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Bank Branch Deposit Competitiveness and Deposit Growth: Granular Data and a New Measure of Competitiveness

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Abstract

We investigate the relationship between deposit growth and branch deposit competitiveness. We introduce a new measure of competitiveness focused at the branch level that utilizes granular product data. We find more competitive branches have higher rates of deposit growth that vary across product types and local market structures. The new measure of competitiveness at the branch level is intended to complement existing bank and market-level measures of competition and opens up a number of new opportunities for banking research and policy investigation.

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Keywords: Bank Branch Deposit Competitiveness; Deposit Growth

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1. Introduction

The effects of bank competition (e.g., its impact on the fragility/stability of banking systems) have been investigated extensively (e.g., Beck, 2008). However, how branch deposit competitiveness (BDC) affects deposit growth is a neglected topic, one reason being the aggregate nature of available bank data until recently. The more granular data now available are offering new insights. For example, Azar et al. (2021) and Drechsler et al. (2021) find the interest rate paid on retail deposit products varies more within banks depending on branch-level policies and local market structures. A second reason is that the existing measures of bank competition were not designed to make use of the granular product data to assess competitiveness at the branch level.

This letter adds to the recent research using highly granular branch-level deposit rate data by introducing a new measure of competitiveness at the branch level. The new measure, based on easily observable deposit rates and geographical distance, is intended to complement the existing bank and market-level measures of competition in two important ways.

First, unlike the existing measures of competition at the bank (e.g., Lerner Index) and market-level (e.g., HHI), our new measure, at the branch-level, can be used to evaluate the dynamics of competition within local market geographies and how BDC impacts local market performance.

Second, our measure can be used to understand the competitiveness of a branch across different product markets. With the exception of Bolt and Humphrey (2015), heterogeneous competition across product markets has been largely overlooked by the existing measures of competition.

We show both contributions prove to be important as we find more competitive branches attract larger local market deposit flows and have higher deposit growth rates, and this relationship varies across deposit product types and local market structures.

An important implication of our study is that a sustained decline in a bank's branch network competitiveness is likely to reduce its overall ability to harvest funds from local deposit markets, thus limiting its internal capital markets (the redistribution of funds to other geographies) and

future lending opportunities. Given the above, this letter opens up a number of new opportunities for banking research and policy investigation.

2. Data

We employ three datasets. First, we obtain branch-level deposit data from the FDIC on an annual basis, from June 2001 to June 2019. Next, we match branch-level product rates from RateWatch for the three most common retail deposit products – interest checking (IC) accounts with less than \$2,500; \$10,000 12-month certificate of deposits (CD); and \$25,000 money market (MM) deposit accounts. Finally, we use commercial bank balance sheet and income statement data from U.S. Call Reports. The final sample consists of 75,838 branches and 526,028 branch-year observations.

3. Empirical Design

3.1 *A New Measure of Competitiveness*

To make use of the granular product data we propose a new branch-specific measure of competitiveness based on retail deposit rates and the geographical proximity between branches in local county deposit markets. To construct the measure of BDC, we first calculate, for each deposit product, the product-specific competitiveness of the branch relative to its local market competitors:

$$Product\ Competitiveness_{i,c,t} : \frac{1}{N} \sum_{j=1}^n \left(\frac{Rate_{i,c,t} - Rate_{j,c,t}}{1 + \frac{Distance_{i,j,c}}{Distance_{Max}}} \right) \quad (1)$$

where $Rate_{i,c,t}$ denotes the product-specific rate of branch i in county c in year t and $Rate_{j,c,t}$ denotes the rate of branch i 's local market competitor, branch j . $Distance_{i,j,c}$ is the distance, in miles, between branch i and branch j in county c , and $Distance_{Max}$ denotes the distance between branch i and the most distant branch in the county. Intuitively, the measure is the average of the distance between

branch i 's product rate and its competitors, scaled by relative geographical proximity.¹ To construct our measure of BDC, we take the average of all three major retail deposit products for each branch-year.

3.2 Econometric Model

To investigate the relationship between BDC and deposit growth rates, we estimate the following baseline specification:

$$\Delta \ln Deposits_{i,b,c,t} = \beta BDC_{i,b,c,t} + \varphi' \mathbf{X}_{b,t} + \alpha_i + \mu_t + \delta_{c,t} + \varepsilon_{i,b,c,t} \quad (2)$$

where $\Delta \ln Deposits_{i,b,c,t}$ is the deposit growth rate of branch i of bank b in county c in year t . $BDC_{i,b,c,t}$ is the average branch competitiveness across all three product competitiveness measures, as per equation (1). $\mathbf{X}_{b,t}$ denotes a set of bank-specific control variables which includes *Branch Network Size* (the log of the total number of branches), *Deposit Diversity* (the concentration of demand, time and saving deposits), *Return On Assets* (ROA, net interest income over total assets), *Liquidity* (cash over total assets), and *Z-score* (the sum of ROA and the equity ratio over the three year standard deviation of ROA). Finally, α_i , μ_t , and $\delta_{c,t}$ denote branch, year and county-year fixed effects, respectively.²

4. Empirical Results

4.1 Descriptive Statistics

Summary statistics are reported in Table 1.³ We observe the largest (smallest) variation in branch product competitiveness occurs in CD (IC) deposit products. Moreover, we note that the branch

¹ We scaled our measure by geographical distance because many banks expected accounts to be opened in branch. This requirement has lessened with online banking. Future measures of deposit competitiveness may consider scaling by technological reach, etc.

² Our results are also robust to bank-year fixed effects.

³ All variables are winsorized at the 1% level.

networks of smaller banks are, on average, more competitive than their larger counterparts in their respective markets.

4.2 Main Results

Table 2 reports the main results. Column (1) includes branch, year and county-year fixed effects, and column (2) adds bank-level controls. We show that branch deposit growth rates are significantly and positively associated with BDC. Economically speaking, a one standard deviation increase in BDC is associated with a growth in deposits of 0.57%, which reflects a meaningful 11% change in the sample mean of 5.4%. In column (3) we further moderate the effect of BDC by high and low levels of local market concentration. We show in extremely unconcentrated local markets the association of deposit growth with BDC is significantly less, though still positive.

In Table 3 we decompose BDC and show that deposit growth is significantly (statistically) related to all forms of product-specific competitiveness. This is important as it shows our results are not muted by possible switching costs, such as CD early-withdrawal penalties. We find that IC competitiveness is the most economically meaningful with an estimate of 0.063; with local market structure significantly reducing the magnitude of the CD related competitiveness.

4.3 Robustness: Endogeneity Concerns

To address potential endogeneity concerns, we employ an instrumental variable approach by exploiting the network topology structure of banks and their branch-networks. Specifically, we employ two instrumental variables, both separately and jointly, based on the degree of rate-setter coverage detailed in RateWatch. The first instrument is the number of branches managed by a regional rate-setter branch within a bank's branch network and the second is the change in the number of branches managed year-on-year by said rate-setter.

The intuition behind our instruments is the larger the number of branches managed by a given rate-setter, the less likely the rate-setter will actively respond to branch-specific shocks in local

deposit markets. Moreover, given the unobserved nature of banks' network structure to depositors, we affirm it is unlikely for such instruments to impact deposit growth directly, only through the variables we control for, such as *Bank Network Size*.

Table 4 reports our two-stage least squares (2SLS) estimates. Across all estimates, deposit growth remains statistically significant and positively associated with the predicted measure of BDC. The results confirm that our main findings are not due to the potential endogeneity of branch competitiveness.

5. Conclusions

This letter exploits granular branch-specific product data and proposes a new measure of branch deposit competitiveness (BDC). We show that more competitive branches have higher deposit growth rates and that the role of branch competitiveness on deposits varies across product markets and local market structures. Our new measure of BDC opens up a number of opportunities for banking research and policy investigation.

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Table 1: Summary Statistics

BDC is the average Branch Deposit Competitiveness. IC/CD/MM Competitiveness are, respectively, the ‘Interest Checking’, ‘Certificate of Deposits’, and ‘Money Market’-based measures of branch competitiveness.

Panel A: Competitiveness Statistics				
	Mean	SD	Min.	Max.
BDC	-0.001	0.160	-0.832	1.126
IC Competitiveness	-0.001	0.093	-0.537	1.156
CD Competitiveness	0.000	0.266	-1.496	1.339
MM Competitiveness	-0.001	0.256	-1.629	2.267

Panel B: Competitiveness Across <i>Bank Network Size</i> Quartiles				
	Q1	Q2	Q3	Q4
BDC	0.067	0.020	-0.047	-0.077
IC Competitiveness	0.032	0.005	-0.018	-0.036
CD Competitiveness	0.112	0.040	-0.094	-0.117
MM Competitiveness	0.056	0.014	-0.030	-0.076

Table 2: Branch Deposit Competitiveness (BDC) and Deposit Growth

This table reports the regression estimates from equation (2) for the effect of BDC on deposit growth. Branch-HHI measures the deposit market concentration in the county where a branch is located, high (low) denotes counties in the top (bottom) quintile of county market concentration. Standard errors are clustered at the branch level. *t*-statistics are reported in parentheses. ****p*<0.01, ***p*<0.05, **p*<0.1.

	$\Delta \ln(\text{Deposits})$		
	(1)	(2)	(3)
BDC	0.064*** (26.719)	0.060*** (25.176)	0.064*** (21.615)
BDC \times County-HHI Low			-0.015*** (-2.669)
BDC \times County-HHI High			-0.003 (-0.617)
Branch Network Size		-0.008*** (-11.729)	-0.008*** (-11.715)
Deposit Diversity		0.080*** (12.747)	0.080*** (12.704)
Return On Assets		-0.115*** (-3.030)	-0.116*** (-3.062)
Liquidity		0.019* (1.858)	0.019* (1.874)
Z-score		0.003*** (6.369)	0.003*** (6.415)
Branch, Year & County-Year FE	✓	✓	✓
Observations	526,028	526,028	526,028
R ²	0.287	0.288	0.288

Table 3: Product-Specific Competitiveness and Deposit Growth

This table reports the regression estimates from equation (2) for the effect of product-specific competitiveness on deposit growth. Standard errors are clustered at the branch level. *t*-statistics are reported in parentheses. ****p*<0.01, ***p*<0.05, **p*<0.1.

	$\Delta \ln(\text{Deposits})$					
	IC		CD		MM	
	(1)	(2)	(3)	(4)	(5)	(6)
Product-Specific Competitiveness	0.063*** (14.952)	0.065*** (13.112)	0.019*** (14.249)	0.024*** (13.995)	0.031*** (24.352)	0.030*** (18.680)
Product-Specific Competitiveness× County-HHI Low		-0.007 (-0.556)		-0.017*** (-5.616)		0.005 (1.575)
Product-Specific Competitiveness× County-HHI High		-0.007 (-0.881)		-0.002 (-0.655)		-0.000 (-0.037)
Bank Controls	✓	✓	✓	✓	✓	✓
Branch, Year & County-Year FE	✓	✓	✓	✓	✓	✓
Observations	526,028	526,028	526,028	526,028	526,028	526,028
R ²	0.286	0.286	0.286	0.286	0.287	0.287

Table 4: 2SLS Estimates

This table reports the 2SLS regression estimates from equation (2) for the effect of BDC on deposit growth. Panel A reports first-stage estimates. Panel B reports second-stage estimates. Standard errors are clustered at the branch level. t-statistics are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

Panel A: First-stage regressions			
	(1)	(2)	(3)
	BDC		
ln(Rate Setter Network Size)	-0.014*** (-17.569)		-0.013*** (-14.750)
Δ ln(Rate Setter Network Size)		-0.009*** (-15.246)	-0.004*** (-6.212)
Kleibergen-Paap F-statistic	308.680	232.426	187.549
J-statistic for over-identification			1.643
J-statistic p-value			0.200
Panel B: Second-stage regressions			
	(1)	(2)	(3)
	Δ ln(Deposits)		
BDC	0.120** (2.444)	0.218** (2.556)	0.135*** (2.792)
Bank Controls	✓	✓	✓
Branch, Year & County-Year FE	✓	✓	✓
Observations	526,028	526,028	526,028
R ²	0.286	0.277	0.285