Measuring the Outreach Level of Micro-finance Institutions in Bangladesh

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Received: April 30, 2019 Accepted: May 30, 2019 Online Published: June 11, 2019
doi:10.5430/ijfr.v10n5p280 URL: https://doi.org/10.5430/ijfr.v10n5p280

Abstract

Reaching the poor is one of the main objectives embedded in the programs of microfinance institutions (MFIs). However, there is the question of how well MFIs have fared in terms of meeting this objective, which has been heavily surveyed as an issue by many researchers. In Bangladesh, while not discounting other factors such as the financial assistance received from institutions such as the IMF/World Bank, Asian Development Bank (ADB), and Islamic Development Bank (IDB), the impetus for the speedy reduction in the number of poor people in the country can be attributed to the existence of MFIs. This study attempts to investigate the depth of MFIs’ outreach level in the country. Specifically, using an econometric model, it examines the determinants of the outreach level of MFIs operating in Bangladesh. Overall, this study looks at the eleven (11) biggest MFIs in Bangladesh in terms of their share of active borrowers. The data are compiled from the most reliable sources pertaining to the economic activities of MFIs. The results indicate that the number of years an MFI has spent serving clients, its ratio of borrowers to staff, the size of its assets, and the number of branches all has a positive effect on its outreach level. In contrast, the average loan balance per borrower and cost per borrower have a negative effect on the outreach level of MFIs in Bangladesh. Indeed, as far as outreach level and its relationship with the independent variables are concerned, all of the results obtained in this study are consistent with the expected signs, thereby implying that MFIs in Bangladesh are no different from the conventional wisdom.

Keywords: Bangladesh, borrowers, micro-financing institutions, outreach level, poor

JEL Classification: G21 Micro Finance Institutions

1. Introduction

Bangladesh, a developing country with a large landmass in South Asia, is classified by the World Bank as a low-income economy. In 2011, its PPP-adjusted per capita gross national income (GNI) was USD1940, which equates to USD780 in current dollars (World Bank, 2012). While the country’s economy saw annual growth of two percent during the first decades of independence, that rate increased to five percent per year in real terms from 1990 (Note 1). If it can sustain this level of growth, Bangladesh’s aim of becoming a middle-income country by 2021 looks very promising. This is possible due to the fact that, since 1992, poverty has fallen quite drastically (by 30 percent), which in absolute terms equates to more than 15 million people (World Bank, 2012). Moreover, comparing the data from 2005 and 2010, there was a fall of 8.5% in the percentage of the population living below the national poverty line, with the figure decreasing from 40% to 31.5% (World Bank, 2012).

One may wonder how these above-mentioned positive aspects of Bangladesh’s economic development have been made possible. Without discounting other factors such as the financial assistance received by the country from institutions such as the IMF/World Bank, Asian Development Bank (ADB), and Islamic Development Bank (IDB), it can also be attributed to the existence of MFIs. In fact, these institutions have served as the impetus for the achievement of this speedy reduction in the number of poor people in the country. Specifically, the last couple of decades have seen both major growth in and a proliferation of microfinance institutions (hereafter MFIs), with both private and public sector organizations becoming deeply involved in lending and loan collection activities. In Bangladesh, these organizations can be identified as nongovernmental organizations (NGOs) such as BRAC, ASA, BURO, and Grameen Bank, to name but a few. In addition, state-owned commercial banks like Bangladesh Krishi Bank (BKB) and the specialized programs of certain ministries have extended these types of services to poor people
in Bangladesh. Recently (2012-16), the total loan disbursement and savings amounts provided by MFIs stood at around TK248 billion and TK168 billion, respectively. Additionally, in the same period, the total number of clients served under this initiative was 35 million (Note 2). In Bangladesh, the Microcredit Regulatory Authority (MRA) categorizes the credit services provided by these MFIs into the following six broad groups: i) general microcredit for small-scale self-employment-based activities; ii) microenterprise loans; iii) loans for the ultra-poor; iv) agricultural loans; v) seasonal loans, and vi) loans for disaster management.

Indeed, since they have now operated for a considerable number of years, it is in everyone’s interest to know how well MFIs have fared in terms of their “obligation” to extend loans to the poor in Bangladesh. Against this backdrop, the purpose of this study is to measure the outreach level of a total of 11 such institutions in terms of enhancing the lives of poor people in Bangladesh, i.e., from a state of worse-off to a state of better-off.

For the sake of clarity, we will explain the terms used in the title of this paper, viz. outreach level, which is widely used throughout. Outreach level refers to the number of active borrowers who have borrowed money from MFIs. Bangladesh has the following eleven (11) major MFIs: (i) Association for Social Advancement (ASA); (ii) Basic Unit for Resources and Opportunities of Bangladesh (BURO); (iii) Bangladesh Rural Advancement Committee (BRAC); (iv) Jagorani Chakra Foundation (JCF); (v) Padakkhep Manabik Unnayan Kendra (PMUK); (vi) Rangpur and Dinajpur Rural Service (RDRS); (vii) Shakti (a Bengali word for strength and power) Foundation for Disadvantaged Women; (viii) Society for Social Service (SSS); (ix) Thengamara Mohila Sabuj Sangha (TMSS); (x) United Development Initiatives for Programmed Actions (UDDIPAN); and, the most celebrated, (xi) Grameen Bank (GB). It is worth mentioning that among these, ASA has been the fastest-growing MFI in recent years (Rutherford, 2010). Reflecting the fact that it competes with the two most established MFIs, namely GB and BRAC, ASA is generally regarded as being efficient in providing loans to the poor. This has prompted BRAC and GB to alter their respective marketing strategies in order to better compete with other MFIs, notably ASA.

Having clarified this, the study is organized as follows. Section 2 touches on the literature related to the study, while Section 3 discusses the methodology and data used for analysis purposes. Section 4 contains an analysis of the results and findings, and the paper ends with some concluding remarks.

2. Review of the Literature

The number of MFIs is increasing throughout the world. For some, microfinance has proven to be a profitable business venture, similar to those undertaken by any other commercial bank and giant multinational banks such as HSBC, Citigroup, Deutsche Bank, etc. (Hermes, Lensink, & Meesters, 2008; Mazaro, 2018), although for others it has not yielded such promise. Hence, one pertinent question arises: Why have some MFIs performed extremely well while others have performed poorly? This may have been the question and issue that triggered the undertaking of such a large volume of studies aimed at investigating the reasons behind such phenomena. Indeed, the concept of outreach closely links such studies, despite the fact that the term has generally been used in relation to appraising the performance of development programs such as community services or religious community activities. Relating specifically to the context of microfinance, outreach entails reaching out to the poor based on two aspects: depth and breadth. While depth relates to the poverty level of the clients served, breadth refers to the MFIs’ scale of operations (Ylinen, 2010; Mbogela, 2018).

Recently, despite the use of various definitions in relation to outreach to the poor, there has been little in the way of research conducted with the aim of measuring its effect on the domestic economy. Rosenberg (2009), for example, defined outreach as the number of clients or accounts that are active at a given point in time. He argued that the number of active clients, which includes borrowers, depositors, and other clients, is better suited to measuring the outreach level than the cumulative number of loans made or clients served during a period. Outreach for MFIs can also mean the efforts that are made to extend microfinance services to people who are underserved by financial institutions (Lafronte, Isern, Mwangi, & Brown, 2005; Michael, Justina & Olabode 2018). In addition, outreach can be explained as an effort to extend loans and financial services to an ever-wider audience (i.e., breadth of outreach), especially to the poorest of the poor (depth of outreach) (Conning, 1999; Siddiqui, Mashkoor & Hye 2010). In general, most studies have shared one common finding, namely that the number of clients served by MFIs is positively related to outreach.

Having said this, however, researchers continue to debate the theory of outreach in MFIs. The main issue is centered on how to measure the services that MFIs provide to the poor. According to the literature, the smaller the loan size, the deeper the outreach, as smaller-sized loans enable MFIs to reach greater numbers of poor people (Olivares-Polanco, 2005; Mizad et al. 2018). However, despite being established with the aim of reaching out to poor people, many MFIs end up serving the upper segment of the poor (i.e., the relatively better off segment of the poor),
better than the lower segment of the poor (i.e., the poorest poor). Hence, although microfinance offers an effective means of reducing poverty, it may not necessarily address the problem of extreme poverty (Mosley, 2001; Mohamad & Hussein 2018). Evidence from Bolivia revealed that MFIs have been effective in reaching the poor, but not the poorest. Recently, a new method has been devised for evaluating the effectiveness of outreach, which is termed microfinance-plus. A major advantage of microfinance-plus is that it enables MFIs to reach out to poorer and more vulnerable customers (Halder, 2003; Maes & Foose, 2006; Mokgari & Pwaka 2018). That is to say, it covers other antipoverty modalities, including primary health, primary education, and agricultural extensions, all of which are required in order to combat poverty in the poorest sector of the economy (Mosley, 2001; Simeunovic & Milic 2018).

As far as the scope of this study is concerned, however, its aim is to investigate the depth of outreach in relation to micro-finance in Bangladesh, thereby leaving the case of microfinance-plus for our future research undertakings.

### 2.1 Description of Variables

Prior studies have shown that the establishment of new branches by MFIs will allow them to provide an extended service to new clients, which will in turn result in an increase in outreach (Ali & Haseeb, 2019; Yaron, 1992). This is the case as new branches enable people to make more frequent use of the services from their doorstep, and this is even more profound in developing countries where the majority of rural people have less access to conventional financial systems. As a caveat, however, it has been argued that increased branch numbers may not necessarily lead to an increase in the number of members/borrowers in the event of a deterioration in the portfolio/loan quality of the banks/MFIs in question (Gonzalez, 2010; Moussa, 2018).

Another factor that may also influence the performance of MFIs, in terms of their level of outreach, is the number of years they have been serving clients. This reflects how the experience of an MFI can have a positive impact on its growth ventures. It has been demonstrated that as MFIs become older and more mature they are able to disburse larger loans and increasingly serve the poorer borrower segment (Ylinen, 2010; Mukadasi, 2018). Next, it has been widely contended that the average loan size and number of borrowers play a relatively significant role in determining the outreach level of MFIs. Okumu (2007) found that the average loan size as a proportion of per capita national income was negatively related. In another study, Schreiner (2001) identified a relationship where a wider breadth (number of borrowers) offset the depth (average size loan) (Note 3). Meanwhile, cost per borrower is another widely used method of measuring the outreach level of MFIs. It relates to how much it costs MFIs to provide loans to borrowers and can be used as an indicator to gauge the efficiency of MFIs. The reasoning is that as this cost falls, MFIs will face lower opportunity costs. Makane and Murinde (2006) argued that cost per borrower can be used as an indicator of sustainability since the lower an MFI’s cost per borrower, the higher its operational efficiency (Jermisittiparsert, 2016; Subramaniam & Anandasayan 2018).

Another variable that has become the object of many researchers in connection with the outreach level of MFIs is net asset accounts. Indeed, some researchers consider this to be one of the important variables that significantly influence the outreach level of MFIs. In fact, the size of their asset holdings can significantly influence the policy taken by MFIs and seemingly has a strong impact on outreach. Ashraf and Hassan (2011) found, with a few exceptions, that asset size had a statistically significant positive impact on outreach measurement.

The last factor that has been heavily scrutinized by researchers is the number of borrowers per staff member. This refers to the number of borrowers served by each member of staff, whereby the greater the number of borrowers served by one member of MFI staff, the greater the efficiency of the MFI, and vice versa.

### 3. Research Methodology

#### 3.1 Data

To measure the outreach level of the MFIs, this study uses secondary data compiled from MIX Market Inc (Note 4), the Microcredit Regulatory Authority (MRA) (Note 5), the annual reports of the respective MFIs, and Bangladesh Bank. With the exception of Shakti Foundation (Note 6), annual data covering the ten-year period from 2002 to 2011 were used for all MFIs. The unit of currency used to weigh all variables is the US dollar ($).

It is wise at this juncture to describe each of the variables used in this study. First, Number of Active Borrowers (OUTR), as the dependent variable, refers to those individuals currently holding an outstanding balance with an MFI. Second, Average Loan Balance per Borrower (ALOAN) is defined as the gross loan portfolio divided by the number of active borrowers. Third, Cost per Borrower (COSTPB) is operating expenses divided by the number of active borrowers. Fourth, the number of years an MFI has extended services to borrowers (AGE) refers to the years of observation, which in this case is the period 2002–2011 (10 years). Fifth, Borrower per Staff (BORROWERPS) is the ratio of active borrowers to the number of personnel. Sixth, Asset (ASSET) indicates the total of all net asset
accounts. Finally, seventh, Number of Branches (BRANCH) reflects the number of offices from which MFIs provide services.

Table 1 presents the five categories of statistics for each variable: the mean, standard deviation, minimum and maximum values of the observations, and the number of observations after accounting for the missing data in the overall sample.

### Table 1. Descriptive statistics of the variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTR</td>
<td>110</td>
<td>1503557</td>
<td>2209243</td>
<td>44245</td>
<td>8370998</td>
</tr>
<tr>
<td>ALOAN</td>
<td>110</td>
<td>90.43</td>
<td>35.32</td>
<td>27</td>
<td>242</td>
</tr>
<tr>
<td>COSTPB</td>
<td>110</td>
<td>12.88</td>
<td>6.24</td>
<td>4</td>
<td>47</td>
</tr>
<tr>
<td>BORROWERPS</td>
<td>110</td>
<td>175</td>
<td>64</td>
<td>60</td>
<td>331</td>
</tr>
<tr>
<td>AGE</td>
<td>110</td>
<td>23</td>
<td>7</td>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>ASSET</td>
<td>110</td>
<td>2.00E+08</td>
<td>3.50E+08</td>
<td>2386688</td>
<td>1.70E+09</td>
</tr>
<tr>
<td>BRANCH</td>
<td>110</td>
<td>867</td>
<td>1033</td>
<td>37</td>
<td>3334</td>
</tr>
</tbody>
</table>

The descriptive statistics reveal a number of interesting facts concerning MFIs in Bangladesh. First, the average number of active borrowers (OUTR) exceeds 1.5 million. This implies that for every 100 people living in Bangladesh there are approximately two active borrowers of MFIs. Second, the mean value of loan size per borrower among MFIs is $90.43, with a minimum value of $27 and a maximum value of $242. Borrowers are thus taking out an average loan amount of $90.43, while the largest loan size is around 268% of the mean value. Third, the average cost per borrower is $12.88. Fourth, every member of staff serves an average of 175 borrowers, with a relatively large standard deviation (64). The maximum number of borrowers per member of staff is 331, while the minimum is 60. And, fifth, in terms of the length of time that MFIs have provided services, the average length is 23 years, with a maximum length of 37 years and a minimum of 6 years. This result indicates that the MFIs selected for inclusion in this study have been operational in the arena for substantial periods of time.

### 3.2 Model Specification

A regression model has been used to estimate the influence of the independent variables on the dependent variable, which is the number of active borrowers of MFIs in Bangladesh (OUTR). This study uses pooled observations from several cross sections for the purpose of estimating the relationships among variables. Regression analysis has the potential to provide greater reliability of the estimates, thus implying that the use of pooled observation is appropriate (Bass, 1975). Pooled cross-section and time series data is used to investigate the relationships between the dependent variable, as the number of borrowers or outreach, and the independent variables in the form of average loan balance per borrower, cost per borrower, the number of years MFIs have extended their services, borrowers per staff member, net asset accounts, and number of branches. Pooled OLS is often used as a basic means of analyzing data. The estimated model can be written as:

\[
Y_{it} = \alpha + X'_{it} \beta_{it} + \delta_{i} + \gamma_{t} + \epsilon_{it}
\]  

(1)

where \(Y_{it}\) represents the dependent variable, \(X'_{it}\) is the vector of regressors, \(\alpha\) is the parameter representing the overall constant in the model, \(\beta_{it}\) are the regression coefficients, \(\delta_{i}\) are cross-section-specific effects (random or fixed), \(\gamma_{t}\) are period-specific effects (random or fixed), \(\epsilon_{it}\) are error terms (for \(i = 1,2,\ldots,M\) cross-sectional units observed for the dated periods \(t = 1,2,\ldots,T\)), \(i\) is the number of cross sections, and \(t\) is the time period.

Alternatively, the relationship between the dependent and independent variables can be shown as:

\[
OUTR = f (ALOAN, COSTPB, AGE, BORROWERPS, ASSET, BRANCH)
\]  

(2)

The empirical model form for this specification is given by:
\[ \ln \text{OUTR}_{it} = \beta_0 + \beta_1 \ln \text{ALOAN}_{it} + \beta_2 \ln \text{COSTPB}_{it} + \beta_3 \ln \text{AGE}_{it} + \beta_4 \ln \text{BORROWERPS}_{it} + \ln \text{ASSET}_{it} + \ln \text{BRANCH}_{it} + \delta_i + \epsilon_{it} \]  

(3)

Where,
\[
\ln \text{OUTR}_{it} = \text{natural logarithm of the number of borrowers in MFIs i at time } t.
\]
\[
\ln \text{ALOAN}_{it} = \text{natural logarithm of average loan balance per borrower in MFIs i at time } t.
\]
\[
\ln \text{COSTPB}_{it} = \text{natural logarithm of cost per borrower in MFIs i at time } t.
\]
\[
\ln \text{AGE} = \text{natural logarithm of years MFIs i have served borrowers at time } t.
\]
\[
\ln \text{BORROWERPS} = \text{natural logarithm of borrowers per staff member in MFIs i at time } t.
\]
\[
\ln \text{ASSET} = \text{natural logarithm of net asset accounts in MFIs i at time } t.
\]
\[
\ln \text{BRANCH} = \text{natural logarithm of the number of branches in MFIs i at time } t.
\]
\[
\delta_i = \text{cross-section fixed effects of MFIs i.}
\]
\[
\epsilon_{it} = \text{error term for MFIs i at time } t.
\]

Table 2 summarizes the expected relationship between the dependent variable and the independent variables.

<table>
<thead>
<tr>
<th>Dependent Variable: OUTR</th>
<th>Expected Relationship with Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALOAN</td>
<td>Negative</td>
</tr>
<tr>
<td>COSTPB</td>
<td>Negative</td>
</tr>
<tr>
<td>AGE</td>
<td>Positive</td>
</tr>
<tr>
<td>BORROWERPS</td>
<td>Positive</td>
</tr>
<tr>
<td>ASSET</td>
<td>Positive</td>
</tr>
<tr>
<td>BRANCH</td>
<td>Positive</td>
</tr>
</tbody>
</table>

The Hausman test was used for the purpose of selecting the appropriate specification between fixed and random effects models. The Hausman test used here rejects the null hypothesis (at the 1 percent significance level) and the two estimation methods (Fixed and Random). This indicates that the pooled model does have constant slopes but that the intercepts differ according to the respective MFIs. Since E-Views automatically includes a constant term, the fixed effects model estimates the sum to zero, being interpreted as deviations from an overall mean.

4. Results and Discussion

The pooled estimation method was used to assess the performance of the six control variables (ALOAN, COSTPB, AGE, BORROWERPS, ASSET, and BRANCH) to predict the number of borrowers (OUTR) of MFIs in Bangladesh. The following regression equation shows the estimated coefficients for the independent variables (t-value in parentheses):

\[
\ln \text{Borrower} = 2.65 + 0.40 \ln \text{Age} - 0.60 \ln \text{ALOAN} + 0.17 \ln \text{BORROWERPS} - 0.44 \ln \text{COSTPB} + 0.53 \ln \text{ASSET} + 0.31 \ln \text{BRANCH} \\
(2.64) (2.93) (-9.76) (2.65) (-1.02) (9.43) (5.58) \ (R^2=0.99)
\]

Henceforth, we highlight some of the most interesting results derived from the regression. First, the absolute values of the t-statistic corresponding to the coefficients of the function indicate that the estimated coefficients are statistically significant at a p-value of 1%, with Costpb being the only exception. Second, the overall regression, as measured by the R-squared value fit of 99%, indicates a very tight fit. The p-value given for the F-statistic is the marginal significance level of the F-test. Since the p-value is essentially zero, we reject the null hypothesis that all of the regression coefficients are zero, thus signifying that the model is relevant. The R-squared and F-statistics describe the explanatory power of the entire specification, including the estimated fixed effects and the use of...
reported information criteria such as the number of parameters and estimated coefficients, including fixed effects. In summary, the model may be considered representative at the country level. It indicates that there is a connection between the number of borrowers and selected independent variables. That is to say, the obtained results based on the constructed model indicate that the independent variables have a strong influence on the number of borrowers in selected MFIs of Bangladesh.

Third, in general, the number of years that the MFIs have extended their services (Age) has a robustly positive and statistically significant relationship (at the one percent level) with the number of borrowers. Thus, it can be argued that a greater number of years providing services to borrowers has helped MFIs to promote customer satisfaction. Operating for an increased number of years can thus be expected to lead to an increase in the number of active borrowers. In addition, the same result can be interpreted as indicating that a large number of years serving means that customers are satisfied with the services; hence, the MFI can attract greater numbers of new active borrowers. However, Makame (2007), who used a balanced panel of 198 observations from 33 MFIs in eastern Africa, argued that MFI age does not have a significant influence on breadth (number of borrowers) of outreach. Thus, if a comparison is made between our result and that obtained by Makame, ours provides a new perspective on the performance of the MFIs.

Fourth, as far as the relationship between active borrowers and average loan size is concerned, our result seems to be consistent with the findings of other researchers, viz. the number of active borrowers (coefficient Aloan) is negatively related to average loan size, thus implying that the higher the average loan size, the lower the number of clients, and vice versa. As evident from the table, our result is negatively and statistically significant at the one percent level. Interestingly, Olivares-Polanco (2005) and Okumu (2007) obtained similar findings. Fifth, our study found that an increase in staff leads to an increase in the number of active borrowers. The coefficient implies that a one percent increase in staff will increase the number of borrowers by 17% at the one percent significance level. The same result can be used to measure the productivity (i.e., how much output or the number of borrowers served by each staff member) of staff working at MFIs (Woller & Schreiner, 2002). Makame and Murinde (2006) also found that as an MFI grows it tends to employ more personnel, who go on to serve a larger number of clients.

Sixth, we measure a further aspect of outreach that concerns the cost per borrower (Costpb). The regression result revealed that Costpb is negatively and statistically insignificantly related to OUTH. This implies that an increase in the cost of providing services will result in an increase in the interest rate. Consequently, borrowers will react to this interest rate increase by borrowing less. We note in passing that this is the first ever finding to show the relationship between the cost of borrowing (i.e., interest rate) and the outreach level of MFIs. Lastly, the variables Branch and Asset are positively and statistically significantly related to OUTH, thus indicating that the MFIs studied in Bangladesh have attained a greater level of outreach, as implied by the increase in the number and size of their branches and assets, respectively. This is consistent with the findings of Ali and Alam (2010) in Pakistan.

5. Conclusion

This paper employed a regression model to examine the determinants of outreach for MFIs in Bangladesh. Using a sample of data from the top eleven (11) MFIs, we obtained convincing results that can be used to explain our research question, namely what are the variables that determine the outreach level of MFIs in Bangladesh? To summarize, with one exception, the relationship between the outreach level and other variables is consistent with the hypotheses. If we combine all of the findings, one policy implication becomes apparent. That is, knowing that most of the people who borrow from MFIs are risk-averse, and given the three scenarios, it is quite natural to see the “poorest” among them opting out, thus leaving the “richest” among them to continue borrowing from the large MFIs. The reason for such action may be the willingness of the “richest” to bear the higher cost of borrowing (i.e., a higher interest rate) by virtue of them being in the market for a sufficiently long period of time.

However, based on how, if this were actually the case, it would defeat the ultimate purpose of establishing the MFIs, i.e., to raise the well-being of the poorest in the community, we recommend the following: MFIs that have been in the market for long enough, and as such are able to increase the size of the loans they offer, should be confined to extending loans to the “richest” among the borrowers. This will leave the smaller, and perhaps newer, MFIs to cater to the needs of the “poorest” borrowers. This is a kind of a two-pronged strategy where, on the one hand, the market may look more competitive, while on the other hand leading to a sort of specialization among MFIs. That is to say, the two different types of MFIs—the “more mature or larger ones,” and the “less mature or smaller ones”—are able to exist side by side and compete in line with their respective specializations, as measured by their size of loans and the rate of interest charged.
References


**Notes**


3. This is because an institution reaches as many of the very poor as a poverty-oriented organization with narrow breadth, even when recording high average loan balances.


6. Their period ran from 2004 to 2012.