling for macro-economic changes in fundamental value and volatility co-incident with the introduction of a clearinghouse. We also find that the introduction of the mutualization of risk by the clearinghouse, which made the NYSE clearinghouse a centralized counter party (CCP), in April of 1920 does not alter the benefits found from the introduction of centralized clearing with multi-lateral netting in 1892.

Overall, our results indicate that clearinghouses can play a significant role in improving market stability and increase asset values by reducing network contagion and counterparty risk. Two of the primary functions of clearinghouses are netting



OVERALL, OUR RESULTS INDICATE THAT CLEARINGHOUSES CAN PLAY A SIGNIFICANT ROLE IN IMPROVING MARKET STABILITY AND INCREASE ASSET VALUES BY REDUCING NETWORK CONTAGION AND COUNTERPARTY RISK. *Continued*

and mutualization of risk. We demonstrate that even in the absence of a centralized counterparty, policies aimed at introducing a centralized clearinghouse can improve global financial stability. ■

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¹Paper is available at SSRN: Bernstein, A., Hughson, E. N., and Weidenmier, M., 2014, Counterparty Risk and the Establishment of the New York Stock Exchange Clearinghouse, Working Paper, NBER, No. 20459.

CORPORATE GOVERNANCE AND THE CREATION OF THE SEC

By Henrik Cronqvist

Turmoil in financial markets – whether the Panic of 1826, the Wall Street Crash of 1929, or the Global Financial Crisis of 2008 – often raises significant concerns about the effectiveness of pre-existing securities market regulation. In turn, such concerns tend to result in calls for more and stricter government regulation of corporations and financial markets.

Before the creation of the SEC, corporate governance among US publicly listed companies was largely deferred to private markets. Corporate governance may also come in the form of government-sponsored governance. For example, the State of New York passed general incorporation law as early as the 19th century. State-level securities regulation was first adopted by the State of Kansas in 1911, and by 1931 all US states except one had implemented so-called “blue sky laws” (eg Agrawal (2013)). As for federal securities market regulation, it was limited to the Clayton Antitrust Act of 1914 which contained provisions that were

designed to force investment bankers sitting on railroad company boards to resign or stop providing services to these companies (e.g., Frydman and Hilt (2013)).

Most would agree that the Securities Act of 1933, which was a response to the Wall Street Crash of 1929, and the subsequent creation of the Securities and Exchange Commission (SEC) to enforce it, is still the most significant change to the US financial regulation in the past 100 years. At least two conclusions emerge from previous studies of the creation of the SEC. First, there is no consensus about the economic effects of the creation of the SEC. Second, there are no previous studies of the effects of the SEC creation on corporate governance and firm valuations. These gaps in the current literature are what motivated a study by Arevik Avedian, Marc Weidenmier and myself.

The general observation that securities markets in the US were subject to many potentially important sources of corporate governance already before the SEC creation results in two hypotheses which we confront empirically in our new paper titled “Corporate Governance and the Creation of the SEC”. One view is that there was insufficient provision of market-based governance in US securities markets before the creation of the SEC. Under this hypothesis, the creation of the SEC was an exogenous increase in the supply of government-sponsored governance that may resolve a market failure and improve the governance and valuation of publicly listing companies in the US. An alternative hypothesis is that there was already sufficient provision of corporate governance mechanisms.

Our empirical identification approach makes use of an important feature of the regulatory change: The SEC effectively took the NYSE listing standards at that time, converted them into federal law, and applied them to all US firms on all regional stock exchanges (i.e., both NYSE and non-NYSE firms were governed by

the same regulation post-SEC). This approach to the regulation change resulted in a quasi-natural experiment which we exploit in this study. Specifically, non-NYSE listing firms are in the treatment group because they were affected by the regulation and NYSE listing firms are in the control group because they were not affected as they had to comply with the listing standards of the NYSE even during the pre-SEC period. As a result, we may compare the difference in board governance and firm valuations for affected (non-NYSE) firms and non-affected (NYSE) firms before and after the SEC. The difference of those differences is our empirical estimate of the regulation’s effect on the studied governance and valuation measures.

We find that the creation of the SEC resulted in a large and statistically significant reduction in board and chairman independence among affected non-NYSE listing firms. Our estimates reveal that there was a 30 percent reduction in board independence, i.e., one of the most significant effects of the creation of the SEC was to cause the boards of affected firms to become less independent. That is, an independent board and an independent chairman appear to have been more valuable in the pre-SEC era compared to in the post-SEC period. There is also some evidence that board governance was affected more broadly. For example, the creation of the SEC resulted in larger boards and less local director monitoring, but these results are weaker than the board independence results. These results are robust using a variety of model specifications and robustness checks and controlling for

“... our evidence is consistent with a “substitution of governance mechanisms” hypothesis where firms endogenously trade off market-based and government-sponsored governance.”

the 1929 Wall Street Crash and the ensuing Great Depression.

Did the creation of the SEC accomplish anything that firms could not already have attained with respect to corporate governance? In fact, our findings suggest that the creation of the SEC may have imposed “too much” governance on some firms, and many offset the governance pressure imposed on them. Before the SEC, an independent board was an important governance mechanism to reduce asymmetric information when selling new equity issues to investors, as independent directors may provide a more credible signal of the quality of the firm. After the SEC, this benefit was significantly smaller because of the disclosure rules of the 1933 Act, and the results suggest that firms changed their board governance designs in response to the new regulation.

In fact our evidence is consistent with a “substitution of governance mechanisms” hypothesis where firms endogenously trade off market-based and government-sponsored governance. These results are broadly supportive of the endogenous nature of corporate governance, as previously argued by, e.g., Demsetz and Lehn (1985) and Hermalin and Weisbach (1998, 2012). The evidence of a substitution effect suggests that it is not clear that firm valuations should be significantly affected by the creation of the SEC.

What does our evidence suggest about the importance of the creation of the SEC? On the one hand, our results suggest that the regulation had a significant effect on listing firms’ board governance design. On the other hand, did the creation of the SEC accomplish anything that firms could not already have attained on their own? Our board governance findings suggest that it is not clear that firm valuations should be significantly affected by the creation of the SEC. Indeed, in our search for firm valuation effects, we found no significant effects on firm valuations. Our evidence suggests that the creation of the SEC may have imposed “too much” governance on some firms, but that they were able to offset the

additional governance imposed on them. So while the creation of the SEC did seem to broadly affect corporate governance design among listing firms in the U.S., it is much less clear that the regulation added any significant value for listing firms.

Drawing parallels to today’s debates, our findings may provide guidance for financial regulation and are of interest to a broad set of financial economists, legal scholars, and public policy makers. One implication of our evidence is that governance reforms are inherently difficult, or perhaps even impossible, if firms are able and allowed to freely change their corporate governance designs. Our evidence suggests that encouraging, rather than suppressing, a diversity of market-based governance mechanisms across stock exchanges (e.g., differential listing standards resulting in sorting of firms depending on firm and investor preferences) as well as across countries and states in the U.S. (e.g., differential blue sky laws endogenously shaped by listing firms’ and investors’ preferences) may result in more competition related to efficient governance design, and in the end more value creation. Imposing the same federal securities regulation on all firms, with an implicit assumption that “one size fits all,” may not be expected to result in any substantial firm valuation improvements. This is a relevant conclusion even many decades after the 1933 Act and the creation of the SEC. ■

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IS FRAUD CONTAGIOUS? CAREER NETWORKS AND FRAUD BY FINANCIAL ADVISORS

Stephen G. Dimmock, William C. Gerken, and Nathaniel P. Graham

Financial advisors guide the investment and saving decisions of many households; Hung et al. (2008) report that 73% of individual investors use a financial advisor for investment decisions. The U.S. financial advisory industry advises trillions of dollars in assets and generates billions in revenues (more than \$98 billion in 2013 according to the Securities Industry and Financial Markets Association). The low financial literacy that creates such demand for this industry also creates an opportunity for misconduct by unscrupulous advisors, as households are unable to judge the merits of advice. Further, the highly incentivized commission based compensation schemes used in the industry create significant incentives for misconduct.

The evidence suggests that a meaningful number of advisors take advantage of these opportunities. Over the last two decades, the chief self-regulatory agency, Financial Industry Regulatory Authority (FINRA), reported thousands of incidents each year with an average aggregate annual value of fines, settlements, and arbitration awards due to misconduct by financial advisors of \$519 million. To put this in perspective, the average aggregate annual value of settlements due to public company fraudulent financial reporting (e.g. high-profile frauds at Enron, WorldCom, etc.) over the same period is a comparable \$527 million (Karpoff, Lee, and Martin, 2008). Understanding the mechanisms driving financial advisor fraud is important for households that invest through advisors as well as for regulators who monitor this industry.

**"We show that the propensity to commit fraud
is transmitted through social networks."**

One plausible mechanism is contagion. An individual's behavior is heavily influenced by the behaviors of their peers. The influence of others' behavior is especially strong among individuals who are similar. The effects of social learning occur for socially desirable behaviors, but also for deviant behaviors. For example, consider the case of Stratton Oakmont, which quickly earned a reputation as one of the worst boiler rooms in the financial advisory industry. Within a year of the firm's expulsion from the industry, financial advisors at several firms founded by Stratton Oakmont alumni, including employees who had never worked at Stratton Oakmont itself, were caught engaging in similar activity. Although only a small fraction of financial advisors ever commit fraud, many of the advisors who do are linked through their employment histories. Indeed, recognizing that career linkages are related to fraud, FINRA has additional regulatory requirements for any advisory firm that employs a significant number of alumni from disciplined firms.

Although anecdotal evidence suggests that fraud is correlated within career networks, empirically identifying whether career networks influence the propensity to engage in fraud is difficult. Career networks are self-selected; people usually associate with others that possess similar characteristics. For example, dishonest financial advisors may select an employer that encourages dishonest behavior. As a result, observational studies struggle to disentangle whether behavioral similarity within a network is the result of influence through interpersonal networks or the formation of ties due to similarity of individual characteristics.

In our paper (Dimmock, Gerken, and Graham, 2015), we test whether fraud is transmitted through career networks. To avoid the problem of self-selection in network formation, we use changes to career networks caused by mergers of financial advisory firms (i.e., the change in co-workers that occurs following a merger). The key to

avoiding biases due to self-selection is that mergers occur at the national firm level, but changes in co-worker networks occur within firms at the local branch level.

For illustration, consider a merger between two hypothetical firms: Acquirer Firm has branches in Atlanta, Boston, and Chicago. Target Firm has branches in Boston, Chicago, and Detroit. When the firms merge, the branches in Boston and Chicago are combined, and the branches in Atlanta and Detroit remain unchanged. Suppose that the financial advisors at the Boston branch of Acquirer Firm have a history of fraudulent behavior, and the advisors at all other branches of both firms have clean histories. Thus, following the merger there are changes to the career networks of the advisors at the Boston and Chicago branches (of both Acquirer Firm and Target Firm). However, only the career networks of the advisors from the Boston branch of Target Firm have changed to now include individuals with a history of fraud (the advisors from the Boston branch of Acquirer Firm). The empirical question, then, is whether following the merger the advisors from the Boston branch of Target Firm are more likely to commit fraud all else equal. Our tests exploit the across-branch variation and the impact of combining branches during a merger—while removing all effects at the firm level—which addresses the most obvious concerns about self-selection.

Our results support the idea that fraudulent behavior can be transmitted through career networks. We show that the probability an advisor commits fraud increases if the new co-workers he encounters due to the merger include people who have previously committed fraud. These results hold even after conditioning on a host of factors associated with the propensity to commit fraud including the advisor's own history and the history of the advisor's pre-merger co-workers.

Next, we test how various factors amplify the effect of networks on financial advisors' propensity to commit fraud. Prior studies show that network effects are stronger between demographically similar individuals. Although we find evidence of network effects across all financial advisors, the effects are stronger among advisors who are of a similar age or ethnicity. We also find that a position of authority in the network matters; the effect is greater when the fraudulent co-worker merged in to advisor's career network is a supervisor.

Our paper has implications for policy issues regarding the appropriate punishment for fraud by financial advisors. We show that the propensity to commit fraud is transmitted through social networks. Our finding of contagion through career networks suggests that the optimal penalty should reflect not only the harm of the event itself, but also the negative externality created by influencing the behavior of others; an advisor's fraud harms not only his clients, but also the clients of the other advisors he influences. ■

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MONITORING MATTERS: DEBT SENIORITY, MARKET DISCIPLINE AND BANK CONDUCT

By Piotr Danisewicz,
Danny McGowan, Enrico Onali,
and Klaus Scheack

Conferring priority to some or all deposits via depositor preference laws in case of bank insolvency has been one of the early ways of protecting the depositors of failing banks.

However, this policy tool has received little attention for several decades and only a limited number of countries such as the U.S., Australia, Switzerland, and Argentina, have some form of depositor preference in place. In Europe, the European Central Bank only started to lobby for the introduction of depositor preference in the member states of the European Union during the financial crisis, and the signing into law of depositor preference by the end of 2014 met fierce resistance from the banking community. The proponents of such legislation argue that assigning a priority claim to depositors in bank insolvency will prevent bank runs, and leads to more stable banking through increased market discipline from non-depositors whose claims are subordinated to those of depositors. On the other hand, the banking industry had major concerns that such legislation will increase banks' funding costs (which may be passed on to customers), limit access to non-deposit funds, and ultimately threaten financial stability.

Although market discipline has become an integral component of the regulatory and supervisory framework for some time now, the idea that private sector agents can effectively monitor and influence bank behavior has been contested. First, the massive wave of government interventions into financial systems that come in the form of blanket guarantees, recapitalizations, and nationalizations we have witnessed during

the recent crisis are considered to undermine market discipline.¹ Second, while many researchers have furnished compelling evidence that market participants monitor bank risk-taking by demanding higher risk premiums for more risky banks, the bulk of the literature has remained largely unsuccessful in the effort to document that monitoring also translates into changes in bank conduct.²

Our new research³ exploits a hitherto unknown natural experiment in U.S. banking regulation to revisit the question of whether or not private sector agents are able to monitor and influence bank conduct. We study how the staggered introduction of depositor preference laws, which trigger a shift in monitoring by particular creditor classes, affects banks' funding costs, liability structure, and, eventually, risk taking and profitability.

In the absence of depositor preference laws, the claimants of a failed bank are paid off by the Federal Deposit Insurance Corporation according to the provisions laid out in Banking Act of 1935 which assigns an equal rank to uninsured depositors and general creditors. However, 30 federal states departed from these provisions between 1909 and 1993 and assigned priority claims on failed banks' assets by elevating the claims of all depositors above those of general creditors. Importantly, these laws only applied to banks with state charters but left banks with a national charter untouched thus causing a differential treatment of the same creditor class depending on the type of the failed bank.

Corporate finance theory suggests that the resulting subordination of the claims of general creditors means they have 'more skin in the game', incentivizing them to monitor state-chartered banks more intensively. This basic premise results in a rich set of empirical predictions that we test in our study.

We focus first on pricing effects: non-depositors are likely to seek compensation for bearing greater risk, while the priority assigned to all depositors should cause a decline in the cost of deposit funding. This is what we find indeed when we compare state-chartered banks with nationally-chartered banks operating in the same federal

"... our study can be viewed as supportive evidence for monitoring by junior claimants as a result of the introduction of depositor preference."

state in the same quarter. Depositor preference laws provoke asymmetric monitoring responses depending on whether a creditor class moves up or down the priority ladder. Assigning seniority to uninsured deposits causes a substantial decrease in deposit interest expenses. By comparison, interest on non-deposits increase, reflecting their more junior status. The magnitude of the effect is not negligible. In fact, the overall effect of these changes is a 1.5% reduction in funding costs due to the composition of liabilities being more heavily weighted toward deposits.

Next, we isolate the corresponding quantity effects and study market shares for these types of funds. Consistent with the fact that insured depositors' position in the priority queue is unaffected by the law, we observe no change in state-chartered banks' market share of insured deposits. However, we uncover an increase in state-chartered banks' share of uninsured deposits. This result suggests that uninsured depositors switch to state-chartered banks because they can move up the priority ladder. This triggers a shift to the right of the supply curve for deposits in state-chartered banks and leads to the pricing effect we also document in this work.

Interestingly, we find that depositor preference laws have no effect on state-chartered banks' non-deposit market share. This suggests that part of the reason non-depositors increase monitoring is because they have the same amount of skin in the game.

If the increases in monitoring by non-depositors trigger price and quantity effects, it is plausible to anticipate that these changes in monitoring influence bank conduct in terms of risk taking and profitability. Our tests suggest they do. We rely on three widely used measures of banks' risk taking: Z-scores⁴, non-performing loans, and leverage.⁵ For instance, Z-scores increase by 22%, and we also document substantial improvements for non-perform-

ing loans and leverage ratios. We also find improvements in profitability: the average state bank's return on equity increases by 4%. In short, our findings highlight that changes in the priority of debt claims give rise to greater monitoring which has wide-ranging implications for the banking sector in terms of funding cost, liability structure, soundness, and profitability.

From a policy perspective, our study can be viewed as supportive evidence for monitoring by junior claimants as a result of the introduction of depositor preference. As such, this research reinforces the idea that harnessing market forces should be an integral component of the regulatory framework. Moreover, our work also supports the decision by policy makers to introduce depositor preference in Europe. In sum, embedded in a system of effective government supervision of banking institutions, protecting depositors on the one hand and effectively increasing market discipline on the other hand are appealing features of depositor preference legislation that have potential to contribute to improved banking system soundness. ■

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- 1 See Acharya, Anginer, and Warburton (2014) and Calderon and Schaeck (forthcoming).
 - 2 See Bliss and Flannery (2000).
 - 3 Danisewicz, McGowan, Onali and Schaeck (2014)
 - 4 The Z-score is an accounting-based measure of banks' distance to default, calculated as the sum of return on assets and the equity-to-asset ratio divided by the standard deviation of the return on assets, calculated over a four-quarter rolling time window
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BACK TO THE FUTURE: THE IMPACT OF THE CREATION OF NRSRO STATUS ON CREDIT RATINGS QUALITY

By Patrick Behr, Darren Kisgen, and Jerome Taillard

The financial crisis intensified the debate around the significant role played by credit rating agencies (CRAs) in financial markets. While the Dodd-Frank Act has led to a decrease in the reliance of Nationally Recognized Statistical Ratings Organizations (NRSROs) in SEC regulations (see Bethel and Sirri (2014)), these rating agencies and their credit ratings still play a central part in today's financial system. Against this backdrop, in a recent working paper (Behr, Kisgen, Taillard (2013)), we revisit the landmark changes in SEC regulations that led to the creation of the NRSRO status back in 1975 and evaluate the impact these regulatory changes had on the credit rating industry at the time.

The introduction of new SEC regulations in 1975 were a watershed event and gave select ratings agencies increased market power by increasing barriers to entry and reliance on ratings for regulations. These new rules contained two key parts. The first was a new regulation for broker-dealers related

"...the new regulations of 1975 changed the incentive structure for ratings agencies, which led to a material impact on ratings quality: rating quality decreased significantly."

to the securities they held. The SEC adopted Rule 15c3-1 that set forth broker-dealer capital requirements that were a function of the credit ratings of those securities. The second rule was the establishment of Nationally Recognized Statistical Ratings Organizations or "NRSROs", giving select ratings agencies significant power with respect to rules and regulations. The SEC deemed that only ratings from certain rating agencies (at the time these were Moody's, Standard and Poor's, and Fitch) could be used in regulations. The two rules combined represent the most significant event in recent history with regard to ratings regulation and gave the rating agencies that were grandfathered in new significance in the marketplace. As White (2010) points out: "The Securities and Exchange Commission crystalized the centrality of the three ratings agencies in 1975." Arguably, ratings from these select agencies had guaranteed value after the new regulations were implemented regardless of the quality of the ratings, thus changing the incentive structure of these rating agencies.

In our paper, we empirically investigate whether this significant regulatory shift led to lower ratings quality. The main hypothesis we aim to test is that because of the new regulations, the newly established NRSROs became entrenched and focused more on generating new business at the cost of some ratings integrity. With a rise of new entrants among credit rating agencies (CRAs) in the 1970s, the credit rating agency industry became increasingly competitive. However, the barriers to entry established by the NRSRO designation as well as the expansion of the use of ratings in regulations gave the big three rating agencies a significant competitive advantage. We argue that in the post SEC certification period, the three ratings agencies no longer



BACK TO THE FUTURE: THE IMPACT OF THE CREATION OF NRSRO STATUS ON CREDIT RATINGS QUALITY *Continued*

had to provide ratings of the same quality to guarantee a market for their services because issuers would demand the ratings for regulatory purposes regardless of the quality of the ratings. In that environment, rating agencies could more easily cater to their clients' needs by inflating ratings thus capturing the regulatory rents granted to them through the NRSRO-designation process.

To test our hypothesis, we compare default likelihoods, changes in overall financial condition, and likelihoods of downgrades to speculative grade for firms rated before the new regulations compared to firms whose ratings were initiated with the same rating in the post SEC-certification period. If the new rules have no effect on ratings, one will expect that, for example, a firm rated Baa before the rule change should have on average the same probability of default as a firm rated Baa after the rating change. Instead, our tests suggest that, conditional on a given rating, firms have a greater likelihood of default, a greater likelihood of deteriorating financial condition, and a greater likelihood of downgrade to speculative grade if they were rated in the post SEC-certification relative to those rated before June 1975. The effects we identify are not trivial. For example, firms initially rated Baa post-regulations are 19% more likely to be negatively downgraded to speculative grade than firms rated Baa pre-regulations. These results indicate that the regulations of 1975

led to ratings inflation thereby lowering ratings quality, and we estimate the size of this inflation to be approximately one full level; meaning that, for example, firms that should have been rated Ba become Baa rated in the post-SEC certification period.

We also address the concern that the effects we document are driven by changes in macro conditions around the time of the change in regulations. We run several falsification tests and specifically account for the recession of 1973-1974. The results from these tests all point in the same direction: the new SEC regulations lowered credit rating quality and were not due to the macro environment at the time.

Beyond the significant regulatory rents given to NRSRO-designated rating agencies, the role of the issuer-pay model in the industry has also been subject to scrutiny among regulators, practitioners and academics (see for instance Cornaggia and Cornaggia (2013)). While Standard and Poor's (S&P) changed from the investor-pay to the issuer-pay model in 1974, our tests focus on Moody's, which switched to the issuer-pay model five years before the new regulations back in 1970. One could argue that the effects we document in our paper are driven by Moody's reacting to S&P's change of the payment model, but additional tests we perform are able to disentangle these two events and do not indicate that this is the case.

Our work speaks directly to the impact of competition and regulations on ratings quality. By increasing barriers to entry and providing a captive customer base for ratings agencies, the new regulations of 1975 changed the incentive structure for ratings agencies, which led to a material impact on ratings quality: rating quality decreased significantly. Any change to the ratings landscape today should consider the perverse incentives created by the regulatory environment initiated at that time. ■

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