Spring 3-27-2019

The Impact of the Minimum Leverage Ratio on South Dakota Community Banks

Yen-Ling Chang
Dakota State University

Daniel Talley
Dakota State University

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Pierre Poster Session

Abstract

There has apparently been a significant paradigm shift regarding community bank risk management, at least from the viewpoint of recent legislation. As it is titled, the new act is to promote economic growth, provide tailored regulatory relief and enhance customer protection. One wonders whether the soundness of the U.S. system of smaller banks will be compromised. The purpose of this research is to investigate the impact of the new policy changes effective 2014 on the asset and liability portfolios of community banks. We begin our research program by examining community banks in South Dakota. The results of stochastic cost frontier model on South Dakota community banks show that South Dakota community banks improve operation efficiency after receiving relief on capital constraint.

Background

Since the Financial Reform Act of 2010 was enacted, U.S. community banks have been concerned about the cost of complying with the more restrictive CAMELS (Capital adequacy, Asset, Management, Earnings, Liquidity, Sensitivity) standards and how those costs will impact their ability to compete with larger U.S. banks. Community banks argue that their mission is to foster local economic growth and develop a deeper banking relationship with the local community. Because of the business models under which they operate, community banks have limited access to external equity funding in the capital markets. Community banks rely largely on core deposits to make loans to their customers. As a result, community banks have pleaded with lawmakers and Federal banking agencies to work on rulemaking to help address these compliance cost issues.

As directed by the new Policy Statement signed by President Obama, the Fed formally adopted these revisions on April 9, 2015. The new rules allowed BHCs and SLHCs with consolidated assets of less than $10 billion to be exempt from the FRB's risk-based capital and leverage rules, and therefore to be exempt from complying with the Basel III banking regulations.

Literature Review

Dahl, Meyer, and Neely (2016) document the relationship between compliance costs and bank performance using bank survey data. The bank survey data emphasizes financial institutions with total assets less than $10 billion. Compliance expenses were collected from these smaller financial institutions. This research indicates that a higher compliance cost is not necessarily associated with higher performance in terms of CAMELS ratings. This result therefore supports recent policy proposals to reduce burdensome regulations on smaller banks.

Chang and Talley (2017) examines US bank risk taking behavior by analyzing changes on on-balance-sheet and off-balance-sheet activities. They conclude that larger banks are likely to engage in riskier on-balance-sheet and off-balance-sheet investments for higher returns. This research also supports policy proposals to relieve the regulatory burden on smaller banks.

Deyoung, Distinguin, and Tarazi (2018) analyzes the liquidity behavior of commercial banks of different sizes in response to negative capital shocks. They use data from pre-Basel III period, when regulation constrained bank equity capital decisions but did not similarly constrain liquidity positions. Their finding shows that smaller-sized banks treat liquidity and capital as substitutes. As a result, this study also provides additional support for the policy proposals to exempt community banks from the stricter liquidity ratios imposed by Basel III.

Methodology

Liu and Cortets (2015), Coccorese (2014), Berger and Mester (1997), and Mester (1996) employ variations of Stochastic Frontier analysis to analyze the operating efficiency of financial institutions. We then propose to follow this stream of research and adopt the concepts of Stochastic Frontier Analysis originally developed by Aigner, Lovell, and Schmidt (1977) and Meeusen and van den Broeck (1977) to build a Stochastic Cost Frontier models in estimating the cost efficiency of financial institutions prior to and after the relief of a capital constraint.

Stochastic Cost Frontier Model

Model 1: $\ln C_i = f(X_i; B) + U_i + V_i$, $i = 1 \ldots\ldots\ldots N$,

Wherein C is observed cost of banks, X is a vector of bank-specific variables including banks on-balance-sheet assets, off-balance-sheet assets, capital ratio, leverage ratio and other controlled variables, B is a vector of parameters. f(X,B) is predicted log cost given a vector of X . U is one side-error term representing cost inefficiency, which is calculated by the difference between the predicted cost value from its frontier. V is a two-sided error term representing statistical 'white noise' that is independent of U. N is the number of community banks in the sample. The variable U is of particular interest as it measures the degree of bank inefficiency captured by the model.

Results and Discussion

The results of the stochastic cost frontier model are presented in Table 1. This study researches all the community banks in South Dakota. The average size of community banks in South Dakota is 7 million dollars in terms of total assets. The average number of community banks in South Dakota during the period of empirical study is 77. We collect 2,525 quarterly data points from 2010 quarter 1 through 2018 quarter 3 from the Federal government FIEC database. Table 1 shows that community banks in South Dakota experience production inefficiency prior to and after the capital constraint relief, indicating banks have operated below its optimal cost efficiency level. A striking, yet not too surprising result is that banks in South Dakota improve production efficiency after the relief from the capital constraint as the inefficiency measure (mu) decreases to 0.244 from 0.440.

Table 1 : Bank Production Efficiency prior to and after the relief of capital constraint for community banks

	time period prior to the relief of capital constraint	time period after the relief of capital constraint
Dependent variable: Effficency ratio		
Independent variables :		
constant	0.021	-0.110
Agricullture Loan	-0.176	0.279***
Commercial and Industrial Loan	-0.238	0.345***
Loan secured by Real Estate	-0.222	0.262***
Consumer Loan	-0.415	0.266***
Allowance for loan and lease losses	3.599***	-2.103***
Core deposit	0.321**	0.286***
Leverage coverage ratio	0.520	-0.651**
total capital ratio	0.189	0.464***
ineffciency measures (mu)	0.440***	0.243***
/lnsigma2	-3.659***	-4.068***
/ilgtgamma	2.207***	1.461***
sigma2	0.026	0.017
gamma	0.901	0.812
sigma_u2	0.023	0.014
sigma_v2	0.003	0.003

Conclusions

Our findings shed light on banking policy and allow the regulators to evaluate the impact of the new policy on community banks. It is evident that smaller community banks need to operate more flexibly to maximize operational efficiency. According to our estimates, South Dakota community banks could save as much as $200 million each quarter. Bank regulators should take this into account and create a fair environment for both small and large sized banks.