Do Minority-owned Banks Pay Higher Interest Rates on CDs?

**Russ Kashian · Richard McGregory Jr. ·
Neil Lockwood**

Abstract This paper analyzes whether minority-owned banks pass along an advantage in access to governmental deposits to the communities they serve in the form of higher interest rates paid on certificates of deposit (CDs). Although academic evidence has not confirmed increased profitability or efficiency of these banks since the creation of the Minority Bank Deposit Program, their unique positioning within communities may allow them to meet the needs of a clientele with lower and less stable income, and with higher than average expected future deposit withdrawals. Data from the regulatory reports provided by minority and non-minority owned banks are analyzed using five distinct time horizons for CDs. The results suggest that Black-owned banks consistently pay higher interest rates on CDs, with a lower premium for longer-term CDs, and used the premium to cushion the ill effects of the recent financial collapse on their customers. Asian-owned banks provide a smaller premium for short-term CDs, while the remaining category of minority-owned banks, including Native American, Hispanic, and Women-owned banks, also paid a premium on CDs, but shrank that premium substantially following the financial collapse. Note also that minority-owned banks may use this funding advantage in a variety of other ways to serve their respective communities.

Keywords Minority owned banks · Community banking · Certificates of deposit

R. Kashian · R. McGregory Jr. (✉) · N. Lockwood
Department of Economics, University of Wisconsin-Whitewater, 800 W. Main Street, 4304 Hyland Hall, Whitewater, WI 53190, USA
e-mail: mcgregor@uww.edu

R. Kashian
e-mail: kashianr@uww.edu

N. Lockwood
e-mail: lockwoodnm29@uww.edu

🖄 Springer

Introduction

In reaction to the creation of the Minority Bank Deposit Program (MBDP) in 1970, academic interest has focused on determining whether minority-owned banks' additional access to deposits created a market advantage in regards to profitability. Using both parametric and nonparametric analysis, most academic research suggests little improvement over time in the performance of minority-owned banks (MOBs) when measured by either efficiency or profitability (Lawrence 1997; Price 1990).

The MBDP was designed to promote the placement of deposits in minority owned financial institutions, and specifically directs the U.S. Treasury to make efforts to place deposits with these institutions. MOBs therefore have enhanced access to deposits from the Treasury, access which should in turn generate economic rents. The question of how these rents are used led to the studies mentioned above regarding potential improvements in efficiency or profitability. Given little evidence that the rents are devoted to those purposes, they might instead be passed along to employees in the form of improved employment, wages or benefits, or be given to the community in terms of servicing unprofitable clients (e.g., those with limited financial resources) or sponsoring community events. The rents may also be shared with the customers the banks serve.

This paper focuses on the latter possibility, hypothesizing that rents flowing from the U.S. Treasury to MOBs are passed along to retail customers in the form of an interest rate premium. Given there is no direct measure of Treasury deposits available, the study borrows an analytical strategy originally pioneered in studies of wage discrimination (e.g., Oaxaca 1973; Blinder 1973). Specifically, the regressions control for a variety of alternative explanations for differences in CD rates, leaving a residual effect for MOBs which is interpreted as attributable to the MBDP. A variety of studies are reviewed to identify relevant controls.

The data set employed here (described below) is unique, drawing upon a variety of sources, including regulatory reports, on a large sample of U.S. banks for the period 2002 to 2011. Due to historical circumstances, all of the MOBs in the MBDP (and in the data) are one market banks (where the market is defined as an MSA). Therefore, although the analysis draws on literature addressing differences between multiple market and local market banks, for comparability the sample is limited to small banks.

Diversity Among Mobs

The data allow categorization of MOBs by ownership type (Black or African American-owned, Hispanic-owned, Women-owned, Asian-owned, and Native American-owned), with ownership type defined by members of the relevant group or groups holding at least a 51 % ownership share in the institution. Due to several of these categories having few observations, the paper considers only MOBs that are Black-owned (BOBs), Asian-owned (AOBs), or Other-minority or women owned (OMB).

The limited literature addressing differences across these categories of MOBs suggests that AOBs are the least efficient MOBs, followed by BOBs, Hispanic-owned banks, and Native American-owned banks, respectively (Hasan and Hunter 1996; Iqbal et al 1999). As mentioned earlier, there are many ways in which rents due to the MBPD

may be shared, so it is not surprising that the findings of these studies are consistent with behavioral divergence across MOB types in rent allocation choices.

The specific reasons for expecting behavioral divergence in terms of CD rates are different and perhaps even more fundamental than the factors influencing efficiency. First, Survey of Income and Program Participation (SIPP) data from 2005 to 2009 show average Black household wealth is less than 10 % of levels found in either White or Asian households, with Hispanic household wealth just above that for Black households (Taylor et al. 2011, p. 13). To the extent bank clients mirror the composition of owners, it follows that Asian-owned banks have access to wealthier clients than Black-owned banks. Although research suggests there is also a gender wealth gap, with women holding less wealth than men, the group exhibits substantial heterogeneity, including both a disproportionate number of poor women (particularly women of color) and a large number of relatively wealthy (mainly white) women (Chang 2010).

Second, housing segregation in the U.S. is highly concentrated among Black households, with relatively low levels of segregation for Asian households, and with Hispanic households exhibiting an intermediate position (Rugh and Massey 2010). It is therefore plausible to suggest that the client composition of Black-owned banks more closely mirrors that of owners, at least relative to Asian-owned banks.

Assuming for a moment that all MOBs are motivated to serve their respective communities, differences in levels of segregation imply that Black-owned banks have a greater opportunity to do so by sharing rents with their clients via higher rates for CDs. That is, if other MOBs pursued this same strategy, they would provide relatively fewer benefits to the targeted community because of their more diffuse client base. It is therefore hypothesized that BOBs will be most likely to offer above-market CD rates.

Because of wealth disparities, it is further hypothesized that Black-owned banks will associate higher rates with relatively short-term CDs. Given that low-wealth clients tend to be liquidity challenged, they are more likely to purchase short-term as opposed to long-term CDs, implying that the targeting of short-term rates offers a more effective mechanism for serving the Black community. Given patterns of wealth inequality and segregation, these same hypotheses may be relevant to Hispanic-owned banks and perhaps to Native American-owned banks, but the data do not permit relevant testing.

Previous Studies

Minority Owned Banks

The recent financial crisis disproportionately impacted racial and ethnic minorities (Reuben 2010). The crisis and its negative impact on the global and U.S. economy have caused researchers and policymakers to revisit economic issues related to racial inequities in financial services. Phillips (2010) argues that African Americans have been particularly disadvantaged by a long history of inequitable lending practices in the U.S. Moreover, research by Boehm et al (2006), motivated by an expansion of subprime lending in the 1990s, found that African Americans paid a much higher annual percentage rate than whites in the mortgage market. Some political economists argue that an improved positioning of minority owned banks could serve to counter

these inequities, giving racial and ethnic minorities a more favorable playing field in lending markets if the banks are both economically viable and willing to fill critical lending roles for minority consumers and businesses (Matasar and Pavelka 2004).

Bates and Bradford (1980) investigated the four fold increase in the number of BOBs from 1963 to 1976 and found their purported aversion to lending to be an incorrect interpretation of their greater liquidity. They conclude that the liquidity follows from meeting the needs of a clientele with lower and less stable incomes, and with higher than average expected future deposit withdrawals. This conclusion is consistent with the hypothesized targeting of rate benefits among BOBs to short-term CDs.

Cole et al.'s (1985) review of the BOB literature attempts to create a policy framework to promote their growth. They conclude that further research is needed in every area related to BOBs, with a particular need for studies that address economic, regulatory, and technological innovations in the financial services industry. Moreover, they find little attention being paid to the question of which financial products and services are most appropriate for emerging economic strata within the African American community. Phillips' later study suggests that the neglect of studies answering this question led to tragic results in recent decades.

The MOB literature suggests that minority clients may be treated more favorably by minority owned banks (Bostic 2003). Indeed, some researchers argue that policies supporting MOBs hinge on this very assumption. Black et al (1997) investigate this issue in relation to BOBs and African American borrowers, and fail to find that otherwise similar African American applicants are relatively more successful in securing loans from BOBs. However, Ladd (1998) argues that much of the controversy in this arena revolves around a lack of clarity in the definition of discrimination. Ladd echoes Cole et al's assertion of the need for additional research about the intricacies of BOBs and their operational practices.

The present study can help build upon this body of research.

Single Market Bank Literature

The banking literature is relevant here for the purpose of identifying controls for determinants of the CD interest rate. Because the analytical strategy involves isolating the effects of the MBPD, other factors that might influence CD rates, whether those be resources, costs, revenue streams or risk, need to be considered. Among these, there is a substantial body of literature that compares interest rates offered by single or Local Market Banks (LMB) and Multiple Market Banks (MMB). Barros (1999) and Park and Pennacchi (2009) argue that MMBs have access to more diverse sources of financing (both deposits and loans) and offer lower interest rates when merging into a market. In addition, Park and Pennacchi (2009) and Hannan and Prager (2006), find that MMBs offer lower deposit rates than single market banks, while offering funding advantages, organization, and greater efficiency as possible explanations. However, Rosen (2007) finds that growing banks offer lower rates on deposits and a market with more and larger MMBs will tend to see higher deposit rates for all. Craig and Dinger (2009) find mixed results when looking at asset size and deposit interest rates. Radecki (1998) hypothesizes that, while interest rates may be set based on the economic condition of one market, all markets may be considered in the final decision.

An alternate approach focuses on market concentration. This literature evolves from ideas of antitrust arguments regarding the price impact of reduced competition (Tirole 1988). This relationship reverses in the case of deposit interest (as competition decreases, deposit interest rates fall). Early work in this area typically finds that banks in more concentrated markets offer lower interest rates on deposits, both through organic concentration growth (Berger and Hannan 1989) or through concentration growth by merger (Prager and Hannan 1998).

Given that MOBs in the U.S. are universally LMBs, these studies suggest that the exclusion of MMBs from the analysis will improve the comparability of the MOBs and non-MOBs in the data. The exclusion of large banks serves this purpose. The specific cut-off ($11 billion in assets) was selected on the basis of the assets held by the largest MOB in the data. Additionally, studies such as Hannan and Prager (2006), who find a negative relationship between assets and interest rates, suggest that an important control variable in any study of bank interest rates lies in assets.

Other Relevant Research

A rich body of bank research employs bank balance sheets to estimate financial results, and suggests further controls. While no exact template of a model exists where this analysis fits, Demirguc-Kunt and Huizinga's (1999) paper on the determinants of commercial bank interest margins is closest. Demirgüç-Kunt and Huizinga use a number of the items from the bank balance sheet that are common in subsequent research, with an emphasis on the book value of equity divided by total assets. Relatedly, Buser et al. (1981) examine the theoretical relationship between bank profitability and bank capitalization. Generally, banks with a high equity to asset ratio—reflecting costly bank entry—have incentives to remain well-capitalized and to engage in prudent lending behavior (see Caprio et al. (1993) and Stiglitz (1996)). The equity/asset ratio may have a positive coefficient because banks finance assets with a combination of debt (e.g., CDs) and equity; banks with relatively low levels of debt may experience pressure to increase debt to balance the ratio of debt to equity, and increase the return on CDs as a result.

Other relevant variables that might serve as controls here include non-interest income and non-interest expense. These variables serve as dependent variables in earlier studies (Rosen 2007; Lin et al 2010), with Lin arguing these are extra payments to depositors that divert service charges in order to attract deposits. In concert with interest income and interest expense, which serve as the components of net interest margins, they represent the primary elements of the banks' efficiency. For our purposes, three of these four variables—non-interest income, non-interest expense, and interest income—serve as controls, given that each may influence the ability of a bank to pay a high or low interest rate on CDs. Interest expense is not included, since the rate set by the bank for CDs directly affects interest expense. Further, interest income is broken into its two components: income per loan (i.e., total interest income/total loan volume), and total loan volume, to account for the potential for each to affect CD rates offered by the bank. The income variables, including non-interest income, interest income and loans, may be positively associated with the CD rate, given that each serves to improve a bank's ability to pay higher rates; the same reasoning suggests that non-interest expense will be negatively related to the CD rate.

Additionally, Rosen (2007) uses non-performing loans to measure credit quality. For present purposes, non-performing loans are of relevance, although the causality involved is murky. Banks with many non-performing loans may increase the rate on CDs in an effort to replace funds lost when loans are non-performing. Alternatively, non-performing loans may inhibit the ability of a bank to pay high rates on CDs.

Personnel expenses provide another important factor that may influence CD rates. Banks paying substantial salaries or those with a large number of employees have higher expenses, *ceteris paribus*, so they may be less able to offer a high CD rate, albeit they may have a greater need for the funds CDs generate (Westort et al 2010).

Most of the controls discussed thus far vary absolutely with the size of the bank involved. Therefore, to correct for this inherent collinearity, all variables beyond assets are divided by assets for entry in the model.

The overall framework utilized in this study revisits the issue of the appropriate inclusion of inputs and outputs, building on previous research (Berger and Humphrey 1991; Demirguc-Kunt and Huizinga 1999; Rosen 2007; Westort et al 2010). The approach of these researchers identifies all items on both sides of the bank balance sheet as inputs or outputs based on their contribution to added value for the bank.

Data and Methods

This study employs data on commercial and savings banks covering the years 2002–2011. SNL Securities provided the annual balance sheet and income statements of the commercial banks, while Rate Watch provided the interest rate data. Both services aided in the construction of variables for empirical analysis in the present study. In order to enhance comparability, the data excluded banks with missing information on basic accounting variables (primarily due to closures and mergers), such as assets, loans, deposits, equity, interest income and non-interest income.

The resulting panel is unbalanced because in some cases banks report weekly, in others monthly, and still others on a less regular or discontinuous basis. These raw data effectively weight banks more heavily simply on the basis of reporting frequency, and there is no reason to suspect that the frequency of reports is randomly distributed across the banks. To counter any resulting biases, the data are limited to one observation per bank per quarter, resulting in a maximum of 40 observations per bank. Even with this restriction, the average bank in the sample provides only 21 quarters of data for the 10-year period.

The dependent variables for the analysis measure the rate of interest paid on certificates of deposit (CDs), rates that vary by length of maturity from 12 months to 24 months, 36 months, 48 months, and 60 months. Banks do not consistently offer or provide information on each type of CD, resulting in unequal sample sizes for the analyses (see bottom of Table 2). Not surprisingly, however, the largest samples are for the 12 and 24 month CDs.

As mentioned earlier, the sample is restricted to small banks, with the cut-off set just above the size of the largest MOB (just under $11 billion in assets). That particular bank is in the OMB category.

The independent variables follow from the discussion above, and are described in Table 1. The descriptive information covers four subsamples, one for each of the three

MOB categories, and the fourth for all other banks. Given the MOBs comprise less than 2 % of the total sample (see bottom of Table 1), there is virtually no difference between the descriptive statistics for all other banks and for the entire sample. Information on the number of banks in the sample (see the last row of the table), similarly reflects the relative scarcity of MOBs.

The 12-month CD rate shown is slightly higher for the three categories of MOBs, relatively to all other banks. Asset differences are somewhat surprising. Although the BOBs are very small, with an average of only $283 m in assets, and average AOB assets are only one-third of the average for all other banks, the OMB (other minority-owned banks) have the highest level of average assets in the sample.

Average levels of equity, non-interest income, and non-interest expense follow the same pattern as assets, which is hardly surprising. The volume of loans also follows this pattern, but interest income from those loans is distinct, ranging from a high of 9.66 for BOBs, to a low of 8.10 for AOBs. Non-performing loans as a percentage of all loans are far higher for the BOBs, and almost twice the average for all other banks among the AOBs; it is possible that these banks were serving relatively high-risk clients, as intended by the MBDP, and were caught (along with those clients) by the financial collapse, but it is also possible that the banks were less prudent in screening loan applicants. These possibilities cannot be addressed here, so the issue is left for future studies.

Not surprisingly, salaries and the number of employees mirror the pattern for assets. Because many of the variables reflect that same pattern, direct use of those variables would invite problems of multicollinearity in the regressions. In response, the variables for equity, non-interest income, non-interest expense, loans, salaries and the number of employees are each divided by assets to construct variables for the analysis.

Table 1 Descriptive statistics for MOBs and other banks

Variables	BOBs	AOBs	OMB	All other banks
Average 12-month CD interest rate	2.09 (1.28)	2.36 (1.35)	2.08 (1.23)	1.99 (1.25)
Assets (unit $1 m)	283 (143)	604 (621)	5929 (3939)	1817 (2554)
Equity (unit $1 m)	23.5 (11.4)	55.7 (48.8)	627 (443)	193 (297)
Non-interest income (unit $1 m)	374 (427)	1243 (7109)	9127 (6517)	3211 (1480)
Non-interest expense (unit $1 m)	1153 (594)	1869 (1858)	16000 (11100)	6202 (1410)
Interest income/total loans (%??)	9.66 (2.23)	8.10 (1.90)	9.84 (2.17)	8.37 (5.15)
Loans (unit $1 m)	158 (76)	446 (424)	2931 (1961)	1179 (1671)
Non-performing loans/total loans (%)	4.62 (4.35)	3.75 (4.26)	1.20 (1.89)	1.99 (3.15)
Salaries (unit $1,000)	1426 (746)	2258 (1971)	16932 (11417)	7369 (14963)
Number of employees	109 (66)	138 (116)	1898 (1296)	511 (850)
Number of observations	3,261	3,348	9,718	844,567
% of total observations	0.38	0.39	1.13	98.10
Number of banks	119	149	315	39,674

Mean values with standard errors in parentheses. Figures estimated from sample for 12-month CD rate with $n=860,783$

Table 2 Regression results for CD Rates, GLS with random effects

Variables	12-month CDs	24-month CDs	36-month CDs	48-month CDs	60-month CDs
Black-owned banks	.489** (.076)	.410** (.058)	.369** (.048)	.275** (.049)	.202** (.055)
Asian-owned banks	.308** (.062)	.203** (.057)	.037 (.048)	.044 (.051)	.019 (.055)
Other minority-owned banks	.354** (.021)	.400** (.022)	.418** (.025)	.567** (.025)	-.177** (.043)
2008 spline	-1.189** (.038)	-1.242** (.034)	-1.224** (.032)	-1.165** (.026)	-1.249** (.023)
Black-owned banks*2008	.141** (.065)	.159** (.053)	.114** (.036)	.136** (.035)	.161** (.042)
Asian-owned banks *2008	-.072 (.058)	-.051 (.045)	-.114** (.040)	-.111** (.033)	-.163** (.042)
Other minority-owned banks*2008	-.230** (.021)	-.312** (.021)	-.316** (.019)	-.472** (.020)	-.040 (.068)
Log assets	.043** (.003)	.032** (.003)	.004 (.003)	-.006* (.003)	-.007** (.002)
Equity/assets	3.207** (.218)	2.204** (.196)	1.298** (.089)	.890** (.093)	.150 (.082)
Non-interest income/assets	.002 (.004)	.005 (.003)	.017** (.002)	.015** (.002)	.012** (.002)
Non-interest expense/total loans	-.011 (.006)	-.003 (.006)	-.006* (.003)	-.010** (.003)	-.012** (.002)
Interest income/total loans	.045 (.028)	.041 (.025)	.094** (.024)	.075** (.020)	.072** (.018)
Total loans/assets	3.152** (.295)	2.986** (.254)	3.314** (.228)	2.992** (.194)	2.76** (.185)
Non-performing loans/total loans	-.054** (.003)	-.050** (.003)	-.040** (.003)	-.040** (.003)	-.040** (.003)
Salaries/assets	9.744** (2.865)	-.039 (2.670)	-7.210 (4.091)	-3.390 (4.371)	-11.36** (3.87)
Number of employees/assets	-137.4** (35.6)	-188.1** (41.6)	-575.1** (51.9)	-412.2** (47.4)	122.8** (.300)
Constant	-.692 (.461)	.097 (.405)	.303 (.410)	1.022** (.335)	1.456** (.300)
st. dev. v	.315	.306	.293	.320	.327
st. dev.	.851	.745	.661	.628	.588
ρ	.120	.144	.164	.206	.236
R-squared within groups	.382	.447	.521	.513	.576
R-squared between groups	.398	.467	.607	.599	.647
R-squared overall	.341	.408	.509	.493	.561
Wald Chi-squared	208068**	254780**	795738**	214719**	264346**
Breusch-Pagean Chi-squared for random effects	180000**	220000**	300000**	330000**	440000**
Number observations	860,783	840,862	795,738	637,614	735,834

Robust standard errors in parentheses

*$p<.05$; **$p<.01$

Information is also available on the total deposits held by each bank. That information is not used because total deposits include both those attributable to the MBDP as well as CD deposits driven by the interest rate the bank chooses to pay on CDs. If deposits were instead included as an independent variable, a generic MBDP effect applying to all MOBs would be confounded with a reverse causality effect whereby CD rates influence CD deposits.

Additionally, as the sample covers the ten-year period including the financial collapse in 2008 and continuing poor economic performance, a 2008 spline variable is constructed to cover the years 2008 through 2011. The variable is interacted with the MOB dummies to identify any unique responses to the crisis among the MOBs.

The regressions are specified using a Generalized Least Squares (GLS) estimator, which is more efficient than Ordinary Least Squares in the presence of heteroskedasticity (Baltaqi 2011, p. 224). The data exhibit evidence of heteroskedasticity, warranting the application of the GLS estimator and a correction for robust standard errors (e.g., for the 12-month CD regression reported in Table 2, a full 15 coefficients are significant at $p<.01$ absent the correction, as compared with the 10 significant coefficients reported). Fixed effects cannot be controlled for in the model because the MOB categories are time-invariant; instead, the regression is estimated with random effects, which are particularly appropriate given they account for the time variation of interest rates. A Breusch-Pagan test for the significance of the random effects is applied to each regression. All statistical work uses Stata version 12.1.

Results

Regression results are reported in Table 2. The results for BOBs are provided in the first numeric row of the table, and exhibit the hypothesized significant positive coefficients as well as the hypothesized decline in the absolute size of the coefficient as the period to CD maturity lengthens. The BOB effect can be interpreted as contributing around one-half of one percentage point to the 12-month rate, and one-fifth of a percentage point to the 60-month rate, with the other figures being intermediate. Coefficients for the AOBs exhibit the same pattern, but with smaller effects; significance disappears for CDs beyond 24 months to maturity. The OMBs yield positive and significant coefficients except for the 60-month CDs, where the effect is significant and negative.

The effect of the financial collapse at and beyond 2008 is large, significant and has a tight range, varying between a maximum estimated decline of 1.25 percentage points for 60-month CDs, and a minimum 1.17 percentage point decline for the 48-month rate. To understand the unique response of MOBs to the collapse, the co-efficients for the 2008 spline and the relevant interactions need to be added in cases where both coefficients are significant. Doing so demonstrates that the BOBs dropped their average CD rate by a maximum of 1.11 percentage points for 36-month CDs, and by a minimum of 1.03 percentage points for 48-month CDs. The absolutely smaller decline in CD rates among BOBs, relative to all other banks, effectively increased the absolute size of the BOB bump in interest paid on CDs, so the BOB rate moved counter-cyclically.

For the AOBs, the interaction effects are negative and significant for CDs with at least 36 months until maturity, yielding apparently pro-cyclical behavior. A closer look reveals that the premium paid for short-term CDs, around one-third of a percentage point for 12-month CDs and one-fifth for 24-month CDs, remained intact through the 2008–2011 period (i.e., the interactions are insignificant), while below-market rates were paid on longer-term CDs during the financial crisis. The OMBs exhibit clear pro-cyclical behavior, with large, significant decreases for the period in four of the five maturity categories, and with the largest effect (for 48 months) approaching one-half of a percentage point in size.

Considering control variables, the coefficient on assets is positive and significant for 12- and 24-month CDs, though negative and significant for CDs with at least 48 months to maturity. The equity coefficient is consistently and significantly positive, as expected. Although not uniformly significant, the signs of significant coefficients for non-interest income, non-interest expense, interest income, loans, and non-performing loans are each consistent with those found in earlier research.

The coefficients for the number of bank employees are uniformly negative and significant, as expected, although the results for bank salaries do not reflect that same pattern. A possible explanation for the odd salaries coefficients lies in its being collinear with the number of bank employees. The simple correlation coefficient for the two variables is .831, supporting that possibility.

Turning to the diagnostics for the model, the various R-squared statistics each being greater than .30 suggests the specification provides a reasonable fit for these data. The Wald Chi-squared, another goodness-of-fit indicator, is in every case large and significant. The Breusch-Pagan Chi-squared statistic provides a test for the joint significance of the two estimated random effects parameters (st. dev. ν and st. dev. ε). The test achieves significance in each case, implying that Ordinary Least Squares estimation would have yielded inconsistent results.

The relatively low ρ means there is more variation in the regression within than between banks or, stated differently, that variation in CD rates over time is larger than the variation between banks. This result is quite sensible because it implies that market trends are the major drivers of changes in the CD rates offered by individual banks.

Discussion

The analyses here represented an attempt to isolate the effects on CD rates offered to consumers due to a cost advantage accruing to banks covered by the Minority Bank Deposit Program. The hypothesized effects hold for Black-owned banks, as these banks offer CD rates that are higher than average by an estimated one-half of one percentage point for 12-month CDs, with a steady decline in the size of the premium, to one-fifth of one percentage point for 60-month CDs. The grounds for predicting this particular pattern for the premium were located in these banks targeting the premium to relatively poor, liquidity constrained consumers in the Black community. The pattern for Asian-owned banks is similar, although the premium is estimated to be only around three-fifths the size of that for Black-owned banks in the 12-month CD data, and no significant premium is provided for CDs with a maturity of at least 36 months.

An alternative explanation for the negative association between length to maturity and the size of the interest rate premium can be found in the possibility that these banks exhibit a particular form of risk aversion, and are cautious about committing to premium payments over a longer time horizon. While this argument makes intuitive sense, it also implies that Black-owned banks and, to a lesser extent, Asian-owned banks have a higher absolute level of aversion to risk in the more distant future than all other banks. If this were not the case, the pattern would not be unique to these banks (i.e., it would have only appeared in the constant term of each regression).

Although not predicted, the results for Black-owned banks associated with the financial collapse provide convincing evidence for counter-cyclical behavior in terms of the premium flowing from the MBDP. At a time when the overall economy was in poor health, and with the Black community particularly hard-hit, the Black-owned banks cushioned the financial blows suffered by many in their community. The banks lowered their CD rates, along with other banks, but lowered the rates by less than the average bank.

To the extent the Asian-owned banks exhibited a unique response to the financial crisis, it was to maintain the CD premium for short-term instruments, while accentuating the decline in CD rates for longer-term instruments. Although other explanations may be relevant, one possible reason for this behavior is if the Asian-owned banks sought to protect the relatively low-income clients who purchase short-term CDs from the ills of the financial crisis with financing provided by offering below-market rates to relatively high-income customers in the Asian community.

With one exception, the catch-all category of other minority-owned banks is associated with pro-cyclical CD rates. That is, except for the rate on 60-month CDs for the entire period, these banks provided a premium during the boom years early in the period under study, and withdrew most if not all of the premium for the period 2008 to 2011, noting the similar absolute size of the base and interaction coefficients. One potential explanation for this behavior lies in the relatively large size of these banks (see Table 1), which may have led them to become more traditional, responding to the financial collapse with behavior similar to that found in the rest of the industry. Although plausible, given the heterogeneity of the banks in this category, no firm conclusions should be drawn from these particular results.

Finally, it is worth returning to the notion that rents flowing from the MBDP can be used by minority-owned banks in a wide variety of ways. As argued earlier, Black-owned banks are uniquely situated to serve their specific communities by passing along these rents to customers in the form of a premium rate for CDs, and the evidence presented here fits that logic. However, it is possible that the other minority-owned banks also serve their communities, but do so by allocating the rents in different ways. For example, a woman-owned bank might provide loans at below-market rates to aspiring women in business, or a Native American-owned bank might sponsor scholarships for young Native Americans. Only future studies could address these possibilities.

References

Baltaqi B. Econometrics. 5th ed. New York: Springer; 2011.

Barros P. Multimarket competition in banking, with an example from the Portuguese market. Int J Ind Organ. 1999;17:335–52.

Bates T, Bradford W. An analysis of the portfolio behavior of black-owned commercial banks. J Finance. 1980;35:753–68.

Berger A, Hannan T. Deposit interest rates and local market concentration. In: Weiss LW editor. Concentration and price. 1989. p 255–65.

Berger A, Humphrey B. The dominance of inefficiencies over scale and product mix economies in banking. J Monet Econ. 1991;28:117–48.

Black H, Collins M, Cyree K. Do black-owned banks discriminate against black borrowers? J Financ Serv Res. 1997;11:189–204.

Blinder A. Wage discrimination: reduced form and structural estimates. J Hum Resour. 1973;8:436–55.

Boehm T, Thistle P, Schlottmann A. Rates and race: an analysis of racial disparities in mortgage rates. Hous Policy Debate. 2006;17:109–48.

Bostic R. A test of cultural affinity in home mortgage lending. J Financ Serv Res. 2003;23:89–112.

Buser S, Chen A, Kane E. Federal deposit insurance, regulatory policy, and optimal bank capital. J Finance. 1981;36:51–60.

Caprio G, Levine, R. Reforming finance in transitional socialist economies. World Bank; 1993. Working Paper Series 898.

Chang M. Lifting as we climb: women of color, wealth, and America's future. Oakland: Insight Center for Community Economic Development; 2010.

Cole J, Edwards A, Hamilton E, Reuben L. Black banks: a survey and analysis of the literature. Rev Black Polit Econ. 1985;14:29–50.

Craig B, Dinger V. Bank mergers and the dynamics of deposit interest rates. J Finan Serv Res. 2009;36:2–3.

Demirguc-Kunt A, Huizinga H. Determinants of commercial bank interest margins and profitability: some international evidence. World Bank Econ Rev. 1999;13:379–408.

Hannan T, Prager R. Multimarket bank pricing: an empirical investigation of deposit interest rates. J Econ Bus. 2006;58:256–72.

Hasan I, Hunter W. Management efficiency in minority- and women-owned banks. Econ Perspect. 1996;20:20–8.

Iqbal Z, Ramaswamy K, Akhigbe A. The output efficiency of minority-owned banks in the United States. Int Rev Econ Finance. 1999;8:105–14.

Ladd H. Evidence on discrimination in mortgage lending. J Econ Perspect. 1998;12:41–62.

Lawrence E. The viability of minority-owned banks. Q Rev Econ Finan. 1997;37:1–21.

Lin C, Ma Y, Song, F. Bank competition, credit information sharing and banking efficiency, Paper Presented at the Sixth Asia Pacific Economic Association Conference, Hong Kong; 2010.

Matasar A, Pavelka D. Minority banks and minority communities: are minority banks good neighbors? Int Adv Econ Res. 2004;10:43–58.

Oaxaca R. Male–female wage differentials in urban labor markets. Int Econ Rev. 1973;14:693–709.

Park K, Pennacchi G. Harming depositors and helping borrowers: the disparate impact of bank consolidation. Rev Financ Stud. 2009;22:1–40.

Phillips S. The subprime crisis and African Americans. Rev Black Polit Econ. 2010;37:223–9.

Prager R, Hannan T. Do substantial horizontal mergers generate significant price effects? Evidence from the banking industry. J Ind Econ. 1998;46:433–52.

Price D. Minority-owned banks: history and trends. Federal Reserve Bank of Cleveland. 1990, July 1. https://www.clevelandfed.org/Research/Commentary/1990/0701.pdf Retrieved 14 July 2012.

Radecki L. The expanding geographic reach of retail banking markets. Fed Reserv Bank N Y Econ Policy Rev. 1998;4:15–34.

Reuben L. The subprime crisis and African Americans: response. Rev Black Polit Econ. 2010;37:3–4.

Rosen R. Banking market conditions and deposit interest rates. J Bank Financ. 2007;31:3862–84.

Rugh J, Massey D. Racial segregation and the American foreclosure crisis. Am Sociol Rev. 2010;75:629–51.

Stiglitz J. Some lessons from the East Asian miracle. World Bank Res Obser. 1996;11:151–77.

Taylor P, Kochhar R, Fry R, Velasco G, Motel S. Twenty-to-one: wealth gaps rise to record highs between whites, blacks and hispanics. Washington: Pew Research Center; 2011.

Tirole J. The theory of industrial organization. 1st ed. Cambridge: MIT Press; 1988.

Westort P, Kashian R, Cummings R. Does ownership form in community banking impact profitability? Manag Finan. 2010;36:122–33.