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Abstract

The current economic crisis has had a devastating impact in the credit markets as evidenced by bank failures, large bailouts and foreclosures. Trillions of dollars have been spent to prop up the financial sector in the U.S. alone. Credit unions, commercial banks and thrifts are where Americans go for home loans, but credit unions have a very different track record when it has come to bailouts from the government. Credit unions instead of taking trillions may ultimately not take a dime from the taxpayer. This paper will try to discern this advantage that credit unions have by focusing on the direct impact felt by financial institutions in the United States through net charge-offs from 1994 through 2009 using an exceptional data set that combines information on credit unions and banks in the U.S. from 1994 through 2009.

Journal of Economic Literature Classification Numbers: P0, P13, L21, G14, G21

Keywords: credit unions, banks, cooperative, defaults, net charge-offs

I. Introduction

The current economic crisis has had a devastating impact in the credit markets as evidenced by bank failures, large bailouts and foreclosures. Trillions of dollars have been spent to prop up the financial sector in the U.S. alone. Credit unions, commercial banks and thrifts are where Americans go for home loans, but credit unions have a very different track record when it has come to bailouts from the government. Credit unions instead of taking trillions may ultimately not take a dime from the taxpayer. This paper will try to discern this advantage that credit unons have by focusing on the direct impact felt by financial institutions in the United States through net charge-offs from 1994 through 2009. Net charge-offs are loans and leases removed from balance sheets due to non-payment minus recovered loans previously written off. The housing bubble left many individual unable to repay their loans. As individuals became unable to pay their home loans, sometimes due to being enticed through fraudulent practices (Stiglitz, 2010 and Johnson and Kwak, 2010), the loans on these homes and mortgages back securities based on these loans may become in default. For the last sixteen years the net charge-off rate for banks as a percent of loans has typically been in the range of 11 to 20 basis points, while those for credit unions has been about 20 points higher on average. While both commercial banks and credit unions have been hard hit by the economic collapse this relative ranking however has flipped in the current crisis so that banks had about a 17 point higher rate of net charge-offs. Accounting and valuation problems are part of the problem for this sudden reversal (Zandi, 2008), nevertheless this

paper will attempt to measure what systematic behaviors have caused such a rapid rise in net charge-offs and hence in many cases bank and credit union failures.

II. Theory

Banks and credit unions are fierce competitors in markets around the U.S., at least for the consumer end of the portfolio. Credit unions by law are restricted to have a small amount of business loans and are run as financial cooperatives, returning income to members, not owners of stock. Problems in their portfolios may arise from common problems: macro shock, poor risk assessment, poor management skills, etc. Credit unions typically being much smaller and regionally based may have an information advantage in that they know their customers well, something they have in common with small banks as well. This information advantage may help to potentially offset the relative lack of scale efficiencies and higher cost of funds. The institutional form of credit unions may offer them some advantages in that the level of trust and oversight may be higher (Klinedinst, 2007) allowing a smoother introduction of new products and services and smaller pay of top executives, something that has raised the ire of a number of people, given that many institutions would have closed without a taxpayer bailout (Freifield, 2009 and the Dodd-Frank bill in 2009). Closer oversight by the insuring bodies for banks and credit unions, i.e., respectively the Federal Deposit Insurance Corporation (FDIC) and the National Credit Union Share Insurance Fund (NCUSIF), as well as by the owners of the institutions may explain part of the difference in net charge-offs. Having a less diverse ownership base and possibly stronger social network capital (Whyte, 1991, Halary, 2006 and World Bank 2010) may allow credit unions to more

accurately gauge risk, and hence not be subject to large spikes in net charge-offs as seen by some banks. These institutional differences are reflected in portfolio decisions and consequently in net charge-offs as well.

III. Data and Methodology

The data set covers all credit unions and banks in the United States from 1994 until December 2009, gathered from the FDIC and the National Credit Union Association (NCUA). Altogether there are 316,194 observations over the sixteen-year period.

Determining credit union and bank viability in this severe economic downturn could be done by looking at net charge-offs, asset growth, number of failures, returns on assets, variants of the value-added approach or assets per employee have all been used in performance studies of financial institutions.[1]

Generally the functional forms estimated can be posited as:

$$Y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it} \qquad (1)$$

The performance indicator, Y_{it}, is net charge-offs as a percent of assets. The intercept, α_i, captures firm specific factors which may be otherwise unseen, while the X matrix contains policy variables, state dummies, regional and time dummies to capture exogenous contemporaneous shocks. The use of firm specific intercepts helps to eliminate the bias that may be due, for example, to larger firms having the ability to use better technology or stronger market power. The time invariance of a credit union dummy

[1] See for example, Sollenberger (2008), Greer and Rhoades (1977), Lieberman and Asaba (1997), Berger and Humphrey (1992, 1997) and Park and Weber (2006).

variable that is used would in a fixed effects model mean these estimates would be unavailable. Using a random effects estimator allows us to keep this time invariant variable. The X matrix also contains the natural log of the following variables: percent of assets in first mortgages, the percent of adjustable rate first mortgages, the percent of commercial and industrial loans, the percent of credit card loans, assets per employee, the percent of mortgage backed securities, and assets to capture scale effects.[2] The robust Huber-White sandwich estimator allowed estimates of the standard errors in the presence of potential heterogeneity over such a diverse range of institutions.[3] Possible endogeneity problems may arise from the presence of assets on the right hand side. To correct for possible non-spherical errors terms the instrumental variable technique developed by Hausman and Taylor (1981) is used. This technique partitions the right hand side variables such that equation one can be rewritten as:

$$Y_{it} = \alpha_i + \beta X_{it} + \gamma Z_{it} + \varepsilon_{it} \qquad (2)$$

Here X_{it} assumed to be exogenous and Z_{it} contains elements that may be endogenous. Using a generalized instrumental variable estimator on this equation gives statistics that are asymptotically valid. This method allows estimation of the primary variable examined here, the time invariant dummy for whether the institution is a credit union or a bank.[4] Also this partitioning allows the use of generalized method of moments to be used to develop instrumental variable estimates.

IV. Results

[2] For similar uses of assets as a scale variable see Goddard et al (2002), Huang (2005) and Fried and Lovell (1993).
[3] White (1980).
[4] Woolridge 2006, p. 327, Baltagi and Khanti-Akom (1990) and Baltagi (2005).

The most common financial intermediary in the United States are credit unions, making up over half the observations, i.e., 159,190 of the 316,194 observations.[5] The summary statistics in Table I show that net charge-offs averaged about 31 basis points for the entire sample. As mentioned earlier credit unions have a higher average overall compared to banks. Assets overall are 544 million 2009 dollars, with credit unions having an average of 63.8 million, about one-sixteenth that of the banks, hence even thought credit unions are more numerous they are typically much smaller than the banks, in fact there are several banks that have more assets individually than all the credit unions combined. First mortgages in the sample overall were about 11 percent of assets, with credit unions having on average about half of the approximately 15 held by banks.[6] Adjustable first mortgages represent about 3.6 percent of assets and it is noticeable that the percent of bank adjustable rate mortgages is over 7 times that for credit unions. Adjustable rate mortgages are notorious for luring people into notes that may become impossible to pay once rates went up, as happened to a number of individuals in the sub-prime market (Magdoff and Yates, 2009). Commercial and industrial loans represent about 4.5 percent of overall assets, with the ratio for the banks being over 29 times greater. Credit card loans made up about 14 percent over all, with credit unions offering about three times as many loans this way than banks. Assets per employee, a widely used metric for efficiency, and hopefully translating in to lower net charge-offs was measured at 3.4 million dollars per employee with banks averaging about 50 percent more than

[5] Note that the figure for banks includes commercial banks and thrift institutions.
[6] Note that the figure for mortgages for banks here include those from 1 to 4 residential units and data from thrift institutions.

the credit unions.[7] Lastly in Table one are mortgage-backed securities. These securities often brought havoc to balance sheets as the housing bubble deflated. Overall the sample here has about 3.5 percent of securities relative to total assets. It is noteworthy that the credit unions had less than a six-hundredth the amount that banks held.

Table four contains the results from random effects and the Hausman-Taylor model for estimating in the presence of endogeniety. A number of controls are introduced in this unbalanced data set on 27,940 such as time, regions and state dummies to try and capture macro changes (the time dummies for example correlate strongly with the unemployment rate), managerial differences, technological variation, etc. The coefficients on credit unions are negative but only significant in the specification that explicitly deals with possible endogeneity of a number of variables. The Durbin-Wu-Hausman chi-square test for possible endogeneity is positive; hence the random effects model in columns 3 and 4 of Table 2 where the loan portfolio is treated as an is preferred over the others shown.[8] Instrument validity tests for the gmm equations failed so the results there are not optimal.

All specifications in Table 2 list the credit unions with a negative coefficient, although only the two in the preferred models in columns 3 and 4 are significant. Some behavior of credit unions then, whether it be more prudential lending, better information about loan prospects, or some other factor seem to be keeping the net charge-offs for credit unions lower. A number of the variables here in columns 3 and 4 are measured as significant, but

[7] Some large observations for assets per employee come from branches of foreign banks and those over 500 m. dollars per employee, 173 in all, were dropped as outliers.
[8] χ^2 of 588.40 with eight degrees of freedom and a p value of 0.00 for column 3 and 249.15 also with a p value of 0.00 for column 4.

change signs between the two specifications. Even though the number of observations is large the percentage explained of net charge-offs as a percent of assets is relatively small. This relatively small amount explained by the loan portfolios implies in part that as the crisis unfolded the decisions of these institutions could be swamped macroeconomic events. Further work is needed to flesh out better instruments and possibly more factors influencing net charge-offs.

V. Policy Implications

The current meltdown has left many individuals and institutions struggling, financial institution included. Net charge-offs have gone up dramatically recently, especially for banks. The smaller credit unions, although historically having a greater rate of net charge-offs have managed to weather the current crisis better. Adjustable rate mortgages, commercial loans and mortgage-backed securities were many times larger for banks than for credit unions. In all estimates here credit unions, once controlling for size and other portfolio differences, consistently are shown to have lower net-charge offs. The exact avenues of this advantage are not pin pointed in this paper, but the portfolio differences found here offer some direction. Credit unions as financial cooperatives have possibly an information advantage relative to other institutions, both internally with better monitoring of loans, executive compensation and other managerial techniques and externally through loan selection, community involvement and networking arrangements with other credit unions.

Table 1

Summary Statistics

Variable	Mean	St. Dev.	Min	Max	Number
Net charge-offs percent of assets (2009 dollars)	0.0030977	0.0180926	-1.076378	5.778124	316,194
Credit Unions	0. 004027	0. 012939	-0.4261894	2.918795	159,190
Banks	0.0021555	0. 0220846	-1.076378	5.778124	157,004
Total assets (2009 dollars)	544 m. $	12 b. $	0	1.76 t. $	316,194
Credit Union	63.8 m. $	359 m. $	0	39.6 b. $	159,190
Banks	1.03 b. $	17.1 b. $	0	1.76 t. $	157,004
First mortgages percent of assets	0.1098135	0.1300154	0	0.991595	316,194
Credit Unions	0.0706558	0. 1114461	0	0.9145243	159,190
Banks	0.1495156	0.1353488	0	0.991595	157,004
Adjustable first mortgages percent of assets	0.0360607	0.0816532	0	0.9111944	316,194
Credit Unions	0.0088711	0. 0404103	0	0.7730708	159,190
Banks	0.0636284	0.1013016	0	0.9111944	157,004
Commercial and industrial loans percent of assets	0.0451395	0.0711897	0	1.00	316,194
Credit Unions	0.003012	0.0260579	0	1.00	159,190
Banks	0.0878527	0.0767734	0	0.9616175	157,004
Credit card loans percent of assets	0.0140793	0.0461777	0	1.00	316,194
Credit Unions	0.0219219	0.0350614	0	0.9757313	159,190
Banks	0.0061276	0.0540596	0	1.00	157,004

Assets per employee (2009 dollars)	3.4 m. $	7.8 m. $	0	494 m. $	316,021
Credit Unions	2.5 m. $	3.8 m. $	0	387 m. $	159,186
Banks	4.3 m. $	10.3 m. $	18,401 $	494 m. $	156,835
Mortgage-backed securities percent of assets	0.0347288	0.0779858	0	0.9672325	316,194
Credit Unions	0.0001138	0.0033439	0	0.2936342	159,190
Banks	0.0698251	0.0989455	0	0.9672325	157,004

Table 2

Net Charge-Offs, U.S. Data 1994-2009

(Dependent variable is net charge-offs as a percent of assets. Standard errors are parenthesis[9])

	(1) Random Effects	(2) Random Effects	(3) Endogenous Random Effects	(4) Endogenous GMM
Credit Union Dummy	-0.00017 (0.0007786)	-0.0000922 (0.0007505)	-0.0000922** (0.0004672)	-0.0014848*** (0.0005429)
Ln(Real Assets)	0.0000869 (0.0001177)	0.0000483 (0.0001158)	-0.000716*** (0.0001061)	0.0005734*** (0.000075)
Ln(First Mortgages, Percent)	-0.000002 (0.0000283)	-0.000008 (0.0000307)	-0.0000672* (0.0000375)	0.0003984*** (0.0000763)
Ln(Adjustable First Mortgages, Percent)	-0.0000503*** (0.0000135)	-0.0000417*** (0.0000121)	0.0000154 (0.0000127)	-0.0002967*** (0.0000236)
Ln(Commercial Loans, Percent)	-0.0000964*** (0.0000361)	-0.0000881*** (0.0000351)	-0.0000116 (0.0000186)	0.0001473*** (0.0000462)
Ln(Credit Card Loans, Percent)	-0.000004 (0.00003)	-0.000005 (0.00003)	-0.0000803*** (0.0000148)	-0.0000364* (0.0000198)
Ln(Assets Per Employee)	-0.0018626** (0.0007568)	-0.0018513** (0.000753)	-0.0022046*** (0.0001257)	0.0013166*** (0.0002384)
Ln(Cost of Funds)	0.000005 (0.000019)	0.000008 (0.000019)	0.000005 (0.000013)	-0.000025** (0.0000122)
Ln(Mortgage Back Securities, Percent)	-0.0000272 (0.0000261)	-0.0000289 (0.0000264)	-0.0000708** (0.0000279)	0.0018818*** (0.0001833)
Time Dummies	yes	yes	yes	yes
Region Dummies	yes	yes	yes	yes
State Dummies		yes	yes	yes
N	316,188	316,188	316,188	316,188
Number of Groups	27,940	27,940	27,940	27,940
Wald χ^2	4,296	12,652	1,939	5,265

[9] ***, **, and * indicating significance at the 1, 5 and 10 percent level, respectively. Robust standard errors are in columns 1-4.

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