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The Gramm-Leach-Bliley Act of 1999 amended the lending authority of the Federal Home Loan Banks to include advances secured by small enterprise loans of community financial institutions. Three possible reasons for the extension of this selective credit subsidy to community banks and thrifts are examined, including the need to subsidize community depository institutions, stabilize the Federal Home Loan Banks, and address a market failure in rural markets for small enterprise loans.

We empirically investigate whether funding constraints impact the small-business lending decision by rural community banks. Specifically, we estimate two empirical models of small-business lending by community banks. The data reject the hypothesis that access to increased funds will increase the amount of small-business loans made by community banks.

JEL Codes: G2

Key Words: small business loans, community banks, government sponsored enterprises

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This work was completed while Ben Craig was a visiting scholar at the Bundesbank. The authors thank Ed Kane, John Thornton, Walker Todd, and Bert Ely for comments and suggestions, and Pat Higgins and Korhan Bilek for outstanding research support.

Federal Home Loan Bank Lending to Community Banks: Are Targeted Subsidies Necessary?

The Financial Services Modernization Act of 1999 brought about sweeping changes to the financial system.¹ Also known as the Gramm-Leach-Bliley Act (GLBA), this statute represents the single most important set of regulatory reforms since the Glass-Steagall Act of 1933. The GLBA repeals many of the provisions of the Glass-Steagall and Bank Holding Company Acts that prohibit or limit the affiliation of banks with other nondepository financial firms. Ironically, while the spirit of GLBA is consistent with efforts to reduce financial-market distortions caused by government intervention, the legislation introduces a new distortion into financial markets by permitting Federal Home Loan Banks to lend to community financial institutions.²

Title VI, Section 604, of the GLBA amends the Federal Home Loan Bank Act to extend the lending authority of the Federal Home Loan Banks (FHLBs). The amendment allows the FHLBs to make advances secured by the small business and small agricultural loans of community financial institutions. This new FHLB lending power means that community banks and thrifts can now fund loans to small businesses and agricultural concerns with something other than deposits. By providing community financial institutions with a subsidized source of funds, Congress sought to encourage increased lending to small enterprises.

Unfortunately, selective credit subsidies have proven to be inefficient tools for promoting a financial activity, such as small business lending, or a particular set of firms – such as community financial institutions. Moreover, there is a wide literature (see for example, Kane [1970, 1977]) that shows how this type of government intervention distorts private incentives. These distortions in incentives result in unintended effects of the policy that reduce the effectiveness of the intervention – even make it counterproductive – while increasing its cost. The GLBA extension of FHLB lending powers is likely to increase taxpayer exposure to bank losses, misallocate funds that may be more efficiently used elsewhere and unnecessarily transfer wealth from depositors and taxpayers to the owners of community financial institutions, FHLBs,

¹ Public Law 106-102.

² Section 602 of the GLBA amended section 2 of the Federal Home Loan Bank Act, defining a “community financial institution” as follows: “The term ‘community financial institution’ means that the financial institutions has deposits insured under the Federal Deposit Insurance Act and has, as of the date of the transaction at issue, less than \$500,000,000 in average total assets, based on an average of total assets over the 3 years preceding that date.” *Ibid*, footnote 1.

and small enterprises. If this wealth transfer is truly the purpose of the act then classic economic welfare arguments suggest a more efficient direct cash subsidy.

In this paper we examine whether we need to subsidize the funding of the small enterprise loan portfolios of community financial institutions. We speculate that in extending the FHLBs' lending authority, Congress intended to address one of three possible problems. Then, we investigate whether these problems are real or not. Section I describes the possible scenarios. Congress may have thought that the FHLBs needed a new role in financial markets to ensure their survival. Perhaps they perceive that community financial institutions need subsidies to stay afloat. A third possibility is that legislators may have believed that small business and agricultural lending in rural areas would suffer without Congressional support. We present evidence against the use of selective credit subsidies to ensure the viability of the FHLBs or community banks. We argue that even if these perceived needs are real, there are alternative policies for addressing them that dominate this form of intervention. The remainder of our analysis focuses on refuting the hypothesis that community financial institutions need more funds to increase their rural small business lending. Specifically, we empirically investigate whether funding constraints affect the lending decision at community banks. In section II, we describe our data, including summary statistics, and outline our empirical strategy. The empirical results are presented in section III. Overall, the empirical evidence demonstrates that funding does not constrain rural small business lending, so the FHLB lending provisions of the Act will have no beneficial effect on such lending. Conclusions and policy implications are in section IV.

I. What Was Congress Thinking?

The existence of financial intermediaries tells us that the perfect capital market assumptions that underpin the Modigliani-Miller irrelevance of the form of capital does not hold. For policymakers, the question is not whether financial markets (money, capital, and payments markets) are frictionless. Rather, the question is, do the private sector institutions that arise to mitigate (or arbitrage away) market frictions serve to complete the markets? If not, then public intervention in markets may be required. In this case, we are interested in the objectives underlying the use of an existing government-sponsored enterprise (GSE) to subsidize the funding of community financial institution's small business loans. Moreover, we are interested in whether or not extending FHLB lending authority is the most effective intervention for achieving these objectives.

One possible motivation for the GBLA small business lending provisions is the desire of Congress to subsidize the activities of community financial institutions. Subsidization of these “asset-challenged” depository institutions might be warranted if the social benefits associated with their operation exceeded the private benefits. However, for our purposes the point is not whether subsidies to community financial institutions are necessary, but rather given if Congress has decided to subsidize these depositories, is the method undertaken in GBLA the best one from the standpoint of social welfare?

By allowing community financial institutions to pledge small enterprise loans as collateral for FHLB advances, the GBLA is engaging in selective credit allocation. From Kane (1977), we know that selective credit allocation is an inefficient and often counterproductive policy tool. In the case of community financial institutions, the provision of subsidies tied to small enterprise lending is likely to have costly unintended effects. For one, if community financial institutions are not funding-constrained then this subsidy tied to small-enterprise lending is not likely to increase the amount of credit extended. However, the ability to substitute FHLB advances for deposits to fund existing small-enterprise loans increases the deposit-market power of community banks and thrifts – to the detriment of depositors, in particular small savers. To the extent that access to additional funds through the FHLB stimulates additional lending by community depositories, the new credits are likely to carry higher default risk than those already in the portfolio. Moreover, given the limited geographic scope of community banks and thrifts these new credits are likely to be highly correlated with the institution’s existing loan portfolio.³ In other words, at the macroeconomic level, this form of selective credit allocation may result in an overinvestment in risky assets in the economy, and at the institution-level, increases the probability of failure and expected losses to uninsured claimants and the Federal Deposit Insurance Corporation.

Indeed, if Congress wants to ensure the viability of community financial institutions, there are more economically efficient methods for doing this. For example, the Congress could extend to all community financial institutions the tax-benefits associated with being organized as a subchapter S corporation.⁴ Moreover, Congress could reduce the regulatory burden of these community depositories by exempting them from the Community Reinvestment Act and other consumer regulations where the fixed costs of compliance, such as reporting requirements, are high.

³ See Flannery (1989) for an alternative explanation.

A second rationale for the GLBA amendments to FHLB lending authority is a desire to ensure the continued viability of the Federal Home Loan Banks by providing them with an additional role in financial markets. The FHLBs were originally part of an institutional structure set up to promote housing finance, which included a separately chartered set of depository institutions and savings associations, as lenders.⁵ Like all government-sponsored enterprises (GSEs), the FHLBs represent an indirect government intervention, in part because the chartering of a GSE to carry out a particular public mission requires an act of Congress.

Why should Congress be concerned about the survival of a GSE? After all, the justification for chartering a GSE is to perform a needed market-completion service not being provided by private intermediaries. The fact that a GSE is no longer viable may indicate that it is no longer needed to carry out that function, or it may be a signal that flaws in its design keep it from performing the needed role. In the first case, markets may have developed to the degree that continued government intervention is no longer needed. In the second case, government intervention is still required, but the existing method of intervention needs to be replaced with one that performs the needed function. In either of these two cases, social welfare would be enhanced by the orderly exit of this government-subsidized competitor from financial markets. If indeed the existence of the FHLBs is in question, it is because of dramatic changes in financial markets since the 1930s. In particular, the increased efficiency of housing-finance markets in the United States has reduced (if not eliminated) the need for direct and indirect government intervention to support this market, including the traditional functions performed by the FHLBs.⁶

Given the lessons of the thrift debacle, it is not surprising that Congress would be concerned when the survival of one of these financial institutions comes into question. The cost

⁴ See Harvey and Padget (2000).

⁵ Two pieces of legislation, the Home Loan Bank Act of 1932 and the National Housing Act of 1934, established the foundation of federal policy for housing finance and the infrastructure for promoting and regulating the housing finance industry – the Federal Home Loan Bank System. At inception, the Federal Home Loan Bank System consisted of 12 Banks (similar in charter and organization to the 12 Federal Reserve Banks), the Federal Savings and Loan Insurance Corporation (similar to the FDIC), the Home Owners Loan Corporation, the Federal Home Loan Bank Board (analogous to the Federal Reserve Board) to oversee the System, and charter federal savings and loans (equivalent to the Office of the Comptroller of the Currency). The Federal Home Loan Bank Board and its successor the Federal Housing Finance Board would include all Federal Home Loan Bank member institutions in the definition of the Federal Home Loan Bank System. For a contemporary discussion of the Federal Home Loan Bank System and its mandate to promote housing, see McDonough (1934).

⁶ Laderman and Passmore (2000) raise questions as to the need a separate thrift charter to promote housing finance. Moreover, recent research by Heuson, Passmore and Sparks (2000) calls into question whether mortgage securitization – done large by GSEs – has resulted in lower mortgage rates. These authors find that the causation runs from lower mortgage rates to securitization and not the other way around

associated with deviations of GSEs from their original mission is a major policy concern. After all the goals of GSEs, such as the FHL Banks, are muddled when the interests of their shareholders are not closely aligned with the mission associated with the enterprises' public charter. To the extent that public and private interests diverge, GSEs are prone to "mission creep" – a subtle shift away from their original mandate. Mission creep can lead to undesirable distortions in financial markets, including resource misallocations and increased taxpayer exposure potential losses associated with the activities of these GSEs. Unchecked by well-defined legislative limits on GSE activities, mission creep coupled with competitive advantages associated with their public charter could enable these firms to dominate their markets at the expense of their private competitors.⁷

One lesson from the 1980s thrift debacle is that the moral-hazard problems associated with government-subsidized funding of a financial institution increase dramatically as it comes under financial distress.⁸ In the case of a GSE, timely action by the Congress may be needed to contain the potential losses to taxpayers and the deadweight losses to the economy associated with the 'gambling for resurrection strategies' that ensue. There are, however, two alternatives to expanding the FHLBs franchise that would have addressed concerns Congress may have had about the increasing moral hazard incentives faced by the FHLB's. The first alternative would be legislation that mandated an orderly withdrawal of the FHLBs from markets and liquidation of their remaining assets. A second alternative would be a full privatization of the FHLBs. Privatization would include an explicit withdrawal of government subsidies to the Federal Home Loan Banks and the phasing out of restrictions on their activities.⁹ It is notable that privatization was the route taken by Sallie Mae.¹⁰ Both of these alternatives would reduce the distortions associated with government intervention in markets, while the latter would allow for a role for the FHLBs in those financial markets in which they are competitive.

⁷ For example, as Maloney and Thomson (2001) point out, it is difficult to reconcile the FHLBs' large investment in mortgage-backed securities issued by other GSEs with the FHLBs' mission. In effect, the leveraging of the implicit government guarantees of the FHLBs' consolidated obligation bonds – bonds issued on behalf of the 12 FHL Banks collectively – to invest in marketable securities is analogous to the FHLBs operating a government subsidized hedge fund.

⁸ See Kane (1989).

⁹ The idea that a GSE should be privatized once its mission has been achieved is not new. As former Deputy Assistant Secretary of the Treasury Darcey Bradbury (1995) notes, "The Treasury has for a number of years, in Democratic and Republican Administrations, believed that it is appropriate to wean a GSE from Federal sponsorship once the GSE becomes economically viable and successfully fulfills the purpose for which it was created with Federal sponsorship, or when the purpose for which it was created ceases to exist."

¹⁰ See the Student Loan Marketing Association (1996).

Ensuring that adequate funds are available to small businesses and family farms represents a third possible rationale for the GLBA extension of the FHLBs' lending authority (to include advances secured by the small enterprise loans of community banks and thrifts). Why would Congress extend another subsidy to support lending to sectors of the economy for which there is already a litany of programs – such as the Small Business Administration's loan guarantee program for small business loans and the Farm Credit Banks in agriculture – designed to do that? One possible answer lies in work by Peterson and Rajan (1994) and Berger and Udell (1995) on the importance of banking relationships in the small business loan market.¹¹ This work suggests that existing programs to support lending to small enterprises, and in particular small businesses, rely heavily on the ability of community banks to fund new loans. This would be especially true in rural markets where community banks are likely to be the main source of credit. Therefore, if community banks are funding-constrained then a number of profitable loans would not be funded, irrespective of existing loan-guarantee programs. In this case, government intervention, such as the GLBA amendments to FHLB lending authority, might be justified because of the deadweight losses associated with not funding all positive-net-present-value projects in the economy.

To the extent that community banks are *not* funding-constrained, this new source of funding tied to small enterprise loans is not likely to increase funds available to small businesses. In this case, FHLB advances secured by small business and small agricultural credits will be used to replace deposits, increasing whatever market power community banks in non-urban markets have. Neumark and Sharp (1992) document an asymmetric response of consumer deposit rates to changes in market interest rates – deposit rates follow market rates up with a lag, but closely follow market rates down. Hence, an unintended consequence of the Act's FHLB lending provisions could be a wealth transfer from small savers to the owners of community banks and thrifts.

Whether FHLB advances are likely to lead to increased small business lending by community financial institutions or will be used for other purposes – such as deposit replacement or for alternative funding opportunities – is an empirical issue, which we address in this paper. To do this we focus on the small-business lending activities of community banks, particularly those headquartered in non-MSA counties, and test the following hypothesis:

¹¹ Kane and Malkiel (1965) provide an early analysis of the importance of relationships in business lending.

H₀: Increasing community-bank access to funds will significantly increase their small-business lending.

II. The Sample and Empirical Method

The sample consists of balance-sheet and income-statement data for FDIC-insured banks from 1993 through 1999 from the June Federal Financial Institution Reports of Income and Condition (call reports). The sample is limited to the June call reports because that is the only quarter small business loan data is reported, starting June 1993. In addition, we collected data from the FDIC's annual Summary of Deposit Data filed each June. Finally, we include economic-conditions data from the Bureau of Labor Statistics and the Bureau of Economic Analysis. These data were aggregated from county and MSA statistics on unemployment rates, population and income collected for each calendar year.

In this paper, the analysis concentrates on small business lending by community banks for two reasons. First, focusing on small business loans captures the credit sector that the act is intended to subsidize more exactly.¹² Second, commercial lending by thrift institutions is constrained by other limits legislated by Congress.¹³

To test our null hypothesis we construct a regression system of equations where deposits and small-business loans are assumed to be endogenous. If the effect of deposits (once the endogeneity of the variable is taken into account) on small-business loans is positive, then this would indicate that the banks are funding constrained and would support the hypothesis, H₀. A first set of equations relates the portfolio share of small-business loans to proxy variables from the balance sheet designed to capture sources of funds for small-business loans and competing uses, as well as variables to control for market structure and various fixed effects related to economic conditions in the bank's market. The model is:

$$DEPA_t = \beta_0 + \sum_{j=1}^n \beta_j BS_{j,t} + \sum_{j=n+1}^m \beta_j MS_{j,t} + \sum_{j=m+1}^p \beta_j EC_{j,t} + \varepsilon_t \quad (1)$$

$$SBLA_t = \alpha_0 + \lambda_1 DEPA_t + \sum_{j=2}^l \lambda_j BS_{j,t} + \sum_{j=l+1}^k \lambda_j MS_{j,t} + \sum_{j=k+1}^h \lambda_j EC_{j,t} + \mu_t, \quad (2)$$

¹² We also limit the sample to small business loans because of concerns about the quality of the small agricultural loan data on the call reports. In addition, preliminary work using the small agricultural loan data calls into question whether it is appropriate to pool these credits with the small business loans.

¹³ The acts include the Garn-St Germain Act of 1982, and the qualified thrift lender test in the Competitive Equality Banking Act of 1987 as amended by the Economic Growth and Regulatory Paperwork Reduction

where, $DEPA_t$ and $SBLA_t$ are the deposits to assets and small-business-loans to assets ratios, respectively, BS_j is the j^{th} variable constructed from balance sheet data, MS_j is the j^{th} market structure proxy, and EC_j is the j^{th} economic conditions variable included to control for the economic environment. Four balance-sheet variables are included in equation (1). The natural log of total assets scaled by total assets is included as a regressor to control for the correlation between the size of a bank and its reliance on deposits.¹⁴ We include the capital-to-asset ratio because it represents an alternative funding source and to control for the possible influence of capital regulation. Federal funds purchased to assets and other borrowed money to assets are included in the deposit equation because they represent alternative funding sources, ones that at the margin might be less expensive than raising additional deposits. To control for the impact of market structure we include the bank's market share of deposits in its home market, a dummy variable equal to one if the bank is headquartered in a rural county, and the total number of branches. Finally, for a bank's primary market we include the unemployment rate, population growth, and the natural log of per capita income to control for the economic environment.

The primary regressor of interest in (2) is the endogenous deposit-to-asset ratio. For the null hypothesis, H_0 , that the community-bank lending market is constrained by a lack of funds, to hold, the estimated coefficient on this variable, λ_1 , needs to be positive and significant. However, we include a number of other balance-sheet proxy variables to capture the effects of other bank asset and liability decisions that impact the size of the small business loan portfolio. As in equation (1), we include the natural-log-of-assets-to- assets ratio and the capital-to-assets ratio to control for the impact of size and capital on small-business lending. We also include three variables, which represent competing uses of funds: large business loans to assets, securities to assets, and federal funds sold to assets. To control for market structure we include the number of branches, a non-MSA dummy (equal to one if the bank is headquartered in a non-MSA county) and the deposit Herfindahl index for the market where the bank is headquartered. Finally, the lending opportunity faced by the bank is controlled for the inclusion of the same economics conditions variables as equation (1).

Some care needs to be exercised in interpreting coefficients in static portfolio-share regressions. Equations (1) and (2) provide us with an understanding of how funding and other asset decisions, given market structure and economic conditions, determine the share of assets

Act of 1996. The 1996 legislation complicates the analysis of the determinants of thrift-small business lending by allowing such credits to be counted without limit towards meeting the qualified thrift lender test.

invested in small-business loans. While this framework provides us with insight as to the importance of funding constraints, it does not allow us to test directly whether additional small-business lending is conditioned by the ability of the bank to raise additional funds. To do this we propose a second system of equations that looks at the year-to-year change in deposits and small business loans.

$$\Delta LNDEP_t = \beta_0 + \sum_{j=1}^n \beta_j \Delta LNBS_{j,t} + \sum_{j=n+1}^m \beta_j MS_{j,t} + \sum_{j=m+1}^p \beta_j EC_{j,t} + \varepsilon_t \quad (3)$$

$$\Delta LNSBL_t = \alpha_0 + \lambda_1 \Delta LNDEP_t + \sum_{j=2}^l \lambda_j \Delta LNBS_{j,t} + \sum_{j=l+1}^k \lambda_j MS_{j,t-1} + \sum_{j=k+1}^h \lambda_j EC_{j,t-1} + \mu_t \quad (4)$$

Equations (3) and (4) are essentially our first system with the portfolio-share variables replaced by logarithmic changes in the underlying asset or liability category. Thus $\Delta LNSBL$, $\Delta LNDEP$, and $\Delta LNBS$ s represent changes in the natural logarithm of levels of small-business loans, deposits and balance-sheet variables from time $t-1$ to t .¹⁵ In addition, the market-structure variables are lagged one period to control for the effect of existing economic structure on these changes in the deposits and small business loans. The list of the variables in equations (3) and (4) along with their definitions is presented in table 1. As before, the focus of these regressions is on the small-business lending equation, and the deposit equation and small-business lending equations are jointly estimated in a system where the change in deposits and change in small business loans are assumed endogenous. If the null hypothesis of community-bank small-business lending being funding-constrained is true, we expect the estimated coefficient on the change in deposits, λ_1 , to be positive and significant.

III. The Empirical Results

System in Levels

Our first system in levels represented by equations (1) and (2) are estimated over the entire sample of banks and six subsamples: all banks in Metropolitan Statistical Areas (MSAs),

¹⁴ Other specifications for this size proxy were used such as the natural log of total assets (unscaled). Our results were not sensitive to the specification of this variable.

¹⁵ To preserve observations with a value of zero we add one to all observations prior to taking the natural logarithm.

all banks in non-MSAs, community banks in MSAs, community banks in non-MSAs, large banks in MSAs, and large banks in non-MSAs.¹⁶ Given that we are interested in the GBLA provision that allows FHLBs to lend against the small-business loan portfolios community banks, we focus our discussion on the community-bank regressions, especially for the non-MSA sample.¹⁷

Table 2 presents the results for equations (1) and (2) over the sample of directly impacted by the new FHLB lending authority – banks with assets less than \$500 million. Table 2 reports the results for the model estimated over the MSA community bank (under \$500 million in assets) and non-MSA county community bank samples. We report the results for the ‘all banks under \$500 million in assets’ sample because, for equation 2, the data reject the pooling of the ‘banks in non-MSAs under \$500 million in assets’ with ‘banks in MSAs under \$500 million in assets’ at the 1 percent level.¹⁸

The top panel in table 2 presents the results for equation (1). As expected, the coefficients of the capital asset ratio, the federal-funds-purchased ratio and the other-borrowed-money ratio are negative and significant, indicating that reliance on deposits as a source of funds is inversely related to the use of other funding sources. However, for community banks, whether MSA or rural, the main alternative to deposit funding appears to be capital. The significantly positive coefficient on the natural-log-of-total-assets-to-total-assets ratio suggests that for community banks, size has a significantly negative impact on the proportion of assets funded by deposits. As expected, the effect of the number of bank branches is positively and significantly related to the reliance of community banks on deposits to fund assets. The reliance of city community banks on deposit funding is significantly positively related to their share of deposits in their home market. This is in contrast to an insignificant effect of the market share on deposits for non-MSA community banks. Finally, the significance of the economics conditions variables in all the subsamples illustrates the importance of controlling for these effects in this regression system.

The results for equation (2) are presented in the lower panel of table 2. Under the null hypothesis, the coefficient on the deposits-to-assets ratio is expected to be positive and

¹⁶ All equations are estimated using SAS version 8.0.

¹⁷ We also estimated a version of the model where small business loans to assets is replaced by total loans to assets as the dependent variable in equation (2) and dropping the LBLOANA variable as a regressor.

¹⁸ The community banks in rural areas sample conforms most closely under the null hypothesis to those banks that the GBLA is targeting. Therefore, we also test for differences across our sample of rural banks. For equation 2 the data reject the pooling of the non-MSA community bank sample with the sample of ‘banks in non-MSAs with assets greater than \$500 million’ at the 1 percent level.

significant. We find a positive and significant relationship between small business loans, as a share of assets, and deposits to assets in the ‘MSA banks less than \$500 million’ sample. However, for the rural community bank sample the coefficient on the deposit variable is negative and significant. This result for rural community banks is not consistent with a null hypothesis of a community-bank lending market that is constrained by a lack of deposits. Not surprisingly, the data reject the equality of the coefficients on the deposit-to-asset ratios across the MSA and non-MSA community bank samples. The negative and significant coefficient on the capital-to-assets ratio for non-MSA banks in table 2 suggests that rules limiting the percentage of capital a bank can be exposed to any single borrower may be binding for rural community banks. In other words, banks with higher capital-per-dollar-of-assets are able to make larger loans to profitable customers and hence, fewer loans that would be classified as small business loans.

Alternative lending and investment opportunities – large business loans to assets, securities to assets, and federal funds sold to assets – capture the effect of other uses of funds on the small-business-loan portfolio. All three of our proxies for other uses of funds are negative and significant, as expected. It is interesting to note that the estimated coefficients for the non-MSA community-bank subsample are significantly smaller than for the MSA community-bank subsample. The smaller effect of the alternative lending and investment opportunities on the small-business-loans-to-assets ratio for rural community banks is consistent with these banks’ having fewer available profitable lending opportunities. This result is also not consistent with the null hypothesis.

The coefficient on the natural-log-of-assets-to-assets ratio is negative and significant in both samples. Note, scaling the natural of assets by total assets makes this regressor inversely related to size and hence, larger community banks have a higher percentage of assets in loans including small-business loans, although the effect of size on small business lending is significantly higher for urban community banks than rural ones – presumably reflecting a better lending environment for urban banks. For rural community banks an increase in the number of branches significantly increases the share small business loans in the portfolio. Somewhat surprising, however, is the negative and significant coefficient on the number of branches for urban community banks. To the extent that small-business lending is relationship lending than we would expect a positive relationship between the number of branches and the proportion of small business loans held by a bank.

Market concentration, as captured by the deposit Herfindahl, is negatively related to SBLA for both MSA banks and non-MSA banks, but it is not significant in the non-MSA sample. For urban community banks a higher Herfindahl index in their home market is likely due to dominance of that market by large banks and hence, the negative coefficient on HERF suggests fewer profitable lending opportunities for community banks in concentrated urban markets. The MSA results are consistent with Boot and Thakor's (2000) finding that interbank competition increases the amount of relationship lending by banks.

Overall, the results of the first stage model are more consistent with the alternative hypothesis than they are with the hypothesis that community banks' small business loans are constrained by their funds. For community banks in non-MSA counties we fail to find a significant relationship between small business loans and deposits. Moreover, the behavior of the proxies for competing uses of funds is more consistent with a hypothesis that the lack of good lending opportunities constrains small business lending than with the presence of funding constraints. Thus the community banks are constrained more by the demand side of the market for loans, and not by the supply of funds. Hence, these results support the presence of alternative uses of funds and reject the constrained funds explanation for lower levels of small business loans.

System in Rates of Change

The results for deposits and lending in levels, equations (1) and (2), provide us with the empirical relationship between the share of assets funded with deposits and the level of investment in (portfolio share of) small business loans. This, however, is a static view of the lending process and an indirect test of the funding constraint hypothesis. A more direct test of the null hypothesis is to look at the change in small business lending over time as it relates to changes in other balance sheet variables. To this end we estimate the same equations in rates of change (our equations (3) and (4) above) over the same sample breakdowns as before. As with our first system of equations, for the small business lending equation (equation 4) the data reject pooling the non-MSA community bank sample with the MSA community bank sample.¹⁹

The top panel in table 3 presents the results for the change in deposit regressions. As expected, the signs on the alternative funding sources variables – change in capital, change in federal funds purchased and change in other borrowed money – are negative and significant for

¹⁹ For equation 4 the data also reject the pooling of the non-MSA community bank sample with the non-MSA large bank sample.

both samples. Moreover, the effect of asset growth on deposits as is positive and significant for this group of banks. On the other hand, the negative and significant coefficient on deposit market share at t-1 for rural community banks conforms to our expectation that banks with a high deposit market shares will have difficulty increasing their deposits at or above the rate of deposit growth in the market. The insignificant coefficient on deposit market share for city community banks is consistent with this explanation.

The lower panel of table 3 presents the results for equation (4). From table 3 we see that the coefficients on change in deposits and change in capital are not significantly different from zero for the ‘MSA Banks’ and the ‘Non MSA Banks’ regressions. For both samples, the change in the other uses of funds variables – change in large business loans, change in securities, and change in federal funds sold – are significantly negatively related to the change in small business loans. The magnitude of these effects is significantly larger for the rural community banks than for those headquartered in MSAs. Especially noteworthy is the coefficient on change in securities, which is nearly four times larger in absolute value for the non-MSA community banks than for their urban counterparts. The most likely explanation for this result is a lack of profitable small business lending opportunities in their home markets. In other words, community banks rely on asset management to accommodate changes in loan demand, and in this case the demand for small business loans. The absence of any effects of funding on the change in small business loans and evidence that loan demand is accommodated through pure asset management is strong evidence against our null hypothesis.

Finally, the change in small business loans is significantly positively related to asset growth and the number of branches at t-1 for MSA and non-MSA community banks, and is significantly negatively related to the deposit market Herfindahl at t-1 for rural community banks. The positive and significant coefficient on the change in assets for both MSA and non-MSA community banks suggests that for banks that are growing, the rate of growth in the small business loan portfolios exceeds asset growth. In addition, the positive coefficient on the number of branches at t-1 points to the importance of branches as a real option to develop the relationships needed to profitably engage in small business lending. To the extent that a deposit market concentration measure captures the competitiveness of the market, the insignificant coefficient on the deposit market Herfindahl at t-1 for urban community banks and the significantly negative coefficient on this Herfindahl index for rural community banks suggests that monopoly power reduces the change in small business loans. Finally, the performance of the

economic conditions proxies is consistent with the need to control for fixed effects in these regressions.

Overall, the results of our empirical tests find little evidence to supporting the null hypothesis. Our models of small business lending fail to find a significant relationship between deposits and small business loans in both the share/level regressions and the change regressions. Moreover, we find evidence of asset management by community banks, especially those headquartered in non-MSA counties, to accommodate changes in loan demand.

IV. Conclusion and Policy Implications

The enhancement of FHLB lending authority to include small enterprise loans by community financial institutions appears to have little economic justification. Three possible rationales for Congress including this FHLB reform in GBLA are outlined and investigated including: the desire to subsidize community banks, the need to mitigate moral hazard incentives associated with an increasingly nonviable GSE, and the need to correct a market failure in the small business lending markets. We argue that the first two possible objectives could be addressed through measures that are less distortionary and hence less costly to society. We formally test the third possible objective.

Our empirical analysis of the small business lending activities of community banks fails to find any evidence of funding constraints – the presumed source of market failure. The results, however, are consistent with community banks in non-MSA counties having more funds available than they can profitably lend. In fact, we find strong evidence that these banks utilize pure asset management to accommodate changes in loan demand. Therefore, it is unlikely that the GBLA’s extension of FHLB lending authority to include advances secured by the small enterprise portfolios of community banks and thrifts will materially increase small enterprise lending.

This new selective credit allocation scheme is likely to have costs, however. Stojanovic et al. (2000) show how FHLB advances could lead to increased risk-taking by community financial institutions and hence, increased loss exposure to the Federal Deposit Insurance Corporation. Maloney and Thomson (2001) point out the implications of extending FHLB lending authority for the riskiness of the FHLBs and the consequent increased risk to taxpayers. In addition, to the extent that these advances are used by community financial institutions for deposit replacement, the effect of this selective credit allocation scheme will be to subsidize

community banks at the expense of depositors.²⁰

²⁰ This is eerily reminiscent of the policies adopted in the 1960s to stabilize the thrift industry. See Kane (1970).

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TABLE 1: Variable Definitions

Variable	Type	Definition	Source
Capital to assets	BS	Capital to asset ratio	June Call Report
Deposits to assets	BS	Deposits to asset ratio	June Call Report
Fed Funds purchased to assets	BS	Federal funds purchased and securities sold under agreements to repurchase to assets ratio	June Call Report
Fed Funds sold to assets	BS	Federal funds sold and securities purchased under agreements to resell to assets ratio	June Call Report
Large business loans to assets	BS	(Commercial and industrial loans + commercial real estate loans - small business loans)/assets	June Call Report
Natural log of assets to assets	BS	Natural Log of total assets to total assets	June Call Report
Other borrowed money to assets	BS	Other borrowed money to assets ratio	June Call Report
Securities to assets	BS	Small business loans to assets ratio	June Call Report
Small business loans to assets	BS	Securities to assets ratio	June Call Report
Number of branches	MS	Total number of branches	Summary of Deposits
Deposit Herfindahl	MS	Deposit market Herfindahl in the bank's home market (non-MSA county or the MSA)	Summary of Deposits
Deposit market share	MS	Deposit market share of the bank in its home market (non-MSA county or MSA)	Summary of Deposits
Natural log of per capita income	EC	Natural Log of per capita income in the bank's home market (non-MSA county or the MSA)	Bureau of Economic Analysis
Population growth rate	EC	Annual population growth in the bank's home market (non-MSA county or the MSA)	Bureau of Economic Analysis
Unemployment rate	EC	The unemployment rate in the bank's home market (non-MSA county or the MSA)	Bureau of Labor Statistics
LN Δ in Assets	BS	Natural log of assets at t minus the natural log of assets at t-1	June Call Report
LN Δ in Capital	BS	Natural log of capital at t minus the natural log of capital at t-1	June Call Report
LN Δ in Deposits	BS	Natural log of deposits at t minus the natural log of deposits at t-1	June Call Report
LN Δ in Fed Funds Purchased	BS	Natural log of fed funds purchased at t minus the natural log of fed funds purchased at t-1	June Call Report
LN Δ in Fed Funds Sold	BS	Natural log of fed funds sold at t minus the natural log of fed funds sold at t-1	June Call Report
LN Δ in Other Borrowed Money	BS	Natural log of large business loans at t minus the natural log of large business loans at t-1	June Call Report
LN Δ in Securities	BS	Natural log of other borrowed money at t minus the natural log of other borrowed money at t-1	June Call Report
LN Δ Large Business Loans	BS	Natural log of small business loans at t minus the natural log of small business loans at t-1	June Call Report
LN Δ Small Business Loans	BS	Natural log of securities at t minus the natural log of securities at t-1	June Call Report

TABLE 2: Banks with Total Assets < \$500 million

Dependent Variable: Deposits to assets	MSA Banks			Non MSA Banks		
	Parameter Estimate	t value	Prob > t	Parameter Estimate	t value	Prob > t
Intercept	0.955704	183.28	<.0001	0.982724	277.49	<.0001
Capital to assets	-0.993300	-151.19	<.0001	-0.936240	-175.53	<.0001
Fed Funds purchased to assets	-0.000004	-111.64	<.0001	-0.000005	-93.78	<.0001
Other borrowed money to assets	-0.000004	-85.71	<.0001	-0.000005	-61.95	<.0001
Natural log of assets to assets	18.71987	13.43	<.0001	12.81665	16.89	<.0001
Number of branches	0.001060	12.40	<.0001	0.001272	14.10	<.0001
Deposit market share	0.038970	4.25	<.0001	0.000861	1.29	0.1959
Unemployment rate	0.001332	12.05	<.0001	0.000405	6.24	<.0001
Population growth rate	0.001286	5.69	<.0001	0.000147	1.22	0.2218
Natural log of per capita income	0.003274	2.19	0.0289	-0.005360	-4.76	<.0001
R-Square	0.71449			0.66076		
Number of observations	17734			23065		
Root-MSE	0.02949			0.02520		
Dependent Mean	0.87685			0.87292		
Coefficient of variation	3.363			2.887		

Dependent Variable: Small business loans to assets	MSA Banks			Non MSA Banks		
	Parameter Estimate	t value	Prob > t	Parameter Estimate	t value	Prob > t
Intercept	0.01215	0.54	0.5922	0.25349	10.05	<.0001
Deposits to assets	0.15946	8.36	<.0001	-0.14518	-6.30	<.0001
Capital to assets	0.24699	9.45	<.0001	-0.23577	-9.19	<.0001
Large business loans to assets	-0.71922	-153.85	<.0001	-0.48397	-115.14	<.0001
Securities to assets	-0.69100	-124.41	<.0001	-0.42046	-92.07	<.0001
Fed Funds sold to assets	-0.58757	-45.15	<.0001	-0.33597	-28.23	<.0001
Natural log of assets to assets	-150.709	-38.76	<.0001	-99.353	-48.02	<.0001
Number of branches	-0.00131	-5.81	<.0001	0.00388	16.05	<.0001
Deposit Herfindahl	-0.01737	-1.79	0.0731	-0.00306	-1.51	0.1301
Unemployment rate	0.00407	13.07	<.0001	0.00525	28.98	<.0001
Population growth rate	-0.00229	-3.64	0.0003	0.00932	27.74	<.0001
Natural log of per capita income	0.14169	36.77	<.0001	0.08682	28.05	<.0001
R-Square	0.66114			0.47305		
Number of observations	17734			23065		
Root-MSE	0.08121			0.06906		
Dependent Mean	0.16119			0.06363		
Coefficient of variation	50.382			108.539		

Source: Authors' calculations.

TABLE 3: Banks with Total Assets < \$500 million

Dependent Variable: LN Δ in Deposits	MSA Banks			Non MSA Banks		
	Parameter Estimate	t value	Prob > t	Parameter Estimate	t value	Prob > t
Intercept	0.016209	1.91	0.0556	0.004949	1.28	0.2014
LN Δ in Capital	-0.095700	-43	<.0001	-0.109600	-62.99	<.0001
LN Δ in Fed Funds Purchased	-0.005060	-27.09	<.0001	-0.004720	-44.54	<.0001
LN Δ in Other Borrowed Money	-0.002980	-19.14	<.0001	-0.002980	-31.07	<.0001
LN Δ in Assets	1.114282	407.57	<.0001	1.105859	541.88	<.0001
Number of Branches at t-1	-0.000390	-2.7	0.0069	-0.000420	-4.26	<.0001
Deposit market share at t-1	-0.025470	-1.6	0.1088	-0.001230	-1.73	0.0842
Unemployment rate	-0.000070	-0.33	0.7379	-0.000002	-0.03	0.9745
Population growth rate	0.000668	1.74	0.0817	0.000025	0.19	0.8482
Natural log of per capita income	-0.006130	-2.47	0.0135	-0.002230	-1.78	0.0756
R-Square	0.94547			0.96186		
Number of observations	11946			14860		
Root-MSE	0.0405			0.0229		
Dependent Mean	0.10081			0.05996		
Coefficient of variation	40.144			38.143		

Dependent Variable: LN Δ Small Business Loans	MSA Banks			Non MSA Banks		
	Parameter Estimate	t value	Prob > t	Parameter Estimate	t value	Prob > t
Intercept	1.878172	3.77	0.0002	1.611482	4.39	<.0001
LN Δ in Deposits	1.580852	0.84	0.4012	1.864857	1.04	0.2962
LN Δ in Capital	-0.092940	-0.41	0.6817	0.179091	0.71	0.4775
LN Δ Large Business Loans	-6.012720	-92.62	<.0001	-9.966840	-144.55	<.0001
LN Δ in Securities	-0.453030	-9.01	<.0001	-1.769010	-25.79	<.0001
LN Δ in Fed Funds Sold	-0.246320	-12.75	<.0001	-0.290300	-19.22	<.0001
LN Δ in Assets	6.483612	3.1	0.0019	10.360230	5.28	<.0001
Number of Branches at t-1	0.017053	2.01	0.0449	0.030358	3.33	0.0009
Deposit Herfindahl at t-1	-0.379070	-1.02	0.3075	-0.192580	-2.44	0.0148
Unemployment rate	-0.029220	-2.38	0.0175	-0.032210	-4.56	<.0001
Population growth rate	0.079153	3.31	0.0009	0.004008	0.32	0.7498
Natural log of per capita income	-0.432920	-2.99	0.0028	-0.318250	-2.69	0.0071
R-Square	0.42119			0.58629		
Number of observations	11946			14860		
Root-MSE	2.5208			2.1691		
Dependent Mean	0.63246			0.38874		
Coefficient of variation	398.572			557.975		

Source: Authors' calculations.

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