The Impact of Advances on Federal Home Loan Bank Portfolio Lending: *A Statistical Analysis*

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by

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Executive Summary

This paper examines the role that advances play in funding and investment decisions by financial institutions that are members of the Federal Home Loan Bank System (FHLBank System). Advances represent an ongoing accessible liquidity source for member institutions. By pledging certain assets as collateral, members can borrow funds from their local Federal Home Loan Bank (FHLBank) and use these funds to make more loans or acquire other assets. The intent of the program is to give members a hedge against risk by increasing their liquidity and to further their community missions in supporting housing, agriculture, community development and small businesses through their lending programs.

In this paper we use both descriptive and analytic statistics to compare and contrast the sources and uses of funds used by depository institutions, controlling for size, charter type, and membership status, using both level and ratio analysis derived from Call Report statistics.[1] We have two objectives in this report. The first is to provide basic information on the use of advances, their distribution across member institutions and their relative importance in an institution's overall funding mix. The second is to analyze that information using regression analysis and thus determine the magnitude of the influence of different factors, including advances, on member bank behavior.

Our analysis leads us to the following conclusions:

1. FHLBank System members (regardless of size) hold a significantly greater proportion of their portfolios in mortgage loans, small business loans, construction and land development loans and agricultural credit than do non-members;

2. Among FHLBank System members, those in the top quartile of advance users (defined by the ratio of advances to total assets) show greater support for housing, agriculture, small businesses and construction and land development than do other users and non-users;

3. Larger institutions tend to use more advances than smaller members, whether measured in absolute dollar terms or as a percentage of portfolio;

4. Institutions with assets over $10 billion that are in the upper quartile of advance users hold significantly higher percentages of their portfolios in single-family and multifamily mortgages than do smaller institutions or other users and non-users of the same size;

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[1] We describe these data in Appendix B.

5. In all other loan categories (agricultural, small business, land development and construction) members hold greater portions of their portfolios in these loans than do non-members, but the degree of use of advances does not seem to matter in their portfolio distributions;

6. Smaller member institutions hold higher percentages of agricultural, land development and construction, and small business loans in their portfolios than do either large institutions or non-members;

7. After controlling for other factors that could affect the portfolio holdings of member institutions, the impact of advances on both single-family and multifamily mortgage lending remains strong; on average, each dollar of advances that enters the system results in $2.48 of single family mortgage holdings; similarly, a dollar of advances increases multifamily mortgage lending by $0.34;

8. The largest class of members (those with assets over $10 billion) is the most intensive user of advances and shows the largest effect: they increased their single-family mortgage holdings by more than $2.50 for every dollar of advances they took. For multifamily mortgages, a dollar of advances yields almost $0.40 in loans from the largest class of institutions;

9. Institutions with assets under $10 billion also show increases in single-family mortgage holdings (i.e., the regression coefficients are positive and significant) with advances, but the impact is smaller. On average, a dollar increase in the use of advances by these members is associated with between $0.50 and $1.00 for each dollar of advances they borrow; for multifamily mortgages, the corresponding figure is $0.07 to $0.15;

10. The results for agricultural, construction and land development and small business lending show positive and significant relationships between the use of advances and increases in loans for member institutions with assets less than $1 billion. This is consistent with the conventional wisdom that smaller members tend to be more active in community-based lending;

11. Existing analyses, largely done by professionals within the FHLBank System and the Federal Reserve System, generally agree with the findings of this study.

Our overall conclusion from the analysis of FHLBank System member institutions' portfolios and regression analysis of all financial institutions is that the advances program is a powerful channel for the support of mortgage lending, and that it also helps increase the availability of credit for agricultural and small business purposes.

This report has six parts. We begin with a review of the research on the use of FHLBank System advances. Secondly, we present a descriptive overview of depository institutions, with size and charter breakdowns, the distribution of advances across member institutions, and their relative importance as sources of funds. The third section analyzes the use of advances by member institutions, comparing the use of advances among member institutions of different sizes and charter types and seeking to explain these variations. We then look at the role of advances in supporting real estate and community lending activities by comparing asset ratios and funding sources between like-sized and chartered members and non-members. Finally, we use regression analysis to determine the relative impact of different factors on member institution portfolio behavior, specifically focusing on the impact of advances on mortgage, agricultural, and small business lending.

Review of Research on the
Use of Federal Home Loan Advances

Overview and Purpose of the Federal Home Loan Banks

The FHLBank System was originally charged by Congress to provide ongoing liquidity to the narrowly defined savings industry in support of residential mortgage lending. Over time, regulatory changes relaxed these lending restrictions, and the potential FHLBank System membership base was enlarged to include commercial banks and credit unions in 1989.

<u>The Importance of Liquidity in Local Lending</u>

The FHLBank System is a major provider of liquidity to the financial system on a par with, but different from, other government sponsored enterprises (like Fannie Mae and Freddie Mac) and Wall Street. The value of liquidity provided by the FHLBank System stems from both the availability of credit to member institutions (the lender of first resort) and the actual provision of short- and long-term funds at capital market rates, without members having to sell loans or convert them into securities.

The availability of funds from the capital markets via the FHLBank System should allow member institutions to fund loans regardless of local deposit market conditions and to maintain higher ratios of loans to total assets, improving profitability and service to their communities. In theory, the use of funds from the FHLBank System allows member institutions to obtain funds on the margin, when needed, avoiding the high marginal costs of re-pricing the deposit base.

<u>Some Basic Descriptive Statistics</u>

The FHLBank System grew out of a need for a credit facility that could rediscount, that is, lend money on the security of home mortgages held by savings institutions. The system today is a large banking organization. FHLBank System assets at year-end 2003 totaled almost $823 billion and advances (loans to members) from the twelve regional FHLBanks amounted to over $500 billion.[2] Mortgage loans purchased directly from members (another means of providing liquidity) totaled slightly over $113 billion at year-end. FHLBank System depository institution membership stood over 7,200 at December 31, 2003, and all member institutions combined for $6.1 trillion in total assets. FHLBank System members held about $2.4 trillion in mortgage-related assets in their portfolios. Over 5,200 members were borrowers, about 72 percent of the total membership.

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[2] "Federal Home Loan Bank Mission Liquidity," mimeo, San Francisco Federal Home Loan Bank.

Studies Analyzing Benefits of FHLBank System Programs

There have been relatively few studies of the impact of advances on the lending behavior of FHLBank System members. We summarize the most important studies in Appendix A and list more in the bibliography. For our purposes here, we can summarize the conclusions of these studies as follows:

- There is a positive correlation between FHLBank membership and a bank's ability to fund loans that provide a social benefit (i.e., housing, agriculture, community development and small business loans);
- Access to FHLBank funding, by itself, is sufficient to encourage additional lending;
- Access to FHLBank programs assists community banks in making more loans and in actively addressing the issues of housing and community economic development;
- Small member community banks outperformed non-member banks in all categories of lending;
- There are material increases in home lending, small commercial and industrial lending, and loan/deposit ratios among member banks especially the active ones over non-member peers;
- The loan/deposit calculation indicates a willingness by banks to leverage existing deposits in order to fund additional loans;
- FHLBank System funding provides a "liquidity cushion" for banks unable to raise more deposits but needing to meet loan demand; and
- Liquidity access allows institutions to safely lend more in communities without putting capital at additional risk.

Descriptive Overview of FHLBank System Members

Traditionally, the members of the FHLBank System have been thrift institutions, mutual savings banks and savings and loan associations chartered to be a "special circuit" to promote home ownership by specializing in mortgage lending. With the collapse of the savings and loan industry in the 1980s and the waves of bank regulatory reform that have remolded the financial institutions industry, most depositories now hold commercial bank charters. Thus, the majority of institutions that are members of the FHLBank System are commercial banks.

TABLE 1-1

Frequencies of All FIRE Institutions Compared to FHLBank Members

All FIRE	CBs	SBs	Thrifts	Total
< $250m	6075	253	620	6948
$250m-$500m	890	118	123	1131
$500m-$1b	379	65	79	523
$1b-$10b	341	45	85	471
> $10b	83	6	21	110
Totals	7768	487	928	9183

FHLB Only	CBs	SBs	Thrifts	Total
< $250m	4407	241	597	5245
$250m-$500m	791	116	122	1029
$500m-$1b	345	63	78	486
$1b-$10b	306	42	84	432
> $10b	61	6	21	88
Totals	5910	468	902	7280

Table 1-1 breaks down all depository financial institutions and FHLBank System members by type of charter and by size. Of the total of 9,183 FIRE[3]

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[3] FIRE is the proprietary name of a structured database of financial institution balance sheet and income statement data provided by Plansmith, Inc., a Chicago-based accounting and financial data vendor. The acronym stands for Financial Institution Report of Earnings. However, the original data files are obtained by Plansmith from several federal sources -- the Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Federal Housing Finance Board/Office of Thrift Supervision, and Office of the Comptroller of the Currency. Plansmith, Inc. edits, compiles, and processes the data into its proprietary database package. We refer to data from the vendor database alternatively as the FIRE data or the Plansmith data in this study.

depository institutions at year-end 2003, approximately four-fifths 79.3 percent were members of the FHLBank System. The majority of these hold commercial bank charters. Significantly, nearly three-quarters of all members have assets of less than $250 million, and more than four-fifths have less than $500 million in assets.

At year-end 2003, membership comprised 5,910 commercial banks, 1,370 savings and loans and savings banks, 732 credit unions and 82 insurance companies. In addition, 62 state or local government housing agencies were associate members. With about $4.1 trillion in total assets, commercial banks represented the largest segment. Seventy-six percent of all commercial banks were members, and about 72 percent of the member commercial banks were borrowers on December 31. In terms of total assets, commercial bank members represented only about 52 percent of total bank assets, although they made up almost 76 percent of the total number of banks.

The thrifts segment – savings and loan associations and savings banks - represented about $1.5 trillion in assets at year-end. Virtually all thrifts (over 98 percent on average, per district) are members of the system and 70 percent borrowed from the system. Advances represent a large percentage of thrift total borrowing. These characteristics are principally a result of the long history this segment has had in utilizing the FHLBank System.

Only federally insured credit unions are eligible for membership and those that join tend to be at the larger end of the asset-size spectrum. However, while these 732 members account for only 7 percent of the total credit union population, they hold almost 50 percent of credit union total assets and 59 percent of their mortgages.[4] The FHLBank System provides the bulk of wholesale funds to credit unions. The 82 insurance company members are concentrated in a few FHLBank districts and are not too significant in terms of numbers. In addition, 62 state and local government housing agencies are considered associate members.

When we examine the coverage of FHLBank System membership in different size categories, a more nuanced picture emerges. While the largest membership groups are in the smaller size categories, membership is actually more typical among larger institutions. Table 1-2 describes the percentage of all institutions in particular charter and size categories that are members of the FHLBank System. In no case are fewer than 72 percent of institutions in any size/charter category members—the coverage of the system is pervasive.

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[4] Corporate credit unions are not required to file call reports so all credit union universe data are understated.

TABLE 1-2

FHLBank Membership by Institution and Asset Class
(Percent of All Institutions in Asset Class)

Assets	CBs	SBs	Thrifts	Total
< $250m	72.54	95.26	96.29	75.49
$250m-$500m	88.88	98.31	99.19	90.98
$500m-$1b	91.03	96.92	98.73	92.93
$1b-$10b	89.74	93.33	98.82	91.72
> $10b	73.49	100.00	100.00	80.00

Use of Advances by FHLBank System Members

Advances are a major activity of the FHLBank System. At year-end 2003, outstanding advances constituted 62.5 percent of the total assets of the twelve Federal Home Loan Banks.[5] They generally support portfolio mortgage lending, but are also available for small business and agricultural loans in the case of community financial institutions. Members secure advances with pledged assets, usually mortgage and other real estate loans, high-quality bonds and deposits at the FHLBank. Advances operate as short-term liquidity for members and enable them to expand their portfolios of housing, small business, community development and agriculture loans.

Tables 2-1 and 2-2 display advances outstanding at member institutions at year-end 2003. Table 2-1 reports on average absolute amounts and breaks down users and non-users in each asset category. Thus, at the end of 2003, the average member who used advances had slightly under $89 million in advances outstanding, with commercial bank members being below the average and thrift and savings bank members above it. Table 2-2 displays the percentage distribution of all advances across all members. For example, commercial banks with assets greater than $10 billion collectively held nearly a quarter of all advances outstanding.

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[5] *Federal Home Loan Banks 2003 Financial Report*, p.5, Office of Finance, Federal Home Loan Bank System.

Table 2-1 is largely as expected. Larger institutions hold, on average, greater dollar amounts of advances than do smaller institutions; the collateral and capital requirements to which members are subject ensure that this will be the case. The interesting numbers in Table 2-1 lie not in the size of the institutions, but rather the charter type. Relative to their numbers in the membership of the system, thrifts and, to a lesser extent, savings banks are disproportionately larger users of advances than are commercial bank members. The probable explanation for this is history. The system was initiated during the New Deal as a liquidity facility for those depository institutions supporting homeownership and real estate. Thus, savings banks and thrifts have a longer history and greater familiarity with the FHLBank System and use it more frequently and more intensively. Conversely, commercial banks, particularly large commercial banks, have an alternative liquidity facility in the Federal Reserve discount window, as well as access to a wider variety of financial markets and instruments.

TABLE 2-1

Distribution of Advances by Asset Class and Institution:
Average Advances, Users Only
($000s)

Assets	Comm. Banks	Savings Banks	Thrifts	Assets Total
< $250m	$6,919	$11,202	$14,735	$7,951
# users	2980	170	372	.3522
# non-users	1427	71	225	1723
$250m-$500m	$25,632	$44,886	$47,535	$30,265
n=	649	97	92	838
# non-users	142	19	30	191
$500m-$1b	$56,489	$91,679	$119,978	$71,508
n=	296	57	68	421
# non-users	49	6	10	65
$1b-$10b	$278,017	$450,806	$686,097	$379,104
n=	269	41	79	389
# non-users	37	1	5	43
>$10b	$2,120,213	$2,642,838	$5,975,648	$3,055,420
n=	54	5	18	77
# non-users	7	1	3	11
Bank Average	$57,263	$116,706	$285,813	$88,853
n=	4248	370	629	5247
# non-users	1662	98	273	2033

Table 2-2, which shows the distribution of advances by all asset and charter types (advances users only), shows that larger institutions are more intensive users of the system. As Table 2-2 shows, larger institutions absorb the vast majority of advances. Institutions with more than $1 billion in assets account for just under 80 percent of advances outstanding at year-end 2003. Among these institutions savings banks and thrifts hold disproportionately high percentages of total advances outstanding.

Larger institutions have greater investment opportunities than do smaller institutions, and use advances as a funding source to seize those opportunities. Also, as noted above, savings banks and thrifts have historically been the prime constituency for the FHLBank System and thus have had, on average, much more experience with the system.

TABLE 2-2

Distribution of Advances by Assets and Institution:
Member Advances and Percentage of Total, Users Only
($000s)

Assets	Comm. Banks	Savings Banks	Thrifts	Asset Total
< $250m	$20,618,851	$1,904,314	$5,481,505	$28,004,670
%	4.42	0.41	1.18	6.01
$250m-$500m	$16,634,922	$4,353,955	$4,373,265	$25,362,142
%	3.57	0.93	0.94	5.44
$500m-$1b	$16,720,722	$5,225,678	$8,158,538	$30,104,938
%	3.59	1.12	1.75	6.46
$1b-$10b	$74,786,770	$18,483,045	$54,201,643	$147,471,458
%	16.04	3.96	11.63	31.63
>$10b	$114,491,505	$13,214,188	$17,561,656	$235,267,349
%	24.56	2.83	23.07	50.46
				Total Advances
Bank Total	$243,252,770	$43,181,180	$179,776,607	$466,210,557
%	52.18	9.26	38.56	100.00

Table 2-3 (page14) breaks down the use of advances in each asset size category (ignoring charter type) by the frequency of institutions arrayed by the ratio of advances to total assets. In other words, the table says that among member institutions with assets between $250 and $500 million, nearly 19 percent do not hold any advances and over 75 percent hold advances in a ratio of less than 10 percent of their assets. Note that in most of the size categories, no institutions hold advances equal to more than half of their assets, and in all size categories, the majority of member institutions maintain an advance to assets ratio of less than 0.1.

The one outlier here is the $1 billion to $10 billion size category where three institutions (out of 432) hold large amounts of advances relative to assets. This is the result of a reporting anomaly. In large, multistate institutions, a single unit can belong to the FHLBank System, and advances can be channeled throughout the entire institution. Thus the denominator of the ratio in our table, while accurate in a regulatory sense, does not strictly represent the size of the institution using the advances.

The question arises as to how non-member banks fund their asset portfolios without access to advances. Conversely, one could ask the question, what would members do if there were no such thing as advances? For large institutions, these questions are difficult to answer since the percentage of institutions that are not members of the FHLBank System is very small. When statistical tests are run comparing ratios of specific liability categories to total liabilities, the differences between members and non-members are largely insignificant.

Where the differences occur appears to be in holdings of equity capital. Table 2-4 (page 15) compares the percentage of equity capital in the portfolios of members and non-members displayed by charter type and portfolios size. In virtually all cases (the exception being savings banks of less than $250 million in assets), institutions who are not members of the FHLBank System hold significantly higher percentages of capital than do members.

This suggests that advances, by increasing the liquidity of member portfolios, allow those members to hold lower levels of capital. It appears that in the absence of advances, members would have to support their portfolios by holding more capital.

TABLE 2-3

FHLBank Member Advances and Total Assets:
Frequency Distribution of Advances to Assets by Asset Category

Total Assets < $250,000,000

Advances to Assets Ratio	Freq.	Cum. Freq.	Percent	Cum. Percent
0.00	1723	1723	32.85	32.85
0.0-0.1	2691	4414	51.31	84.16
0.1-0.2	677	5091	12.91	97.06
0.2-0.3	116	5207	2.21	99.28
0.3-0.4	33	5240	0.63	99.90
0.4-0.5	5	5245	0.10	100.00
0.5-0.6	0	5245	0.00	100.00
0.6-0.7	0	5245	0.00	100.00
0.7-0.8	0	5245	0.00	100.00
0.8-0.9	0	5245	0.00	100.00

Total Assets >=$250,000,000 - <$500,000,000

Advances to Assets Ratio	Freq.	Cum. Freq.	Percent	Cum. Percent
0.00	191	191	18.56	18.56
0.0-0.1	584	775	56.75	75.32
0.1-0.2	186	961	18.08	93.39
0.2-0.3	55	1016	5.34	98.74
0.3-0.4	10	1026	0.97	99.71
0.4-0.5	3	1029	0.29	100.00
0.5-0.6	0	1029	0.00	100.00
0.6-0.7	0	1029	0.00	100.00
0.7-0.8	0	1029	0.00	100.00
0.8-0.9	0	1029	0.00	100.00

Total Assets >=$500,000,000 - <$1,000,000,000

Advances to Assets Ratio	Freq.	Cum. Freq.	Percent	Cum. Percent
0.00	65	65	13.37	13.37
0.0-0.1	256	321	52.67	66.05
0.1-0.2	108	429	22.22	88.27
0.2-0.3	43	472	8.85	97.12
0.3-0.4	13	485	2.67	99.79
0.4-0.5	0	485	0.00	99.79
0.5-0.6	1	486	0.21	100.00
0.6-0.7	0	486	0.00	100.00
0.7-0.8	0	486	0.00	100.00
0.8-0.9	0	486	0.00	100.00

Total Assets >=$1,000,000,000 - <$10,000,000,000

Advances to Assets Ratio	Freq.	Cum. Freq.	Percent	Cum. Percent
0.00	43	43	9.95	9.95
0.0-0.1	204	247	47.22	57.18
0.1-0.2	108	355	25.00	82.18
0.2-0.3	56	411	12.96	95.14
0.3-0.4	14	425	3.24	98.38
0.4-0.5	4	429	0.93	99.31
0.5-0.6	0	429	0.00	99.31
0.6-0.7	1	430	0.23	99.54
0.7-0.8	1	431	0.23	99.77
0.8-0.9	1	432	0.23	100.00

Total Assets >= $10,000,000,000

Advances to Assets Ratio	Freq.	Cum. Freq.	Percent	Cum. Percent
0.00	11	11	12.50	12.50
0.0-0.1	53	64	60.23	72.73
0.1-0.2	17	81	19.32	92.05
0.2-0.3	3	84	3.41	95.45
0.3-0.4	4	88	4.55	100.00
0.4-0.5	0	88	0.00	100.00
0.5-0.6	0	88	0.00	100.00
0.6-0.7	0	88	0.00	100.00
0.7-0.8	0	88	0.00	100.00
0.8-0.9	0	88	0.00	100.00

TABLE 2-4

Total Equity Capital to Total Assets

| | MEMBERS | | | |
Assets	Commercial Banks	Savings Banks	Thrifts	Total
< $250m	0.104	0.111	0.130	0.107
$250m-$500m	0.092	0.112	0.103	0.096
$500m-$1b	0.095	0.101	0.100	0.097
$1b-$10b	0.094	0.103	0.096	0.095
> $10b	0.087	0.100	0.082	0.086
	NON-MEMBERS			
Assets	Commercial Banks	Savings Banks	Thrifts	Total
< $250b	0.152	0.101	0.626	0.158
$250m-$500m	0.129	0.136	0.204	0.130
$500m-$1b	0.141	0.151	0.194	0.143
$1b-$10b	0.201	0.124	0.162	0.194
> $10b	0.120	NA	NA	0.120

The Role of Advances in Supporting Liquidity for the Housing Market and Community Lending

If the purpose of the FHLBank System, to provide a stable, long-term financing source for its members, is being fulfilled, we ought to observe that FHLBank System members hold greater portions of their portfolios in mortgages, small business loans, land development and construction loans and agricultural credit. We might also expect to find a positive correlation between a member's use of advances and its holding of such loans.

Table 3-1 (page16) differentiates the top quartile of all advance users from other users and members who had no outstanding advances (non-users). Larger institutions are more likely to be in the top user category while smaller institutions are more likely to be non-users.[6]

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[6] The numbers in the first two columns of Table 3-1 refer to the percentage of all members in particular user categories. They are defined, however, with reference to all users. Thus, the top 25 percent of all users constitute only 18 percent of all members.

TABLE 3-1

User Type as a Percentage of Total Members

Assets	Top Quartile	Other Users	Non-User	Total
< $250m	10.03	38.35	23.67	72.05
$250m-$500m	3.20	8.31	2.62	14.13
$500m-$1b	2.13	3.65	0.89	6.68
$1b-$10b	2.34	3.01	0.59	5.73
> $10b	0.32	0.74	0.15	1.21
User Total	18.01	54.07	27.93	100.00

Table 3-2 (page 17) shows the average share of assets held in various types of loans for members and non-members classified by size. Separate data are presented for residential loans (both single-family and multifamily), construction and land development loans, agricultural loans and non-commercial/non-residential loans of less than $100 million (which we use as a proxy for small business loans). As the footnote to this table indicates, we have noted those cases in which these comparisons showed no statistically significant difference.

The following conclusions hold in almost all cases:

- The importance of mortgage loans in the portfolio is higher for members than non-members, and increases with a member's use of advances. Members in the top quartile of users hold a greater share of their assets in residential mortgages compared with other users or non-users of comparable size;
- Institutions with assets over $10 billion that rely heavily on advances hold significantly higher percentage of their portfolios in single-family and multifamily mortgages than do smaller institutions or moderate or non-users of the same size;
- In all other loan categories (agriculture, small business, land development and construction), members hold greater portions of their portfolios in these loans than do non-members, but the relative use of advances does not seem to matter as much;
- Smaller member institutions hold higher percentages of agricultural and small business loans in their portfolios than do either large institutions or non-members;

- Statistically, all of these differences are significant at the 99 percent level of confidence.

TABLE 3-2

Loan to Asset Ratios by User Type and Asset Class

Single-Family (1-4 unit) Mortgage Loans

Assets	Top Quartile	Other Users	Non-Users	Non-Member
< $250m	0.279	*0.204	0.205	0.122
$250m-$500m	0.292	*0.203	0.224	0.121
$500m-$1b	0.249	*0.191	0.198	0.129
$1b-$10b	0.283	*0.176	0.164	0.084
> $10b	0.487	*0.220	*0.211	0.075
Total	0.282	*0.202	0.206	0.121

Multi-family Mortgage Loans

Assets	Top Quartile	Other Users	Non-Users	Non-Member
< $250m	0.018	0.013	0.011	0.006
$250m-$500m	0.037	*0.016	*0.020	0.014
$500m-$1b	0.038	*0.026	*0.022	0.009
$1b-$10b	0.049	*0.023	0.017	0.006
> $10b	*0.036	0.017	*0.001	0.003
Total	0.028	0.015	0.012	0.006

Agricultural Loans**

Assets	Top Quartile	Other Users	Non-Users	Non-Member
< $250m	0.021	0.030	0.021	0.027
$250m-$500m	*0.006	0.012	*0.005	0.004
$500m-$1b	0.004	0.009	*0.003	0.003
$1b-$10b	0.001	*0.004	0.003	0.000
> $10b	0.000	*0.001	*0.001	0.000
Total	0.013	0.024	0.019	0.024

Non-Commercial & Non-Residential Loans (< $100M)**

Assets	Top Quartile	Other Users	Non-Users	Non-Member
< $250m	0.010	0.012	0.010	0.007
$250m-$500m	0.009	0.011	0.009	0.005
$500m-$1b	0.006	*0.008	0.008	0.004
$1b-$10b	0.004	0.005	*0.003	0.002
> $10b	*0.003	0.002	*0.001	0.000
Total	0.008	0.011	0.010	0.006

Construction & Land Development Loans**

Assets	Top Quartile	Other Users	Non-Users	Non-Member
< $250m	0.038	*0.047	0.043	0.025
$250m-$500m	0.051	0.068	0.054	0.041
$500m-$1b	0.057	0.077	*0.044	0.034
$1b-$10b	0.050	*0.063	0.059	0.016
> $10b	*0.039	0.034	*0.006	0.012
Total	0.044	0.053	0.044	0.026

*The difference from the column to the immediate right is not statistically significant at the 95% level.
**Data on Agricultural, small business and construction lending is drawn from the June 2003 call reports

In support of the housing sector, members typically devote 15 to 30 percent of their portfolios to mortgage lending, while non-members hold 7 to 12 percent of their portfolios in mortgages. There is a caveat to this comparison, however. It is possible that non-members sell into the secondary market the mortgage loans they originate in higher volumes than do members. In that case, the static measure of portfolio ratios would tend to show members as being more devoted to housing than non-members. A companion study, done by Welch Consulting addresses this issue and finds that member sales in the secondary

market are comparable to non-members.[7] For now, our conclusion is that member institutions, largely as a function of their access to advances, are stronger supporters of the housing sector than are non-members. Advances serve the essential mission of the FHLBank System.

The second aspect of the FHLBank System function, supporting community institutions, is equally as strong. With the consolidation among depository institutions that has occurred over the past quarter-century, smaller localities are increasingly out of touch with the "local" institution. Decisions are made at a distance and the personal relationships that had marked local banking are fading. This increases the importance of community banks as stabilizers of smaller localities. They understand local needs, have a strong interest in community development and business expansion, and generally respond more quickly to local needs than do larger and more distant institutions. In fact, it has been argued that FHLBanks have operated predominantly in districts with a large rural population to do just that.[8]

If we look at Table 3-2 again, the findings take on additional meaning. While in no instances do small business, land development and construction or agricultural loans constitute a major portion of depository institution portfolios, the holdings of member institutions are virtually all significantly larger relative to their size than are the holdings of non-members. This suggests the funding provided by advances has enabled member institutions to provide community development support, a finding consistent with the theory developed in the Hoffman-Cassell paper.

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[7] Courchane, Marsha J. and Darcy Steeg, "A Comparative Analysis of FHLBank Member Mortgage Lending," February 2005, Welch Consulting, Silver Spring, Maryland.

[8] See Susan M. Hoffman and Mark K. Cassell, "Understanding Mission Expansion in FHLBs: A Return to Behavioral Choice Theory," working paper. The authors look at the advances activity in the Des Moines and Topeka banks especially. See references, p.31, for contact information.

Lending Patterns of FHLBank System Members:
A Regression Analysis

Methodology

The descriptive and comparative statistics in the preceding sections tell us much about the structure of the banking and thrift industry and its use of Federal Home Loan Bank advances. However, they do not fully explain the economic behavior of banks and savings institutions in their mortgage lending decisions. Specifically, we want to quantify the impact of the role of advances in determining mortgage loan holdings, controlling for other financial variables that also determine individual bank/thrift mortgage lending. These variables include assets, equity capital, deposits, other bank borrowings (net of advances) and their interactions with advances. Also, since banks and thrifts have alternative assets in which they can invest - the most prominent being securities (including mortgage-related securities) and consumer loans we also include them in the analysis.

In order to control for those factors that affect the relationship of advances to individual bank/thrift portfolio behavior, we implemented a regression analysis using a subset of the FIRE data for individual banks and thrifts. An econometric model of financial institution lending behavior, based on the work of Craig and Thomson[9], was modified and fit to 9,183 individual banks and thrifts reporting balance sheet and income statement information for 2003. The set included FHLBank System users of advances and non-users, as well as institutions who were not members of the FHLBank System.

The Craig and Thomson model is based on two equations that interact to determine the mortgage loan holdings of individual banks or thrifts. The first equation determines the level of bank/thrift total deposits as dependent on the levels of total equity capital, total bank assets, and other bank borrowings. The second equation, which is the relationship of greatest interest, hypothesizes that mortgage portfolio holdings directly depend on total deposits, FHLBank advances, holdings of securities, and consumer loans. In this model, financial

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[9] Craig, Ben R. and James B. Thomson, 2001, "Federal Home Loan Bank Lending to Community Banks: Are Targeted Subsidies Necessary?" Federal Reserve Bank of Cleveland, Working Paper 01-12. The Craig and Thomson study focused on local community bank lending (less than $500 million in assets) to small businesses and did not include advances. (The authors used data from several years and included a number of variables that were not available in the Plansmith data. They did not use Plansmith as a data source, relying on the Federal Reserve system's original reporting files.) Specifically, they included variables on metropolitan area population growth, per capita income, unemployment rates, and deposit market shares. These variables were significant in their study.

institution deposits are determined by its capital, assets, and cash borrowings which help attract depositors. These three factors positively affect its level of deposits. Mortgage lending decisions are positively affected by the level of deposits and advances. Advances are expected to have a positive impact on mortgage holdings with the coefficient on the level of advances measuring the marginal contribution of an additional dollar of advances to mortgage portfolio holdings. However, as a substitute for investing in mortgages, institutions can purchase securities (corporate, government, or mortgage-related) or make consumer loans. Investing a dollar in these alternative assets should negatively impact mortgage loan holdings.

Our model differs from Craig and Thomson in focus. One of their major hypotheses examined the role of local market conditions in helping to explain small business lending. Since our analysis has a national impact focus, we did not include local market data. Our model also differs from Craig and Thomson in that their structure was more 'simultaneous' including equity capital and the location variables in both sets of equations, so they directly affect deposits and lending simultaneously.[10]

Results: Single-family and Multifamily Mortgages

Our model was tested to determine the relative impacts of the various factors determining the portfolio allocations of depository institutions. Our goal in running these regressions was to isolate the impact of FHLBank System advances on asset allocations by member institutions, and thus be able to measure the impact on housing, agriculture, small business and land development and construction lending.[11] None of these answers are available from a simple asset ratio comparison.

The impact of advances (derived from our regression results contained in Appendix C) is reported in Table 4-1 for single-family mortgages, multifamily mortgages and other loan categories. The results are reported in summary form, with the left-hand column showing the results for all asset amounts (all FIRE

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[10] There are technical differences as well. Although this is a recursive model, we were unwilling to assume that there was no correlation between the error terms (residuals representing possible omitted variables) in each equation. That is, we were not willing to assume that the equations are not linked by data we overlooked or were unavailable for inclusion in the models. This is a prudent assumption given the relatively small number of variables that are included in the model. Accordingly, an instrumental variables technique was used to provide the coefficient estimates for the variables in the equations. (Ordinary Least Squares would have been appropriate for each equation, if we were willing to make the no inter-correlation of errors assumption.) Except in a few cases, this recursive structure obtained the theoretically correct signs, solid statistical significance for variables, as well as good overall explanatory power. In short, this is a very 'parsimonious' model with good intuitive results. In the following results section, we discuss the estimated impacts and estimation problems.

[11] Our equations are run using levels of variables (i.e. dollar volumes of loans as a function of dollar volumes of advances, etc.). Craig and Thomson use asset ratios as variables. We tried our equations using ratios and found that the results were effectively the same for both methods. We report here the results of the "levels" equations.

institutions) and subsequent columns showing results for each asset size group. Our regressions obtain positive coefficients on advances and deposits, with negative signs due to the alternative of investing in securities and consumer loans. These signs are consistent with the Craig and Thomson results

Single-Family Results

In general, advances carry positive coefficients (the contribution of a marginal $1 of advances to mortgage lending) ranging from .522 to 2.63 for single-family mortgages.

The highest coefficient for advances is obtained for banks with more than $10 billion in assets, and the second highest for those with less than $250 million. The high coefficient for the largest institutions is important since, in both absolute and relative terms, they are the heaviest users of advances. Thus, advances are being funneled into housing in a large way. Across all institutions, the coefficient for the impact of advances is 2.479. The coefficients were statistically significant in all equations.

TABLE 4-1

Impacts of Advances on Loan Portfolios: Regression Coefficients

	All Asset Amounts	**<$250m**	**>=$250m-<$500m**	**>=$500m-<$1b**	**>=$1b-<$10b**	**>=$10b**
Single-Family	2.4793	0.7757	0.7118	0.5216	0.6667	2.5339
Multi-Family	0.3401	0.0657	0.1500	0.1520	*0.0696	0.3927
Other Loans**	*0.0646	0.0924	0.0740	0.1009	*-0.0017	*0.0145

*Result not significant at the 95% level
**Other Loans include Agricultural Loans of $500,000 or less, Small Business Loans of $100m or less and Construction and Land Development Loans

Multifamily Results

In the multifamily analysis, fits vary significantly across the asset classes. While five of the six equations were statistically significant, they suggest that multifamily lending is not well explained by the model. According to the FHLBank System Office of Finance 2003 report (p. 37), multifamily mortgages held for portfolio accounted for only $52 million of a total mortgage loan portfolio of $113.45 billion a very small percentage (0.046%) of FHLBank members' business. In the sample data, total single-family (one- to four-family) mortgage

holdings are $1.95 trillion and 5+ family mortgages holdings account for only $151 billion for all banks/thrifts in the banking industry (about 7.7%).

Across all assets, the results imply a marginal dollar spent on advances leads to $0.34 spent on multifamily loans held in portfolio. Securities and consumer loans usually tend to obtain the expected negative signs and these coefficients are significant in all but the under $250 million assets category.

The equations with the most significant explanatory variables are those with assets from $250 million to under $10 billion, the middle three. They have the best overall model fits, obtaining the expected coefficient signs and solid statistical significance. While their R-squares are relatively low, they are significant. However, the impacts of a dollar of advances are considerably smaller than those for the largest institutions. Institutions in smaller markets with fewer deposits and assets would spend less on multifamily investment opportunities compared with the more traditional single-family market. Also, the larger institutions have the portfolio flexibility and means to afford multifamily project investments and may have more opportunities in those areas. These results are consistent with the portfolio behavior of banks where multifamily loans are only about 7.2 percent of mortgage residential portfolio (non-home equity revolving loans) holdings.

Agricultural, Construction and Land Development, and Small Business Lending: Regression Results

The impact of advances on agricultural lending, small business loans and construction and land development loans are displayed in the last row in Table 4-1. For all the asset groupings, the model equations as measured by the R-squared and F statistic are statistically significant. Across all asset amounts, the coefficient on advances is not statistically significant, but does indicate a positive effect. For institutions of $1 billion or more the coefficients are not significant and in one case it is negative. The coefficients are positive and significant for institutions with under $1 billion in assets, although numerically small. This suggests that the contention that these loans are more important to smaller institutions in their service to their communities is valid. In specific terms, the regression results suggest that, at the margin, a dollar of advances would be used by smaller institutions to produce between $0.07 and $0.09 of agricultural, small business and construction and land development loans held in portfolio.

Conclusion

In this paper we have investigated the impact of FHLBank System advances on the lending activities of member institutions. In theory, the liquidity afforded by the FHLBank System should expand the lending activities of member institutions as they use existing assets as collateral for loans and then re-lend these funds for mortgages and community development. Additionally, the more a member uses advances, the more the portfolio of that member should show

higher levels of loans for housing and community development than the portfolios of corresponding institutions, or those of lighter users of advances.

To examine this process, we used two different methodologies. First, we looked at correlations among asset holdings in institutions of different size classes and different charter types, comparing members of the FHLBank System and non-members. This allowed us to point out different investment patterns but did not explain why those differences existed. Second, we used regression analysis to determine the reasons for different investment patterns, controlling for a variety of factors and then focusing on the role advances play in lending decisions.

In both analyses, the expected relationships occur. In the simple correlations, member institutions, regardless of size or charter type, hold greater amounts of housing and community development loans relative to their size than do non-members. Moreover, heavier users of advances show higher concentrations in the targeted lending categories. When we look at the role of advances in portfolio decisions, we find that the level of advances has a positive and significant impact on single-family and multifamily mortgage lending among virtually all classes of members. In addition, advances are positively related to agricultural, land development and construction and small business loans among small member institutions.

The overall conclusion we come to in this paper through statistical analysis is that the advances function of the FHLBank System has provided strong support for its members' activity in areas that are beneficial to the economy and to the communities in which those institutions do business.

Appendix A: Studies Analyzing the Impact of FHLBank Advances on Member Institution Lending Activities

Prior to this research, the analyses presented by Colin Gatewood[12] and Thomson (below), are the only studies that attempt to compare the lending behavior of FHLBank members vs. non-members to provide quantifiable justifications for the programs of the FHLBank System. The Gatewood report is an unpublished white paper and has been used as the basis for advocacy work by the Atlanta FHLBank.

<u>The Gatewood/FHLBank of Atlanta Analysis</u>

The study compared smaller community banks with larger banks and separated infrequent borrowers from active borrowers. It also examined capital leverage among members vs. nonmembers, and calculated loan-to-asset ratios of various groups. The analysis included the following data and characteristics:

- Community banks less than $5 billion from 1998 to 2002;
- Loan/Deposit ratios for members versus non-members;
- Five loan-asset categories: home, commercial and industrial, consumer, home equity, and commercial real estate;
- Members and non-members in small and large communities, and large banks;
- Inactive members compared with non-members; and
- Active versus less-active members, capitalization levels, inactive members, and loan/deposit ratios.

Gatewood's specific conclusions are:

- There is a positive correlation between FHLBank membership and a bank's ability to fund loans that provide a social benefit;
- Access to FHLBank funding, by itself, is sufficient to encourage additional lending;
- Access to FHLBank programs assists community banks in making more loans and in actively addressing the issues of housing and community economic development;
- Small member community banks outperformed non-member banks in all categories of lending;

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12 Gatewood, Colin. 2002. "The Federal Home Loan Bank's Contribution to America's Communities: A Study of the Federal Home Loan Bank of Atlanta's Contribution to Community Economic Development Through Its Members," Planning and Research Department, Federal Home Loan Bank of Atlanta, mimeo.

- There are material increases in home lending, small commercial and industrial lending, and loan/deposit ratios among member banks (especially Active ones) over non-member peers;
- The loan/deposit calculation indicates a willingness by banks to leverage existing deposits in order to fund additional loans;
- FHLBank System funding provides a "liquidity cushion" for banks unable to raise more deposits but needing to meet loan demand; and,
- Liquidity access allows institutions to safely lend more in communities without putting capital at additional risk.

In summary, there are greater dollars and growth in home lending among FHLBank members compared with non-members; and, in most cases, more dollars and growth in commercial and industrial and home equity lending. For the members of the FHLBank of Atlanta, more dollars are going to homeowners and other borrowers as a direct result of FHLBank membership and participation.

Thomson's Study of Commercial Banks

This paper[13] is important because it provides analytical techniques for demonstrating the benefits of FHLBank programs. His analysis shows that the FHLBank System member banks tend to hold higher relative percentages of assets in housing than non-members.

He examines the characteristics of banks' borrowing from the FHLBank System, including the distribution of borrowing across different sizes of banks. He finds evidence of a positive relationship between a bank's reliance on FHLBank advances for funding and the share of assets invested in housing-related credits. Also, since community banks are less likely than the larger banks to have outstanding FHLBank advances, the data indicate that the FHLBank System is an important backup liquidity source for community banks.

The analysis uses the June 2001 Call Report data as banks did not report FHLBank advances as a separate item in their reports earlier than 2001. Thomson finds that the average FHLBank System member's housing-related assets make up 19 percent of total assets while the average non-member bank holds roughly 14 percent of assets in housing-related loans. Also, banks with FHLBank System advances outstanding invest 40 percent more in housing-related assets than do non-borrowing banks.

A regression analysis was performed to compare a bank's reliance on FHLBank advances and the share of assets in housing finance loans. The analysis finds a statistically significant relationship that, for a 1 percent increase

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[13] Thomson, James B., "Commercial Banks' Borrowing from the Federal Home Loan Banks," Federal Reserve Bank of Cleveland Economic Commentary, July 2002. Available at: http://www.clevelandfed.org/ccca/research.htm.

in the ratio of advances to assets, the share of assets invested in housing loans increases 0.74 percent. He concludes that the evidence suggests that admitting commercial banks to the FHLBank System is consistent in practice with the system's traditional housing finance mission.

Thomson also looks at the role FHLBank System advances might play as a source of liquidity to community banks. He divided the data into three size classifications: large banks (total assets > $10 billion), medium-sized banks (total assets above $500 million and less than $10 billion), and community banks (total assets less than $500 million).[14] The data show that as a proportion of advances, the medium- and large-sized banks have been the most active users of advances, suggesting they may not be directly influencing liquidity to small community banks. Furthermore, once Thomson controls for asset size, using the ratio of advances to assets, there is no statistically significant difference across the large and small size classifications. For medium-sized banks, there is a higher ratio of advances to borrowings. He concludes that banks that borrow from the FHLBank System do not show wide size-related disparities in terms of reliance on advances for funding.

FHLBank System advances fund more than 3 percent of the banking system's assets they are the largest single membership group in the FHLBank System and the second-largest group of borrowers. However, their membership is not inconsistent with the system's mission. Membership and borrowing patterns across banks are largely consistent with small banks' use of the FHLBank System as a backup source of liquidity.

Craig and Thomson

The Craig and Thomson paper[15] applies econometric modeling techniques to measure whether there are funding constraints at small community banks, and whether the government-sponsored enterprise advantage from advances is justified. The policy alternative is more specifically targeted programs in lieu of advances. The report provides some analysis of financial ratios within an impact model, which could possibly be applied to constructing benefit measures for the FHLBank System.

The study is critical of the hypothesis that advances increase the amount of small business loans made by community banks. Under Gramm-Leach-Bliley (GLB) the lending authority of the FHLBanks was extended to include advances secured by small enterprise loans of community financial institutions. The study

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[14] While Thomson's classification are justified for his study of commercial banks, this inclusion of other member institutions led us to use five classifications (breaking his lower two classifications into four) in our analysis.

[15] Craig, Ben R. and James B. Thomson, 2001, "Federal Home Loan Bank Lending to Community Banks: Are Targeted Subsidies Necessary?" Federal Reserve Bank of Cleveland, Working Paper 01-12.

focuses on analysis of three possible needs for the extensions of selective credit subsidies: 1) subsidizing community depository institutions; 2) stabilizing the FHLBanks; and 3) addressing market failure for small enterprise loans in rural areas.

For 3), models regressing deposits to asset ratios and small business loans to assets are fitted for banks in metropolitan and non-metropolitan statistical areas. Independent variables include deposits to assets, capital to asset ratios, Fed Funds to assets, securities to assets, the number of branches, deposit market share, deposit Herfindahl indexes, unemployment rate, population growth rate, and per capita income. Their findings indicate little evidence of a significant relationship between deposits and small business loans in the share/level or to change in share/level regressions. Asset management by community banks, especially non-MSA banks, suggests that community banks adjust to changes in loan demand.

Craig and Thomson conclude that GLB erred in extending lending authority to small enterprise loans. They find no funding constraints (a justification for the legislation), and find that the banks in non-MSA counties actually have more funds than they can profitably lend.

APPENDIX B: Description of Plansmith, Inc. Financial Institutions Report of Earnings (FIRE) Data and the Federal Home Loan Bank System Advances and Assets Data

Plansmith, Inc., a Chicago-based accounting and financial data vendor, provides a structured database system trade-named "FIRE" standing for "Financial Institution Report of Earnings". This database contains up to five years of commercial bank, savings bank, and thrift balance sheet and income statement financial data reported on a quarterly and annual basis to their respective federal regulatory authorities. This data is commonly referred to as the "Call Report" data.

The original data files are obtained by Plansmith from several federal sources - the Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, Office of the Comptroller of the Currency, and the National Credit Union Administration. Plansmith, Inc. edits, compiles, and processes the data into the FIRE software. The FIRE database used for this study did not include any information for credit unions or insurance companies.

The original source of the data are quarterly report forms which, by federal law, must be completed by state and national banks, thrifts, and credit unions and filed with the appropriate regulators. These forms are designed and monitored by the Federal Financial Institutions Examination Council (FFIEC), an interagency body that includes representatives from the monitoring federal agencies. The primary reporting forms that banks, thrifts, and credit unions must file quarterly with FFIEC are Call Report 031 and Call Report 041. The formal titles of these documents are the "Consolidated Reports of Condition and Income for a Bank with Domestic and Foreign Offices" and the "Consolidated Reports of Condition and Income for a Bank with Domestic Offices Only" Copies of these forms are available on the FFIEC website at: http://www.ffiec.gov/ffiec_report_forms.htm.

The FIRE data analyzed in this study primarily included balance sheet items referring to the values of bank and thrift holdings of domestic mortgages and loans (single-family, multifamily, agricultural, small business, consumer), total assets, equity capital, total deposits, and total securities held.

Balance sheet values for FHLBank advances and the total assets for members of the FHLBank System were obtained from the Federal Housing Finance Board/Office of Finance. These two data items are the official figures for FHLBank member advances holdings and total assets and were used in the ratio and regression analyses. For non-members of the FHLBank System, the FFIEC data provided by Plansmith were used.

APPENDIX C: Full Regression Results

Table C-1

Single-Family Mortgage Regression Results*

Indep. Variables	All Asset Amounts	<$250m	>=$250m-<$500m	>=$500m-<$1b	>=$1b-<$10b	>=$10b
Total Deposits	0.4560	0.2562	0.2080	0.1706	0.3564	0.4673
	4.87	31.61	7.17	3.27	5.69	4.61
FHFB Advances	2.4793	0.7757	0.7118	0.5216	0.6667	2.5339
	6.05	17.30	9.93	5.94	2.57	5.73
Total Securities	-0.7587	-0.1673	-0.1349	-0.1249	-0.2659	-0.8314
	-2.25	-10.96	-4.29	-3.26	-3.35	-2.10
Consumer Loans	-0.5367	-0.0437	-0.1571	-0.0680	-0.1226	-0.6024
	-1.54	-1.48	-3.55	-1.19	-2.01	-1.51
Constant	-17131.34	-68.7	15689.96	44663.85	-70418.88	1970163
	-0.70	-0.25	2.06	1.51	-1.22	0.9
R**2	0.7943	0.4721	0.1659	0.1196	0.4639	0.7603
F Stat.	33.12	657.61	35.81	9.89	19.29	26.14
Obs.	9183	6948	1131	523	471	110

*t tests are displayed below coefficients; second stage results.

Table C-2

Multifamily Mortgage Regression Results*

Indep. Variables	All Asset Amounts	<$250m	>=$250m-<$500m	>=$500m <$1b	>=$1b -<$10b	>=$10b
Total Deposits	0.0074	0.0371	0.0314	0.0580	0.0495	0.0061
	1.65	11.22	4.88	3.88	3.07	1.39
FHFB Advances	0.3401	0.0657	0.1500	0.1520	0.0696	0.3927
	3.71	4.75	3.68	4.23	1.84	4.08
Total Securities	0.0054	-0.0442	-0.0593	-0.06614	-0.0429	0.0102
	0.29	-8.25	-4.93	-3.84	-3.38	0.52
Consumer Loans	-0.0289	-0.0682	-0.0465	-0.0617	-0.0339	-0.0197
	-2.13	-5.13	-4.1	-2.6	-2.56	-1.48
Constant	-4129.37	-427.72	946.53	-6294.92	3177.38	-265263
	-1.20	-5.58	0.48	-0.85	0.13	-1.31
R**2	0.6350	0.1300	0.0908	0.0863	0.1131	0.6579
F Stat.	7.89	59.78	12.02	7.39	3.26	6.50
Obs.	9183	6948	1131	523	471	110

*t tests are displayed below coefficients; second stage results.

Table C-3

Other Loans Regression Results*
(Includes all agricultural loans, small business loans less than $100m, construction and land development loans)

Indep. Variables	All Asset Amounts	<$250m	>=$250m- <$500m	>=$500m- <$1b	>=$1b- <$10b	>=$10b
Total Deposits	0.0155	0.1491	0.1654	0.1676	0.0880	0.0173
	1.33	30.43	10.81	7.67	7.38	1.41
FHFB Advances	0.0646	0.0924	0.0740	0.1009	-0.0017	0.0146
	1.25	5.78	2.77	2.76	-0.19	0.29
Total Securities	0.0308	-0.1591	-0.1823	-0.1969	-0.0725	0.0180
	0.98	-17.07	-11.36	-8.19	-4.97	0.51
Consumer Loans	-0.0279	-0.1476	-0.1246	-0.1309	-0.0384	-0.0479
	-0.86	-7.06	-6.06	-2.94	-4.93	-1.37
Constant	17142.3	-172.82	-3352.29	-3523.25	42109.9	667758
	6.23	-1.27	-0.93	-0.37	3.47	3.03
$R^{**}2$	0.5005	0.3971	0.2077	0.2219	0.2947	0.3893
F Stat.	12.17	425.17	40.38	20.11	14.48	6.15
Obs.	9183	6957	1119	525	473	109

*t tests are displayed below coefficients; second stage results.

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