Supervisor and Market Analysts: What Should Research be Seeking?

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Abstract

This article is primarily directed towards examining the desirability of incorporating market signals in the process of supervision of commercial banks by regulators and insurers. But the ideas developed here can also be applied to the general problem of using market information to assess the solvency and safety of any financial or non-financial institution.

Market prices and yields of securities anticipate actions by regulators, central banks, and other players due to the fact that such actions may materially influence the risk and the expected return associated with investment decisions pertaining to those securities. It is well known that the yield curve of government securities such as T-bills, T-notes and T-bonds reflect the market’s consensus regarding the actions that the Federal reserve may take as they pertain to the valuation of such securities. The extent to which the market has already ‘‘discounted’’ the future actions of the central bank will no doubt play a role in the way in which the central bank may think about its actions, its actual effect and how it relates to its intended effects.

The extent to which market prices can provide useful guides depends on the underlying market structure and the practices in the industry.

While markets may do ‘‘lot of the hard work’’ in aggregating and incorporating future actions, the task of supervision and regulation can never be put on ‘‘automatic pilot.’’ Ideally, supervisory policies should effectively combine the market signals with initiatives that serve to maintain the safety and the soundness of the underlying markets. I will begin by exploring the extent to which equity prices may be used as a signal of bank credit risk. I will then explore the advantages and disadvantages of using subordinated debt securities to derive a market signal.

Key words: LIBOR, FDIC, implicit guarantees, externalities.

1. Equity prices as signals of default risk

That the market prices may provide useful signals about the credit risk of institutions has been well recognized in the literature. Merton (1974) and Black and Scholes (1973) have noted that the equity issued by the borrowers is actually a call option on the assets of the borrowers with a strike price equal to the present value of the debt obligations. This insight has been used to derive formulas for valuing loans and debt securities that are subject to default. A simple version of such a formula says that the probability of default of an institution is a function of the following key variables.
a. the aggregate level of debt outstanding or equivalently the leverage,
b. the risk of the underlying assets of the borrower,
c. the risk-free rate,
d. the value of the assets of the firm, and
e. the bankruptcy code within which the loans are transacted and the direct and indirect costs associated with financial distress.

The code defines the timing and the extent to which the lender has access to the borrower’s collateral. Both factors are important: the lender not only cares about having a collateral but also in accessing it in a timely fashion before the value of the collateral gets dissipated due to the ‘‘externalities’’ surrounding financial distress.

All the key variables with the exception of the value of the assets of the firm and the risk of the underlying assets are observable. By using the equity prices and estimates of equity volatility (such as the implied volatility from the options on equity or historical estimates), we can estimate these unobserved variables as well. This insight has already been used in the industry to estimate probabilities of default. These so-called ‘‘risk-neutral’’ probabilities of default appear to have a good predictive power about future rating changes. (Delianedis and Geske (1998) refer interested readers to the paper.) When this insight is combined with an extensive data set on historical defaults we can estimate the expected default frequencies of institutions such as corporations and banks. This approach has yielded a useful way to incorporate market information in managing credit risk. For large and medium institutions, hundreds of analysts follow the earnings and report on the desirability of owning equity. For such institutions, clearly, equity prices provide valuable signals. Likewise, the implied volatility of stocks provides a ‘‘forward looking estimate’’ of the risk of the equity. Combining these signals in the context of a model of default, one is able to get a measure of the default risk.

How reasonable is this approach when it comes to banks? Can bank supervisors use bank equity prices to obtain valuable inputs for their decision making?

Banks differ from other corporate borrowers in many respects. These differences are quite important in thinking about how market signals may be used by regulators and organizations such as FDIC. Let me list some of the key differences.

(a) Banks have implicit and explicit guarantees whose values depend on the effectiveness of monitoring by regulators and the timeliness of their intervention policies. Some banks appear to have an implicit ‘‘too big to fail’’ guarantee. Until recently, most Japanese banks enjoyed such immunity from the Japanese government. The presence of these guarantees should influence the perceived probability of default and the recovery rates in the event of default. Consequently, this should affect the pricing of claims issued by the bank.

(b) In corporate debt, lenders control (to a greater extent) the ability to trigger default and start the process of workouts and renegotiations. In bank debt, the regulators and FDIC have a major role in triggering closures and reorganization. When a potential lender of capital (say, the subordinated debt holder) to the bank reflects on this fact he is likely to demand an extra risk premium to compensate for his lesser