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Impact of Dodd-Frank on Small Community Lenders

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Abstract

With the passing of the Dodd-Frank Act in 2010, 10,000 new regulatory restrictions under Title 12 have been imposed on banks. This increase in regulation represents a great burden on financial institutions as it restricts avenues of revenue and causes an increase in compliance costs. While much attention has been paid to the Dodd-Frank Act, no empirical evidence exists to show the impact it has had on financial institutions and their profitability. Even though the Dodd-Frank Act targeted larger financial institutions, small banks, being defined as a bank with less than \$250 million in total assets, are still regulated. With small community banks being a large provider of agricultural credit for farmers, the agricultural credit market relies heavily on small community banks being able to provide lending services to keep farmers in operation. This study examines the impact on profitability of small community banks and how that affects the availability of credit for the agricultural industry.

Keywords: Banking, Dodd-Frank, Regulation

Introduction

After the sub-prime mortgage crisis and Great Recession, calls for new regulation of Wall Street and commercial banks resulted in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). This act replaced the existing regulatory framework that had been in place since the 1930s when President Roosevelt enacted the securities acts of 1933 and 1934 (Skeel, 2010). It was thought, at the time, that this new legislation would modernize the regulatory framework bringing it into the 21st century so that American investors and consumers wouldn't have to worry about losing their life savings if their bank failed.

Since the passing of the Dodd-Frank Act in 2010, 10,000 new regulatory restrictions under Title 12 have been imposed on banks (Figure 1). These restrictions cover a multitude of topics but two themes defined by the Dodd-Frank Act emerge: limit the risk of contemporary finance and to limit the impact if a “systemically important institution” were to fail (Skeel, 2010). In accomplishing these two overall themes, Dodd-Frank attempts to single out the financial institutions that are more likely to cause market failures and attempts to subject them to more intense scrutiny. These financial institutions are those that have over \$50 billion dollars in assets. (Skeel, 2010)

Despite this emphasis on those financial institutions that have would have the greatest impact if failure occurred, banks of all sizes have no doubt experienced increased regulatory oversight. A 2010 survey of small banks reported 80% of respondents stating they saw an increase in compliance costs at their respective lending institution (Peirce, Robinson and Stratmann 2014). This increase in compliance burden may decrease the profitability of small

banks and make it hard for these banks to grow. With small community banks providing 48.1% of small business loans, 42.8% of farm lending, and 34.7% of commercial real estate lending, knowing the impact of Dodd-Frank on the profitability and stability is vital to this contentious policy debate (Marsh and Norman 2013).

Despite the regulators best efforts to target Dodd-Frank toward those “systemically important institutions,” the burden on small commercial banks still increased substantially. Seven of the 16 titles impact small commercial banks (Marsh and Norman, 2013). Anecdotally, it is easy to see that a bank with over \$50 billion dollars of assets can more easily absorb the compliance costs than a bank with only \$175 million of assets.

Surprisingly, with the potential impact this regulation could be having on the commercial lending industry, very little empirical work has been done to assess how this increase in regulation is affecting profitability of small commercial banks. The impact on profitability serves as an important indicator to other equally important questions. If profitability has decreased, has this led to an increase in bank mergers? There is also the question about how this affects the availability of credit and how that has affected the recovery from the Great Recession if credit lines were tightened due to the regulation.

Figure 2 shows the past history of mergers and acquisitions of commercial banks from 1990 to 2015. Since the passing of the Dodd-Frank Act, mergers and acquisitions have increased. Though there are still fewer mergers and acquisitions than what was seen in the 1990s. While anecdotal evidence from bank managers indicates the increased regulation increasing the number of mergers and acquisitions (Marsh and Norman, 2013), the overall numbers are not at historic highs.

This paper estimates how Dodd-Frank has affected the profitability of small lenders and draws conclusions for how this could affect the financial lending sector, specifically how it pertains to rural communities where a majority of small banks are located and the agricultural sector is a major part of the economy. The rest of this paper will be organized as follows. An analytical framework where the main factors that may affect bank profitability is discussed, then the data and empirical methods are explained, and finally the results of the models are examined.

Conceptual Model

Regulatory policies affect the profitability of banks by imposing added costs to comply with the policies and by decreasing revenue making certain investments unattainable or non-compliant. Several considerations will be analyzed for the multiple channels regulatory policies travel through to affect the profitability of the commercial lending institution. This section will discuss the conceptual framework and pertinent past literature to examine the link between the policy and profitability.

Previous work concerning the impact of the Dodd-Frank Act is limited in the literature. Much of the previous work has focused on anecdotal evidence. While this can accomplish much, there is a clear lacking of empirical work currently done in the literature. Identifying the causal effect of the Dodd-Frank Act on bank profitability and size would prove invaluable in knowing the impact of this regulation on small community banks.

Pierce et al. (2014) present a comprehensive overview of the Dodd-Frank Act and results of a survey completed by banks addressing the impact of the regulation. Respondents indicated the Dodd-Frank Act significantly impacted small banks with significantly increased compliance costs. The survey also revealed that many banks are contemplating mergers which would reduce the number of banks available to customers. One point of contention in the survey results was the impact of the Dodd-Frank act on fees and revenues. In the survey, respondents were split on if fees charged to the customers rose or declined and the same being true for revenues as well. It is also noted, that due to the location of most small banks, that Dodd-Frank may negatively impact customers of the small banks if that bank is forced to close due to the policy since customers have few convenient alternatives. These differences may be due to competition or macroeconomic effects for each of these banks and highlights the need for a formal analysis that identifies the effect of the policy.

Impact on Non-Interest Expenses

Marsh and Norman (2013) agree with Pierce et al. (2014) that Dodd-Frank will increase financial regulatory costs for small banks. The likelihood of merger is increased with the passage of Dodd-Frank as well. Marsh and Norman (2013) criticize Dodd-Frank as failing to differentiate between small banks who engage in traditional banking relationships and the modern, complex financial services firms, arguing that different policy is needed for each tier of the financial sector.

Impact on Bank Efficiencies

Recent empirical work on bank regulation generally finds that administrative regulation harms banks while capital requirements are either beneficial or neutral. Specifically, examinations of bank efficiency (Barth et al., 2013); risk (Gonzalez, 2005); and development, efficiency, and fragility (Barth et al., 2004) find that administrative regulations increase risk and decrease efficiency while market-based regulations that improve transparency are beneficial. Capital requirements can offset some of the perverse incentives of government-provided deposit insurance. The three studies mentioned above are discussed in detail below.

Barth et al. (2013) uses an input-oriented data envelopment analysis to calculate efficiency scores for 4,050 banks in 72 countries from 1999-2007. Regression analysis is used to determine the effects of bank activity and capital regulation stringency on efficiency. Bank activity regulation is negatively associated with efficiency while capital regulation marginally improves efficiency. Increases in supervisory power only improve efficiency in countries where supervisory authority is independent of governments. The authors conclude that market-based regulations aimed at increasing transparency and disclosure also improve efficiency.

Gonzalez (2005) examines regulatory effects on bank risk using a panel of 251 banks in 36 countries from 1995-1999. Two measures of risk are used: credit risk, the ratio of nonperforming to total loans, and overall bank risk, the standard deviation of daily bank stock returns for each year. Measures of risk incentives are bank charter value (measured by Tobin's Q) and the presence of government-funded deposit insurance. The author finds that high charter values and lower regulation combine to incentivize banks to reduce risk. When

institutional quality (i.e. high-quality legal system and enforcement of private contracts), these effects are weaker.

Barth et al. (2004) examines the effects of a host of regulatory, institutional, and market structure variables on bank development, net interest margin, overhead costs, nonperforming loans, and national crises for banks in 107 countries. Restrictions on bank activities and diversification are negatively associated with bank development and stability. Capital restrictions have little to no effect on most of the variables of interest above except that capital restrictions

Data

We use bank level data from SNL, a data company that compiles all the Federal Reserve call report data into one database. Data are from 1990 through 2015. Summary statistics are found in Table 1. With the Dodd-Frank Act being implemented nationwide and call report data representing all banks with the US, all 50 states are represented in the data.

The regulatory data is from RegData, a regulatory data base (Borio, 2015). The main variable of interest is a probability weighted index of the regulatory restriction by Title 12 on credit intermediaries (NAICS code 522). In addition to the probability weighted index, a word count index is also used to test for robustness of results. This is an index of all words in Title 12 of the Code of Federal Regulations. The index is normalized so that 2001 is equal to 1. The data is from 1970 to 2014. Figure 3 shows the increase in the probability weighted index after the Dodd-Frank Act was passed.

Due to the amount of policies that can be in legislation, researchers have used many proxies for regulatory policies. Two previous measures include page count and word count (Al-Ubaydli et al., 2015). While simple in nature, these two methods can fail to produce accurate results as page count nor word count reflect the number of restrictive policies a piece of legislation may contain. To account for this, Al-Ubaydli et al (2015) create a probability weighted index of the impact legislation has. A benefit of this index is that it allows for the analysis of one specific industry according to its respective NAICS code.

Methods

To analyze the regulatory effects on bank profitability, a model is developed that controls for bank profitability. To control for bank characteristics and unobservable characteristics specific to each bank, a fixed effects model is used where the financial institution is the fixed effects. In addition to this, bank asset structure, employee expenses, and loan structure are controlled for. The estimated model is:

$$(1) \quad Y_{i,t} = \alpha + \delta Y_{i,t-1} + \beta \theta_t + \gamma X_{i,t} + \tau R_t + u_i + e_{i,t}$$

where $Y_{i,t}$ is the log of the return on average assets for institution i at time period t , $\theta_{i,t}$ is a vector of bank structural characteristics, X is a vector of bank loan characteristics, R is the regulatory index, μ_i is the fixed effect for institution i , and $e_{i,t}$ is the error term which is distributed with mean zero and standard deviation of σ .

To examine how the regulatory index affects small banks, the FDIC definition of a small bank is used of a bank with less than \$250 million in total assets. The model in equation (1) is analyzed for all banks, banks with less than \$250 million in total assets, and for banks with greater than \$250 million in total assets. This allows for the analysis of how the regulation may affect financial institutions of different size.

To check for robustness, two indexes will be used and the second model will be estimated. This model is:

$$(2) \quad Y_{i,t} = \alpha + \delta Y_{i,t-1} + \beta \theta_t + \gamma X_{i,t} + \tau W_t + u_i + e_{i,t}$$

where the regulatory index is replaced by the word count index (W_t). Since the word count index is used in previous literature, this provides a check on how the updated regulatory index performs and to also ensure the results are similar.

Results and Conclusions

Results for the model are found in Table 2. From the results, the increase in the regulatory index is statistically significant and negative. Thus, an increase in regulation decreases the profitability of financial institutions. It is also shown that an increase in regulation decreases the profitability of small banks more than it does for banks with more than \$250 million dollars in assets. This result shows that the even though the Dodd-Frank Act targets larger banks, small banks are just as affected by the increase in regulatory oversight.

The robustness check for this model is located in Table 3. For this model, the word count index of regulatory policies is used instead of the probability weighted regulatory index. Results are similar for

this model as those found in Table 2. The word count index is statistically significant and negative. An increase in the number of words within regulatory policies negatively affects profitability. However, the magnitude of the word count index is larger than that of the probability weighted index.

Overall, the results of the model shows that the impacts of the Dodd-Frank Act decrease profitability of financial institutions. Results shows that the impact of regulations was increased for those banks with less than \$250 million in total assets and that the results were robust to using the word count index instead of the probability weighted index.

Works Cited

- Al-Ubaydili, O., & McLaughlin, P. A. (2015). RegData: A Numerical Database on Industry-Specific Regulation for all United States Industries and Federal Regulations, 1997-2012. Retrieved from regdata.org/data/
- Barth, J. R., Lin, C., Ma, Y., Seade, J., & Song, F. M. (2013). Do Bank Regulation, Supervision and Monitoring Enhance or Impede Bank Efficiency. *Journal of Banking and Finance*, 2879-2892.
- Benston, G. J., & Kaufman, G. (1996). The Appropriate Role of Bank Regulation. *The Economic Journal*, 688-697.
- Borio, C., Gambacorta, L., & Hofmann, B. (2015, October). The Influence of Monetary Policy on Bank Profitability. *BIS Working Papers*.
- Brewer, B. E., Briggeman, B., Featherstone, A., & Wilson, C. (2015). *Kansas State University Agricultural Lender Survey*. Kansas State University, Department of Agricultural Economics, Manhattan, KS. Retrieved from <http://www.ageconomics.ksu.edu/p.aspx?tabid=705>
- Briggeman, B. C., Gunderson, M. A., & Gloy, B. A. (2009, July 31). The Financial Health of Agricultural Lenders.
- Campbell, T. S., Chan, Y.-S., & Marina, A. M. (1992). An Incentive-Based Theory of Bank Regulation. *Journal of Financial Intermediation*, 255-276.
- Diamond, D., & Dybvig, P. (1986). Banking Theory, Deposit Insurance, and Bank Regulation. *The Journal of Business*, 55-68.
- Kaufman, G. G. (1996). Bank Failures, Systemic Risk, and Bank Regulation. *Cato Journal*.
- Marsh, T. D., & Norman, J. W. (2013). *The Impact of Dodd-Frank on Community Banks*. American Enterprise Institute.
- Peirce, H., Robinson, I., & Stratmann, T. (2014). *How are Small banks Faring Under Dodd-Frank*. Arlington, VA: Mercatus Center, George Mason University.
- Skeel Jr, D. A. (2010). The New Financial Deal: Understanding the Dodd-Frank Act and its (Unintended) Consequences. *Faculty Scholarship*.

Figure 1, Number of Bank Restrictions, 1970-2014

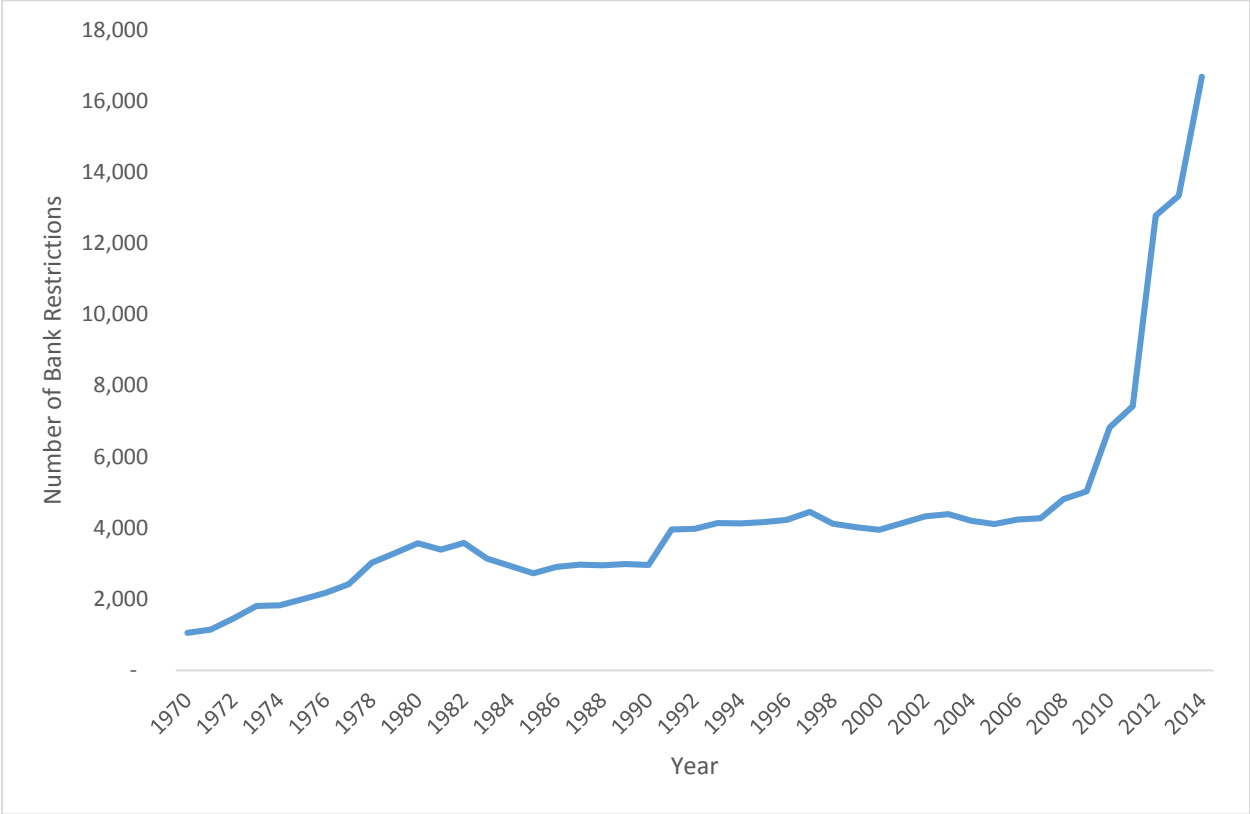


Figure 2, Number of Mergers and Acquisitions, 1990-2015

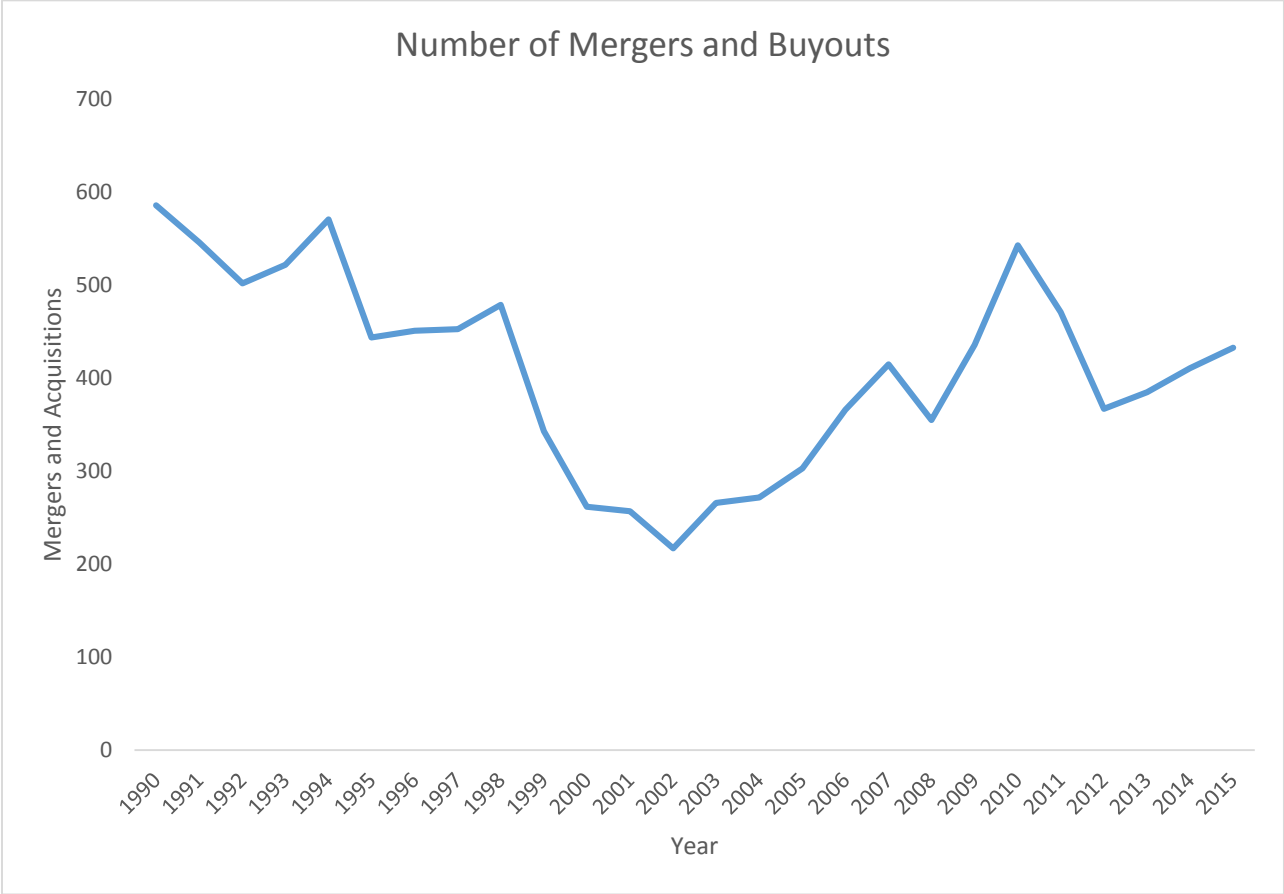


Figure 3, Probability-Weighted Index of Title 12 Regulatory Restrictions, 1970-2014

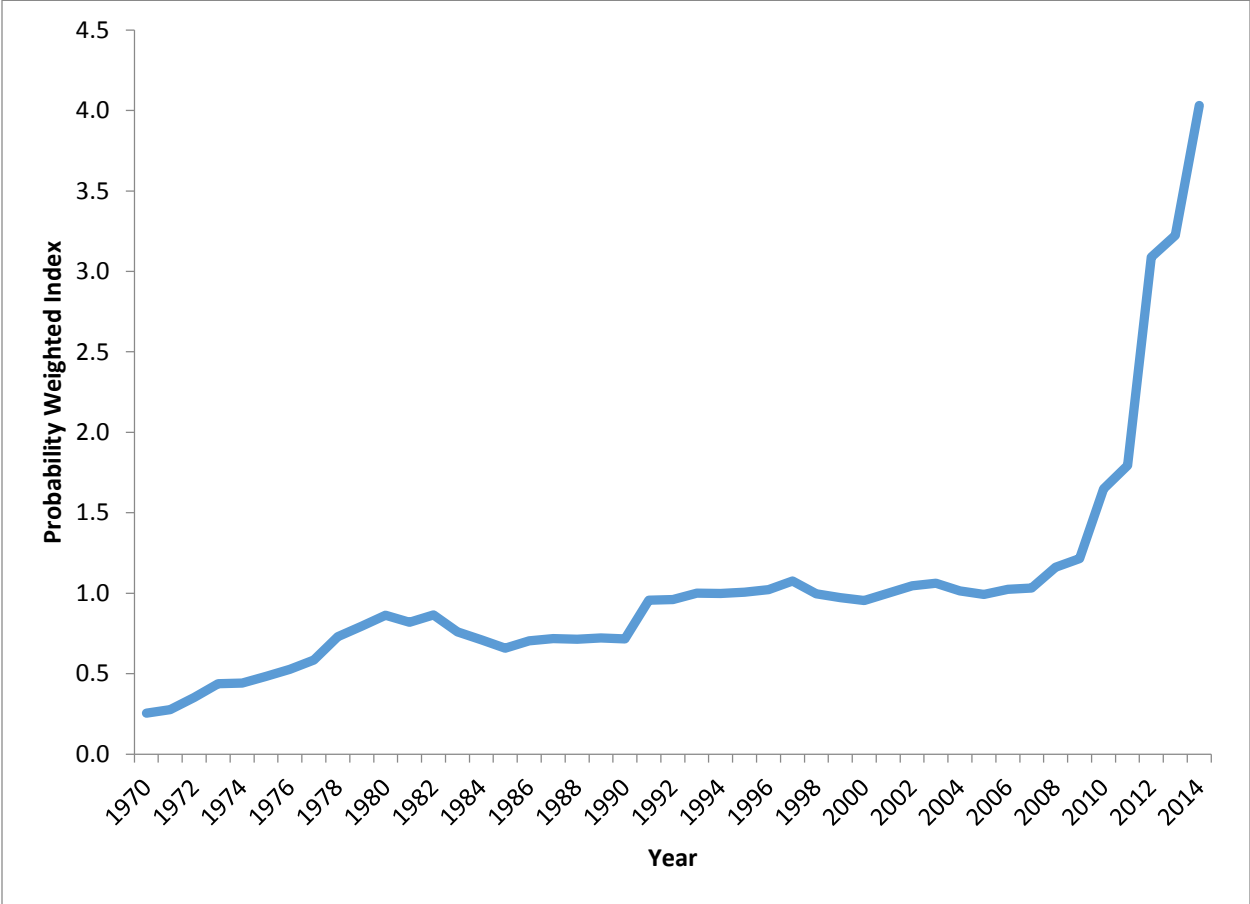


Table 1, Summary Statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
Return on Average Assets	127,246	1.00	3.07	-670.37	129.94
Yield over Cost of Funds	126,932	3.85	1.68	0.00	71.27
Equity to Assets	128,314	11.36	7.73	0.07	99.97
Loan to Deposits	127,608	71.60	21.88	0.00	299.78
Salary to Average Assets	127,254	1.87	3.61	0.00	457.09
Net Charge Offs to Loans	126,537	0.37	0.87	-30.26	45.20
% Farm Loans	124,948	7.17	8.88	0.00	100.00
% Construction Loans	124,947	5.04	6.91	0.00	98.67
% Single Family Loans	124,939	29.55	19.23	0.00	100.03
% Multi Family Loans	127,610	1.76	3.89	0.00	100.00
% Commercial Loans	124,947	18.36	14.44	0.00	100.00
% Other Loans	142,875	45.84	28.54	-13.71	100.00
Regulatory Index	142,875	1.36	0.81	0.72	4.03
Word Count Index	142,875	1.17	0.37	0.74	2.31

Table 2, Fixed Effects Model Results for All Banks, Small Banks, and Large Banks

Variable	All Banks		Banks <\$250 Mil		Banks >\$250 Mil	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Return on Average Assets	0.06828*	0.00312	0.0601*	0.003615	0.0905*	0.0064
Yield over Cost of Funds	0.04125*	0.00127	0.0310*	0.001334	0.1198*	0.0044
Equity to Assets	0.02265*	0.00079	0.0215*	0.000894	0.0260*	0.0019
Loan to Deposits	0.00296*	0.00014	0.0036*	0.000161	0.0001	0.0003
Salary to Average Assets	0.00347	0.00274	0.0022	0.002938	0.0293*	0.0093
Net Charge Offs to Loans	-0.23486*	0.00291	-0.2484*	0.003451	-0.2523*	0.0058
% Farm Loans	-0.00087**	0.00044	-0.0010**	0.000453	-0.0052**	0.0024
% Construction Loans	-0.00288*	0.00041	-0.0031*	0.000506	-0.0014	0.0009
% Single Family Loans	-0.00149*	0.00025	-0.0026*	0.0003	-0.0007	0.0006
% Multi Family Loans	-0.00435*	0.00091	-0.0017	0.001169	-0.0067*	0.0016
% Commercial Loans	-0.00567*	0.00025	-0.0056*	0.000293	-0.0081*	0.0006
Regulatory Index	-0.04978*	0.00210	-0.0649*	0.002571	-0.0352*	0.0041
Constant	-0.33503*	0.01719	-0.2925*	0.019169	-0.3497*	0.0496
	N=99,241		N=77,920		N=21,321	
*, **, *** indicate significance at the 99%, 95% and 90% level respectively	$R^2 = 0.11$		$R^2 = 0.11$		$R^2 = 0.16$	

Table 3, Robustness Check, Fixed Effects Model using Word Count Index

Variable	Banks <\$250 Mil	
	Coefficient	Standard Error
Return on Average Assets	0.0579*	0.0036
Yield over Cost of Funds	0.0285*	0.0013
Equity to Assets	0.0219*	0.0009
Loan to Deposits	0.0037*	0.0002
Salary to Average Assets	0.0024	0.0029
Net Charge Offs to Loans	-0.2478*	0.0034
% Farm Loans	-0.0003	0.0005
% Construction Loans	-0.0022*	0.0005
% Single Family Loans	-0.0023*	0.0003
% Multi Family Loans	-0.0011	0.0012
% Commercial Loans	-0.0049*	0.0003
Regulatory Index	-0.1676*	0.0060
Constant	-0.2203*	0.0194
	N=77,920	
	$R^2 = 0.11$	
*, **, *** indicate significance at the 99%, 95% and 90% level respectively		