

Equity market data, bank failures and market efficiency

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Abstract

The paper examines the informational content of market data for long-term horizons in models, which predict bank failure. Univariate results document patterns such as declining prices, negative returns, declining dividends, and rising return volatility, up to 4 years before failure. Multivariate analysis shows that market information improves the failure predictive content of traditional models, which are based on accounting data. Out-of-sample predictions show that the use of stock market data does improve the forecast of bank failure. Furthermore, the persistence of this contribution generally increases with greater distances from the date of failure documenting the forward-looking nature of financial markets.

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1. Introduction

Failure prediction represents a special interest in banking because of the regulated nature of the industry as well as the federal safety net provided by deposit insurance. In this regard, bank supervisors depend on “traditional” ratio-based models to forecast bank failure; these models are based on financial data obtained from quarterly Reports of Income and Condition (Call Reports).³ In recent years, at the behest of the US Congress, international regulatory bodies, and the academic

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³ For a discussion of off-site monitoring models used by bank supervisors, see Cole, Cornyn, and Gunther (1995), Cole and Gunther (1998); and Collier, Forbush, Nuxoll, and O’Keefe (2003).

community, bank regulators have been exploring whether data obtained from the securities markets can be used to supplement failure-prediction models. To the extent that financial markets are efficient and market price and return movements for securities can be used to anticipate events including failure, then bank regulators might apply information embedded in market prices and trading patterns to improve early-warning and off-site monitoring systems.⁴ Improved early-warning systems necessarily enhance bank supervision, thereby reducing the likelihood and cost of failures. More generally, integrating market-based information into the tools of bank supervision represents a partial response to Flannery's (1998) call for enhancing our understanding of the use of market information in prudential bank supervision.⁵

Predicting failure is especially interesting because failure normally follows the dissemination of large amounts of negative information, often over long periods of time. Failure is also the only financial event for which the post-event stock price is known before the event. The period before failure is almost always associated with negative returns, the cessation of trading on organized exchanges, and the fall of stock prices to approximately zero. These regularities suggest that the period preceding failure should provide an environment conducive to the formation of trends in market-based data.

This paper examines the relationship between equity market data and bank failure. We begin by investigating long-term trends in market variables before failure to test the efficiency of markets in providing forward-looking, timely information about insolvency. Early research by Pettway (1980) and Pettway and Sinkey (1980), focus on identifying patterns in price and return variables preceding bank failure. Our approach extends the early work by exploring the pre-failure trends of additional market variables, thereby providing a global view of the performance of equity market variables preceding failure.

The second part builds the analysis by developing a multivariate framework for testing the extent to which market variables improve the performance of traditional predictors of bank failure. That is, we test the predictive performance of the market variables by forcing them to compete against traditional financial ratios to explain bank failure at many points preceding failure. As such, we explore the forward-looking nature of market data by evaluating the degree to which it complements traditional financial ratios, over short-, intermediate-, and long-term horizons preceding failure. Our analysis, therefore, extends previous research by providing a broader examination and test of the timing aspects and utility of market data for predicting bank failure.

The results show that the univariate analysis documents distinct patterns of declining prices, negative returns, declining dividends, and rising return volatility up to 4 years before bank failure. Multivariate analysis finds that market information improves the failure predictive content of the traditional models, which are based on accounting data. In-sample and out-of sample predictions show that the use of stock market data does improve the forecast of bank failure. Moreover, heretofore unreported in the previous literature, these gains increase for the out-of- sample predictions as we travel greater distances from the date failure—documenting the forward-looking nature of financial markets.

This paper proceeds as follow. The next section discusses related literature that uses equity market data to assess bank financial health and introduces the motivation for this paper. Section 3 addresses the data that is used in the study. Section 4 analyzes the pre-failure trends of various

⁴ In this paper, "bank" refers to an FDIC-insured commercial bank or thrift institution.

⁵ Currently, all federal banking agencies collect and monitor market information on publicly traded federally insured institutions.

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