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# CONFERENCE OVERVIEW AND SUMMARY OF PAPERS

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## 1. INTRODUCTION

Of the three pillars supporting the emerging international bank capital regulation, the third—increased disclosure and market discipline of banks—is probably the least considered. This pillar’s conceptual base needs a hard look. If the rationale for regulating banks is (or was) some market failure, can we expect more efficient market monitoring of banks now? What has changed? Practical questions need answers too. Disclosure of what? Discipline by which market, and how? Is market discipline a credible concept in emerging market economies around the world, or even in developed nations with “bank-centric” financial systems? Does the globalization of financial firms make market discipline less credible, or more imperative?

The organizers of this conference raised those questions in their call for papers. The response came in the form of more than forty papers, mostly by academics and central bank researchers. The five selected for presentation at the conference are published in this volume, along with the discussions by researchers and central bankers with expertise in the field. While the five papers differed in technique and focus, several made a similar, basic point: Market prices of bank securities can inform bank supervisors, but only if policymakers resolve to close troubled banks promptly, without bailing out *uninsured* investors. In other words,

if investors can expect regulators to take prompt corrective action against troubled banks, regulators can trust investors to help identify those banks.

## 2. KEEPING THE PILLARS LEVEL

Jean-Charles Rochet observes that the three pillars of Basel II seem uneven: Pillars 1 and 2—capital requirements and examination by government supervisors—have eclipsed Pillar 3—market discipline and disclosure—in the Basle Committee’s deliberations. Rochet works through a banking model that incorporates stylized versions of all three pillars: capital requirements are treated as bank closure thresholds, supervisors examine banks to verify capital adequacy, and market discipline is modeled as mandatory issuance of subordinated bank debt. His analysis uncovers several margins where the three pillars do or do not reinforce one another. Most interesting, from the conference perspective, is the “push me-pull me” interaction between supervisor examinations and market discipline: the market can help supervisors identify problem banks only if supervisors can commit to closing and liquidating undercapitalized institutions. If regulators forbear, or if they extend insurance to bondholders, Pillar 3—market discipline—provides no support to Pillars 1 and 2.

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The views summarized are those of the presenters and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

Rochet's model is a continuous-time, asset valuation model where the underlying assets drift randomly over time. The model is similar to those used in asset and option pricing, except in Rochet's banking version the underlying assets are opaque, the assets require monitoring (or else their return falls), and their liquidation is costly (because their value is not transparent to outsiders). Liquidation occurs when assets hit some endogenous lower limit. Given the setup, bank value is reduced to two parts: the value of assets net of monitoring costs plus the value of the liquidation option. Rochet's first point is that the liquidation limit that maximizes bank value is below the break-even point. In other words, it is socially optimal to let some valueless banks remain open (for some period) on the chance that assets will recover randomly.

The rest of Rochet's analysis shows how the optimal liquidation limit—a capital requirement, in essence—varies with bank liability structure and the regulatory regime, that is, the three pillars. First, the author adds deposits and deposit insurance (fairly priced). Deposit insurance invites moral hazard in his model, but not the usual type: bankers do not shift toward riskier assets, they neglect to monitor existing assets. Supervisors can prevent this shirking by closing and liquidating low-asset banks (where shirking becomes optimal), but supervisors have a time-consistency problem: The prompt closing of low-capital banks is optimal *ex ante*, but *ex post*, supervisors are tempted to postpone closing—to forbear—in the hope that assets will recover.

Rochet then argues that market discipline, via mandatory subordinated debt issuance, can reduce forbearance by supervisors. As long as bank regulators can resist bailing out uninsured debtholders, Rochet argues, prices on debt securities should provide accurate signals that obligate supervisors to take prompt corrective action whenever the prices indicate that bank assets have hit an “inspection” threshold. He derives the optimal inspection threshold, and shows that the corresponding liquidation limit with market discipline is lower than the limit without discipline. In other words, the optimal closure rule with market discipline moves toward the first-best closure rule, thereby reducing the *ex post* benefits of forbearance.

### 3. BANK DISCLOSURE AND STOCK PRICE VOLATILITY

Bankers sometimes argue that increased disclosure would make their institution's stock price more volatile. The paper by Ursel Baumann and Erlend Nier suggests the opposite: Banks

that are more forthcoming on basic balance-sheet items exhibit *lower* stock price volatility.

The authors' data, from BankScope, indicate whether a given bank discloses any information on seventeen items, including loans by maturity, loans by type, loans by counterparty, problem loans, and problem loans by type.<sup>1</sup> About 600 banks in thirty-one countries over the 1993-2000 period are covered. The authors investigate the relationship between stock price volatility for each bank (within a country) and an index of disclosure on all seventeen items, as well as disclosure on individual items.

In theory, the sign of the disclosure-volatility relationship is not obvious, nor is the direction of causality: volatility might affect disclosure, or vice versa. To reduce the risk of reverse causality, the authors collapse their data to a cross-sectional average for each bank between 1993 and 2000. The resulting “between” regressions indicate whether banks that disclose more, on average, have higher or lower volatility. As a further precaution, they include other variables in their regressions that might affect volatility and disclosure.

Baumann and Nier find that higher values of their disclosure index are associated with significantly lower stock return volatility. Volatility is also negatively associated with most of the individual items in the index. Increased disclosure, the study concludes, may benefit bankers and bank supervisors: bankers benefit from lower stock price volatility while supervisors receive more accurate market signals from lower volatility.

### 4. STOCK OR BOND MARKET DISCIPLINE?

Saying “market discipline” begs the question: which market, stock or bond? Large banks issue bonds as well as equity, so which price sends the stronger signal about bank prospects? The paper by Reint Gropp, Jukka Vesala, and Giuseppe Vulpes demonstrates that, as a theoretical matter, signals from the bond and equity markets satisfy minimal requirements for a useful indicator. Using option pricing formulas, the authors show that a distance to default measure, based on equity market value and equity volatility, increases with the market value of bank assets and decreases with bank leverage and equity volatility (as long as market equity exceeds the discounted value of debt). They show that subordinated debt spreads satisfy the same properties, however, so the question remains: which market is more informative, stock or bond? It depends, in some sense, on when one asks. For the authors' sample of banks in the European Union (excluding the

United Kingdom), equity markets signal rating downgrades about six months sooner than do bond spreads.<sup>2</sup> As a downgrade becomes more imminent, the signal from rising bond spreads gets louder.

The authors also investigate how the strength of each signal depends on the likelihood of government support for a given bank, as measured by support ratings issued by Fitch. Equity signals remain informative even for banks that are likely to be supported, presumably because the expected support does not extend all the way to equityholders, but bond signals lose all information for banks where support is expected. Thus, the Gropp, Vesala, and Vulpes contribution, like other papers presented at this conference, demonstrates that the potential for the market to identify troubled banks depends, at least for bond markets, on what the market expects of regulators.

## 5. MARKET DISCIPLINE ACROSS BANK REGULATORY REGIMES

By and large, research on market discipline tests whether spreads on bank bonds—which are supposedly uninsured—are correlated with measures of bank risk. It boils down to testing whether investors heed bank risk taking. Studies using data from the early 1990s onward do find a significant correlation between bank risk and bank bond spreads, but those using data from the early 1980s find no such relationship, suggesting that investors were heedless of bank risk during that era.

The paper by Daniel M. Covitz, Diana Hancock, and Myron L. Kwast revisits the historical relationship between bank bond spreads and bank risk. The distinguishing empirical feature of the analysis is its allowance for the endogenous timing of bond issuance. The authors note that banks (like any firm) will avoid borrowing in the market when their financial condition is weak. Ignoring that sample selection, especially in studies of new bond issues, may bias the estimated relationship between spreads and bank risk.

The authors estimate a sample selection model over three distinct regulatory “regimes” when the treatment of bank bondholders (in the event of bank failure) differed substantially. Under the *too-big-to-fail* regime (1985-87), bondholders enjoyed essentially the same guarantees as insured depositors and holders of bank CDs. The development of *purchase and assumption* resolution of bank failures (the 1988-92 regime) allowed bank regulators to resolve failures without sparing *uninsured* bondholders. That development put bondholders at risk of loss. Bondholders’ standing changed again in the *post-FDICIA* regime (1993-2002), but not necessarily one way

or the other.<sup>3</sup> On the one hand, FDICIA compels supervisors to take prompt action against undercapitalized banks. Some such actions—dividend restrictions, for example—function like bond covenants that may protect bondholders vis-à-vis shareholders. On the other hand, the National Depositor Preference Amendment to FDICIA in 1993 reduced the standing of bondholders vis-à-vis insured depositors. The net effect of FDICIA and its amendment on bondholders, the authors argue, is not obvious.

Covitz, Hancock, and Kwast then estimate their selection model to test the strength of bond market discipline over these three regulatory regimes. They find that bank bond spreads are positively associated with bank risk measures during all three regimes, even during the *too-big-to-fail* period. The link between bond spreads and bank risk during the *too-big-to-fail* era may have been missed in earlier studies, the authors contend, because of sample selection bias. Even so, they find that the link between bond spreads and bank risk was considerably stronger during the later purchase and assumption and post-FDICIA regimes. In sum, their findings suggest that bondholders were monitoring bank risk all along—even during the *too-big-to-fail* period—but market vigilance increased after regulatory reforms put bank bondholders at risk and on guard.

## 6. PRIVATE VERSUS PUBLICLY HELD BANKS

Simon H. Kwan’s paper suggests a potential downside to increased market discipline of banks: heightened agency problems. Market discipline necessarily entails public ownership, which pits owners against managers. Absent sufficient motivation from stock options and other incentives, managers may choose a “quiet” life with too little risk taking and excessive operating costs. Risk aversion by self-interested managers is not necessarily bad if it offsets the risk-loving incentives created by deposit insurance, but excessive costs are wasteful.

Kwan divides bank holding companies (BHCs) into four size classes, then categorizes each class according to public or private ownership. He compares the performance and risk across bank size classes between 1986 and 2000 and in five-year windows therein. For the largest BHCs, returns on assets and operating costs do not depend on ownership, but for the smaller BHCs, returns on assets are lower and operating costs are higher for those that are publicly owned. Small public BHCs also hold more capital than do small private ones.

Kwan takes his findings of lower returns on assets, greater operating costs, and higher capital ratios at small public BHCs as consistent with basic agency theory: managers who are not owners operate more safely, but less efficiently, than managers

who *are* owners. In wishing for greater market discipline of banks, Kwan concludes, policymakers must consider the potentially higher agency costs associated with public ownership of banks.

## ENDNOTES

1. The other items are securities by type, securities by holding purpose, deposits by maturity, deposits by type of customer, money market funding, long-term funding, reserves, capital, contingent liabilities, off-balance-sheet items, noninterest income, and loan-loss provisions.

2. The earlier signal is not a free lunch, however: the equity-based measure is more volatile than bond spreads, so it requires longer monitoring to discriminate reliably between high- and low-risk banks.

3. FDICIA is the Federal Deposit Insurance Corporation Improvement Act.

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