

MARKET CONCENTRATION AND UNIFORM PRICING: EVIDENCE FROM BANK MERGERS

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The views expressed in this paper do not necessarily reflect those of the Bank of Canada.

Motivation

- ▶ Concerns and controversy about the impact of **increasing concentration** in the economy and in the banking industry
 - ▶ Rising markups (De Loecker and Eeckhout and, 2017)
 - ▶ Lower private investment (Gutierrez and Phillipon, 2017)
 - ▶ Pass-through of monetary policy to depositors (Dreschler, Savov, and Schnabl, 2017)

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- ▶ **Antitrust authorities review prospective mergers**
 - ▶ Mergers are blocked or remedies are required when pro-forma changes in *local* market concentration are above certain thresholds (e.g., Liebersohn 2017; Wollmann, 2019)
 - ▶ This procedure is predicated on the assumption that acquirers respond to increases in local market power by raising prices in those areas

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- ▶ **Uniform Pricing:** Recent evidence in several product markets (DellaVigna and Gentzkow, 2019)
 - ▶ Strong uniform pricing practices suggest that acquirers might not be willing to price discriminate across local areas

This Paper and Main Results

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2. Impact of Uniform Pricing in M&A outcomes
 - ▶ Strong Convergence between Rate of Target Branch and Median Rate of Acquirer after a bank merger
 - ▶ Convergence is not driven by a subset of M&A but higher when buyers have stronger Uniform Pricing practices
 - ▶ Adjustment is mostly explained by changes in rates of target branches
 - ▶ Deposits evolution depends on pre-merger deposit rate differences

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 - ▶ Adjustment is mostly explained by changes in rates of target branches
 - ▶ Deposits evolution depends on pre-merger deposit rate differences
3. Relative importance of Uniform Pricing vis-à-vis changes in local market concentration in shaping rates trajectory
 - ▶ Rate Convergence induced by Uniform Pricing more impactful than predicted changes in local HHIs in determining post-merger rates

Data

Data

1. RateWatch Dataset

- ▶ Weekly survey of deposit and loan rates at the branch level
- ▶ Rates on many types of deposit and loan products. This presentation:
 - ▶ 12-month Certificate of Deposit with a minimum amount of \$10,000 (1yrCD)
 - ▶ Savings accounts with a minimum amount of \$100,000 (SAV100K)
 - ▶ Personal Unsecured Loans (Personal)
 - ▶ HELOC with LTV up to 80% and loan amount of \$20,000 (HELOC)

2. Summary of Deposits Dataset

- ▶ Deposit amounts at each branch as of June 30th of every year

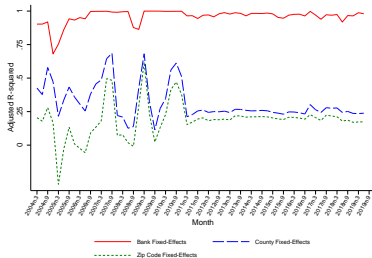
Uniform Pricing

Uniform Pricing - Bank Fixed Effects

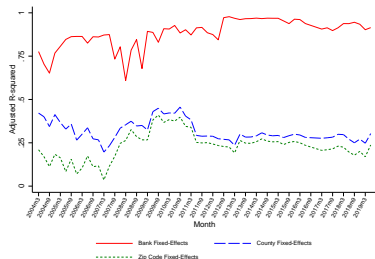
Panel A: 1yrCD



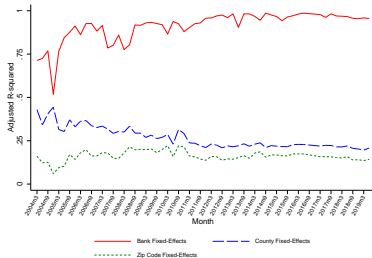
Panel B: SAV100K



Panel C: HELOC

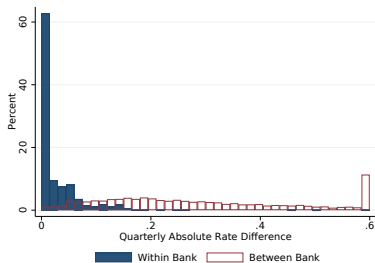


Panel D: Personal

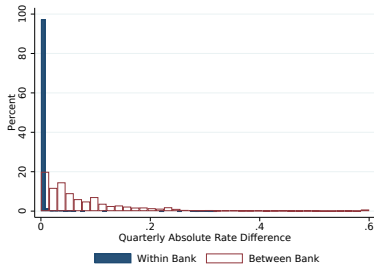


Uniform Pricing - Absolute Quarterly Rate Differences

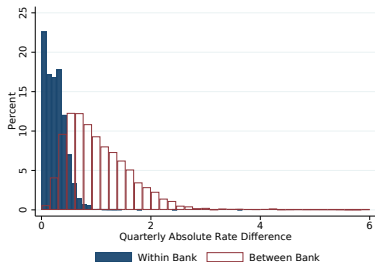
Panel A: 1yrCD



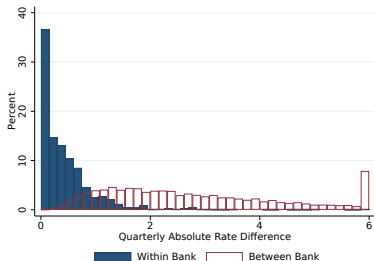
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Uniform Pricing and Bank M&As

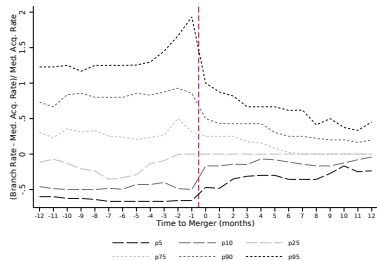
Uniform Pricing and Bank M&As

- ▶ Banks practice uniform or near-uniform deposit and loan rates across their branch network
- ▶ **How do Uniform Pricing impact the evolution of deposit and loan rates at target and acquirer branches around a merger event?**
 - ▶ Analyze a 2-year window around a merger event
 - ▶ Main variable of interest:

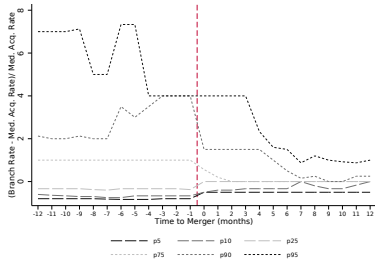
$$Rate-Difference_i = \left(\frac{Branch\ Rate_i - Acquirer\ Median\ Rate_i}{Acquirer\ Median\ Rate_i} \right)$$

Rate Convergence - Graphical Analysis

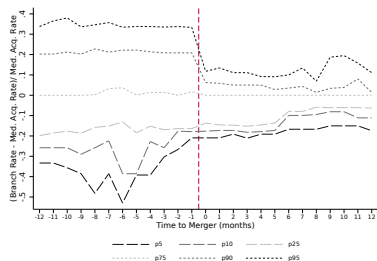
Panel A: 1yrCD



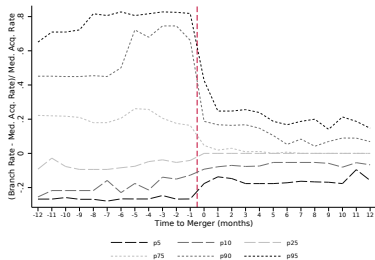
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Rate Convergence - Pre-Post Analysis

$$Y_{i,t,s} = \gamma_t + \theta_i + \beta \text{Post-Acquisition}_{i,s} + \epsilon_{i,t,s}$$

	(1)	(2)	(3)	(4)
	1yrCD	SAV100K	Personal	HELOC
Post-Acquisition	-0.337*** (0.042)	-0.557*** (0.069)	-0.189*** (0.033)	-0.107*** (0.019)
Observations	245254	65363	44588	50659
Adjusted R^2	0.582	0.743	0.766	0.880
State \times Month FEs	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes

Potential Mechanisms and Dif-in-Dif

- ▶ Results hold regardless Tables
 - ▶ Bank M&A vs Branch acquisition
 - ▶ Overlapping in the same market before M&A
 - ▶ Institutions belong to the same BHC or not
 - ▶ Bank failures are included or excluded from the sample
 - ▶ Differences in bank characteristics (size, capital ratios, etc)

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- ▶ Dif-in-Dif Approach [Details](#)

Decomposing Rate Convergence

	(1)	(2)	(3)	(4)	(5)	(6)
	$(\text{Branch} - \text{Acq. Med. Rate})^{Pre} > 0$			$(\text{Branch} - \text{Acq. Med. Rate})^{Pre} < 0$		
	Br - Acq. Med.	Branch	Acq. Med.	Br - Acq. Med.	Branch	Acq. Med.
1yrCD						
Post-Acquisition	-0.160*** (0.014)	-0.128*** (0.014)	0.032*** (0.007)	0.125*** (0.011)	0.094*** (0.011)	-0.030*** (0.008)
Observations	126038	126038	126038	105508	105508	105508
Adjusted R^2	0.714	0.981	0.989	0.886	0.983	0.990
Personal						
Post-Acquisition	-1.732*** (0.170)	-1.446*** (0.201)	0.285*** (0.099)	1.073*** (0.137)	1.094*** (0.155)	0.021 (0.072)
Observations	86707	86707	86707	50760	50760	50760
Adjusted R^2	0.891	0.941	0.969	0.852	0.943	0.975
State \times Month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes	Yes	Yes

Other products

Rate Convergence and Deposits

- ▶ Post-merger changes in deposit rates are largely **pre-determined** by the existing deposit rate differences
- ▶ Deposit evolution at target branches:

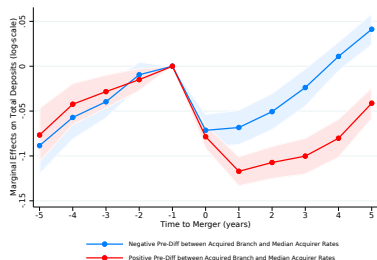
$$\log(\text{Dep})_{i,t,s} = \gamma_t + \theta_i + \beta_0 \text{Post-Acq}_s + \beta_1 \text{Post-Acq}_s \times \left(\frac{\text{Branch Rate} - \text{AMR}}{\text{AMR}} \right)_i^{\text{Pre}} + \epsilon_{i,t,s}$$

	(1)	(2)	(3)	(4)
	Ln(Total Branch Deposits)			
	1yrCD	SAV100K	1yrCD	SAV100K
Post-Acquisition	-0.110*** (0.011)	-0.058*** (0.011)	-0.113*** (0.011)	-0.064*** (0.011)
Post-Acquisition $\times \frac{(\text{Branch Rate} - \text{AMR})^{\text{Pre}}}{\text{AMR}}$	-0.024*** (0.006)	-0.018*** (0.005)		
Post-Acquisition $\times \Delta^{\text{Pre-Post}} \frac{(\text{Branch Rate} - \text{AMR})}{\text{AMR}}$			0.021*** (0.007)	0.017*** (0.006)
Observations	78786	22208	78786	22208
Adjusted R^2	0.877	0.884	0.877	0.884
State \times Month Fixed Effects	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes

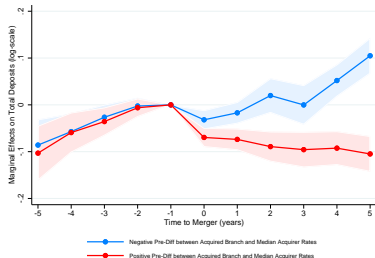
Deposits evolution depends on pre-merger rate differences

$$Y_{i,t,s} = \gamma_t + \theta_i + \sum_{s=-5}^{s=5} \beta_s \delta_s + \sum_{s=-5}^{s=5} \lambda_s \delta_s \times \frac{(\text{Branch Rate} - \text{Acq. Med. Rate})^{\text{Pre}}}{\text{Acq. Med. Rate}}_i + \epsilon_{i,t,s}$$

Panel A: 1yrCD



Panel B: SAV100K

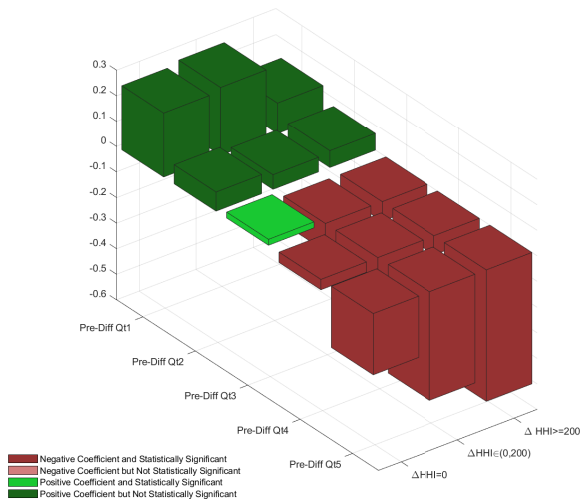


Post-Merger Evolution of Rates: Local Concentration vs Rate Convergence

Local Concentration vs Rate Convergence

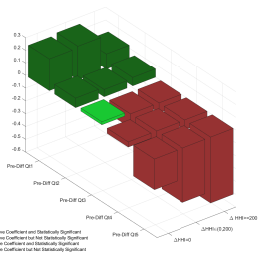
- ▶ Antitrust authorities rely heavily on pro-forma changes in *local* market concentration in their merger review analyses
 - ▶ Decisions to block mergers and merger remedies based on cut-off rule: $\Delta HHI > 200$ **and** post-merger deposit HHI exceeds 1,800 points
- ▶ Uniform Deposit Pricing practices raise questions about relying on measures of *local* market concentration as proxies for the ability or willingness of acquirers to decrease deposit rates
- ▶ **Can acquirers adjust to increases in *local* market concentration when they do not price discriminate across regions?**
- ▶ Ultimately, usefulness of ΔHHI depends on how well it predicts abnormal decreases (increases) in deposit (loan) rates following a bank M&A

Local Concentration vs Rate Convergence -1yrCD

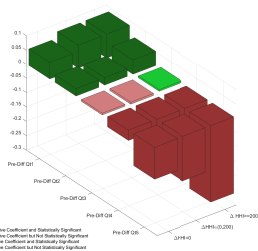


Local Concentration vs Rate Convergence

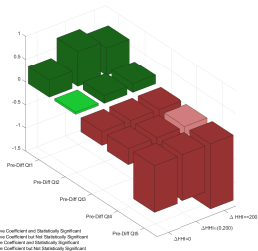
Panel A: 1yrCD



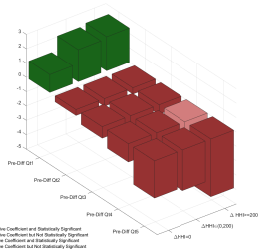
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Local Concentration vs Rate Convergence

1yrCD and SAV100K						
	(1)	(2)	(3)	(4)	(5)	(6)
	12MCD	SAV	Branch Rate		12MCD	SAV
			12MCD	SAV		
Post-Acq. $\times \mathbb{1}(\Delta HHI = 0)$	-0.001 (0.014)	-0.009*** (0.003)			0.077*** (0.023)	0.001 (0.004)
Post-Acq. $\times \mathbb{1}(\Delta HHI \in (0, 200))$	-0.078*** (0.020)	0.002 (0.006)				
Post-Acq. $\times \mathbb{1}(\Delta HHI \geq 200)$	-0.068** (0.031)	0.018 (0.016)				
Post-Acq. \times Pre-Diff Rate - Qt1			0.251*** (0.032)	0.068*** (0.006)		
Post-Acq. \times Pre-Diff Rate - Qt2			0.064*** (0.012)	0.027*** (0.004)		
Post-Acq. \times Pre-Diff Rate - Qt3			-0.012 (0.017)	-0.006 (0.005)		
Post-Acq. \times Pre-Diff Rate - Qt4			-0.065*** (0.018)	-0.042*** (0.005)		
Post-Acq. \times Pre-Diff Rate - Qt5			-0.297*** (0.023)	-0.121*** (0.009)		
Post-Acq.					-0.072*** (0.019)	-0.008* (0.004)
Post-Acq. $\times \Delta HHI$					-0.001 (0.003)	0.002** (0.001)
Post-Acq. $\times \frac{(\text{Branch Rate} - \text{AMR})^{Pre}}{\text{AMR}}$					-0.101*** (0.021)	-0.053*** (0.005)
Observations	186790	61605	186790	61605	186790	61605
Adjusted R^2	0.972	0.784	0.976	0.844	0.973	0.834
State \times Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

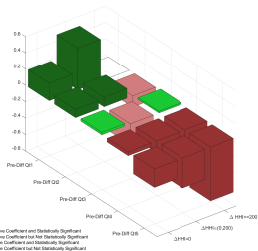
Local Concentration vs Rate Convergence

Personal Unsecured Loans and HELOCs

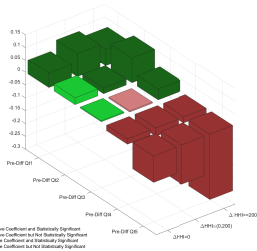
	(1)	(2)	(3)	(4)	(5)	(6)
	Personal	HELOC	Branch Rate		Personal	HELOC
			Personal	HELOC		
Post-Acq. $\times 1.(\Delta HHI = 0)$	-0.592*** (0.180)	-0.227*** (0.054)			-0.315*** (0.108)	-0.039 (0.024)
Post-Acq. $\times 1.(\Delta HHI \in (0, 200))$	-0.155 (0.264)	-0.080 (0.103)				
Post-Acq. $\times 1.(\Delta HHI \geq 200)$	-0.872** (0.416)	-0.299 (0.240)				
Post-Acq. \times Pre-Diff Rate - Qt1			1.495*** (0.168)	0.465*** (0.139)		
Post-Acq. \times Pre-Diff Rate - Qt2			-0.412* (0.226)	0.076 (0.063)		
Post-Acq. \times Pre-Diff Rate - Qt3			-0.775*** (0.196)	-0.352*** (0.117)		
Post-Acq. \times Pre-Diff Rate - Qt4			-1.154*** (0.183)	-0.311*** (0.106)		
Post-Acq. \times Pre-Diff Rate - Qt5			-2.671*** (0.288)	-1.019*** (0.075)		
Post-Acq.					-0.183 (0.175)	-0.039 (0.031)
Post-Acq. $\times \Delta HHI$					-0.000 (0.018)	-0.000 (0.007)
Post-Acq. $\times \frac{(\text{Branch Rate} - \text{AMR})^{Pre}}{\text{AMR}}$					-1.945*** (0.127)	-0.769*** (0.023)
Observations	133263	132179	133263	132179	133263	132179
Adjusted R^2	0.908	0.924	0.932	0.940	0.943	0.964
State \times Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Local Concentration vs Rate Convergence: $1300 < HHI < 1800$

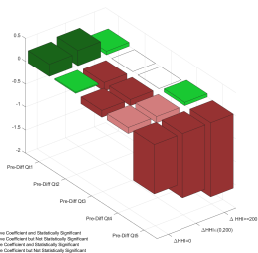
Panel A: 1yrCD



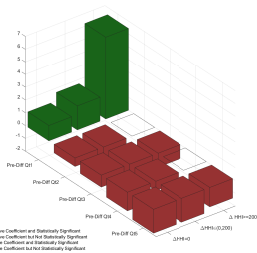
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Local Concentration vs Rate Convergence: $1300 < HHI < 1800$

1yrCD and SAV100K

	(1)	(2)	(3)	(4)	(5)	(6)
	12MCD	SAV	Branch Rate		12MCD	SAV
			12MCD	SAV		
Post-Acq. $\times \mathbb{1}(\Delta HHI = 0)$	-0.001 (0.016)	-0.001 (0.006)			0.023 (0.036)	-0.003 (0.014)
Post-Acq. $\times \mathbb{1}(\Delta HHI \in (0, 200))$	-0.051 (0.035)	0.008 (0.013)				
Post-Acq. $\times \mathbb{1}(\Delta HHI \geq 200)$	-0.141* (0.082)	-0.024 (0.051)				
Post-Acq. \times Pre-Diff Rate - Qt1			0.262*** (0.088)	0.069*** (0.013)		
Post-Acq. \times Pre-Diff Rate - Qt2			0.100*** (0.030)	0.030* (0.015)		
Post-Acq. \times Pre-Diff Rate - Qt3			-0.042 (0.061)	0.004 (0.008)		
Post-Acq. \times Pre-Diff Rate - Qt4			-0.071*** (0.022)	-0.023** (0.010)		
Post-Acq. \times Pre-Diff Rate - Qt5			-0.267*** (0.037)	-0.129*** (0.021)		
Post-Acq.					-0.030 (0.034)	-0.004 (0.010)
Post-Acq. $\times \Delta HHI$					-0.072 (0.045)	-0.006 (0.016)
Post-Acq. $\times \frac{(\text{Branch Rate} - \text{AMR})^{Pre}}{\text{AMR}}$					-0.081*** (0.029)	-0.078*** (0.011)
Observations	36360	14236	36360	14236	36360	14236
Adjusted R^2	0.979	0.845	0.982	0.893	0.980	0.904
State \times Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Local Concentration vs Rate Convergence: $1300 < HHI < 1800$

Personal Unsecured Loans and HELOCs

	(1)	(2)	(3)	(4)	(5)	(6)
	Personal	HELOC	Branch Rate		Personal	HELOC
			Personal	HELOC		
Post-Acq. $\times 1.(\Delta HHI = 0)$	-0.476*	-0.197***			-0.351*	0.091**
	(0.260)	(0.049)			(0.201)	(0.044)
Post-Acq. $\times 1.(\Delta HHI \in (0, 200))$	0.143	-0.394***				
	(0.359)	(0.149)				
Post-Acq. $\times 1.(\Delta HHI \geq 200)$	0.759	-0.565***				
	(1.248)	(0.206)				
Post-Acq. \times Pre-Diff Rate - Qt1			1.375***	0.270***		
			(0.257)	(0.102)		
Post-Acq. \times Pre-Diff Rate - Qt2			-0.653*	-0.022		
			(0.358)	(0.069)		
Post-Acq. \times Pre-Diff Rate - Qt3			-0.977***	-0.160**		
			(0.309)	(0.078)		
Post-Acq. \times Pre-Diff Rate - Qt4			-1.332***	-0.163*		
			(0.320)	(0.084)		
Post-Acq. \times Pre-Diff Rate - Qt5			-1.843***	-1.180***		
			(0.480)	(0.141)		
Post-Acq.					-0.002	-0.140***
					(0.176)	(0.042)
Post-Acq. $\times \Delta HHI$					0.101	0.007
					(0.147)	(0.021)
Post-Acq. $\times \frac{(\text{Branch Rate} - \text{AMR})^{Pre}}{\text{AMR}}$					-1.806***	-0.700***
					(0.214)	(0.069)
Observations	29764	30663	29764	30663	29764	30663
Adjusted R^2	0.956	0.957	0.969	0.970	0.974	0.974
State \times Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Branch Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Conclusion

Three Facts:

- ▶ Uniform Pricing practices are pervasive in the US Banking Industry
- ▶ Uniform Pricing induce significant convergence between deposit and loan rates of acquired and acquirer following mergers
- ▶ Pre-merger difference in deposit and loan rates more important than predicted changes in local market concentration indices in explaining post-merger evolution of rates

Facts suggest that antitrust authorities should take into account the potential impact of uniform pricing practices in their merger approval decisions

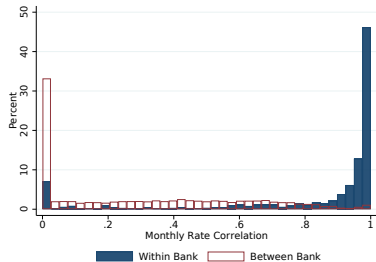
Sample Formation

Panel A: Sample Formation

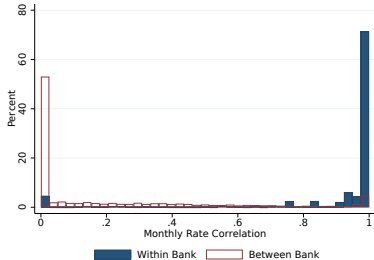
	No. Branches	No. Rate-Setters	No. Banks	No. States	No. Zips
1yrCD					
All Branches	108567	106642	9449	49	20807
Branches present for ≥ 2 years	89102	9841	6884	49	19373
Acquired Branches	9370	2204	2006	49	6015
SAV100K					
All Branches	110824	109001	9497	49	20966
Branches present for ≥ 2 years	81256	7482	5352	49	18792
Acquired Branches	2588	856	774	47	2132
Personal					
All Branches	63376	63170	4566	49	16320
Branches present for ≥ 2 years	54507	4096	2803	49	15614
Acquired Branches	5666	481	444	47	4004
HELOC					
All Branches	70093	69940	4246	49	16126
Branches present for ≥ 2 years	63217	4105	2670	49	15627
Acquired Branches	7311	488	472	49	4808

Uniform Pricing - Monthly Rate Correlations

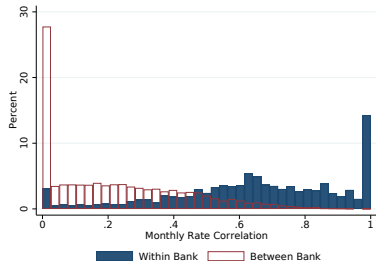
Panel A: 1yrCD



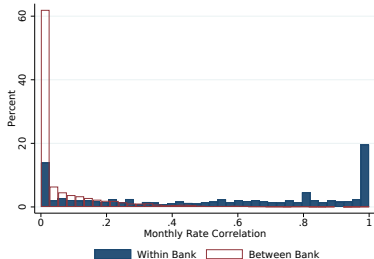
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Uniform Pricing - Similarity Rates Statistics

	Quarterly Absolute Rate Difference		Monthly Rate Correlation	
	Same Bank	Different Bank	Same Bank	Different Bank
Panel A: All Branches				
12MCD10K	.023	.308	.806	.287
SAV100K	.001	.087	.905	.134
Personal	.254	1.055	.664	.201
HELOC	.416	2.928	.521	.021
Panel B: Branches Pairs in different States				
12MCD10K	.026	.304	.801	.289
SAV100K	.002	.089	.897	.145
Personal	.288	1.055	.621	.195
HELOC	.471	2.886	.45	.023
Panel C: Branches Pairs in different Counties				
12MCD10K	.023	.303	.809	.292
SAV100K	.002	.087	.904	.132
Personal	.258	1.062	.653	.202
HELOC	.417	2.933	.518	.018

Potential Channels: Uniform Pricing Practices of the Acquirer

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1yrCD		SAV100K		Personal		HELOC	
	Below	Above	Below	Above	Below	Above	Below	Above
Post-Acquisition	-0.397*** (0.052)	-0.241*** (0.025)	-0.484*** (0.061)	-0.263*** (0.095)	-0.244*** (0.025)	-0.037 (0.043)	-0.109*** (0.016)	-0.023*** (0.008)
Observations	110441	120036	40199	20808	17741	24887	23918	24525
Adjusted R^2	0.570	0.752	0.675	0.909	0.907	0.924	0.858	0.993
St \times Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- ▶ Deposit Rate convergence more pronounced when acquirers have stronger uniform deposit pricing practices

Potential Channels: Acquirer Size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1yrCD		SAV100K		Personal		HELOC	
	Larger	Smaller	Larger	Smaller	Larger	Smaller	Larger	Smaller
Post-Acquisition	-0.362*** (0.043)	-0.317*** (0.096)	-0.509*** (0.088)	-0.908** (0.444)	-0.099*** (0.026)	-0.469*** (0.090)	-0.061*** (0.012)	-0.184*** (0.025)
Observations	134211	43261	47005	15490	26516	13458	23773	20518
Adjusted R^2	0.706	0.539	0.790	0.720	0.884	0.712	0.872	0.987
St \times Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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Potential Channels: Banking Market Overlap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1yrCD		SAV100K		Personal		HELOC	
	Ovl	NoOvl	Ovl	NoOvl	Ovl	NoOvl	Ovl	NoOvl
Post-Acquisition	-0.471*** (0.099)	-0.237*** (0.022)	-0.505*** (0.099)	-0.429*** (0.056)	-0.336*** (0.060)	-0.143*** (0.030)	-0.120*** (0.023)	-0.063*** (0.020)
Observations	70649	165158	25732	36943	15180	27829	15680	32889
Adjusted R^2	0.440	0.735	0.686	0.825	0.763	0.844	0.962	0.897
St \times Mth FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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Potential Channels: Bank Merger vs Branch Acquisition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1yrCD		SAV100K		Personal		HELOC	
	Bank	Branch	Bank	Branch	Bank	Branch	Bank	Branch
Post-Acquisition	-0.306*** (0.045)	-0.330*** (0.031)	-0.661*** (0.097)	-0.407*** (0.062)	-0.094*** (0.028)	-0.251*** (0.042)	-0.020** (0.008)	-0.149*** (0.028)
Observations	92419	151779	20276	44482	12414	31863	14811	35518
Adjusted R^2	0.620	0.636	0.754	0.799	0.948	0.753	0.929	0.893
State \times Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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Potential Channels: Excluding Bank Fails

	(1)	(2)	(3)	(4)
	1yrCD	$\left \frac{\text{Branch Rate} - \text{Acq. Med. Rate}}{\text{Acq. Med. Rate}} \right $ SAV100K	Personal	HELOC
Post-Acquisition	-0.346*** (0.045)	-0.503*** (0.104)	-0.051* (0.027)	-0.021* (0.012)
Observations	158074	49463	34114	40218
Adjusted R^2	0.686	0.782	0.918	0.897
State \times Month FEs	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes

Potential Channels: Only Different BHC

	(1)	(2)	(3)	(4)
	1yrCD	$\left \frac{\text{Branch Rate} - \text{Acq. Med. Rate}}{\text{Acq. Med. Rate}} \right $ SAV100K	Personal	HELOC
Post-Acquisition	-0.280*** (0.038)	-0.024 (0.029)	0.016** (0.008)	-0.111*** (0.022)
Observations	21810	18462	17631	19991
Adjusted R^2	0.759	0.854	0.841	0.879
State \times Month FEs	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes

Potential Channels: Excluding Acquired Banks with Low Tier1 Ratio

	(1)	(2)	(3)	(4)
		$\left \frac{\text{Branch Rate} - \text{Acq. Med. Rate}}{\text{Acq. Med. Rate}} \right $		
	1yrCD	SAV100K	Personal	HELOC
Post-Acquisition	-0.372*** (0.040)	-0.471*** (0.076)	-0.259*** (0.055)	-0.131*** (0.018)
Observations	157256	52319	34533	39036
Adjusted R^2	0.605	0.799	0.746	0.978
State \times Month FEs	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes

- Results are not driven by Acquired Banks having low Tier1 Ratio

Differences-in-Differences

Potential Challenge: Rate convergence at target branches could reflect mean reversion

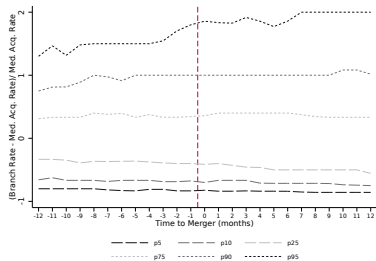
Alternative: Differences-in-Differences

- ▶ Employ matched control sample of branches in the same state as the acquired branch that did not undergo a bank M&A and practiced similar deposit rates as the acquired branch 12 months prior to the merger

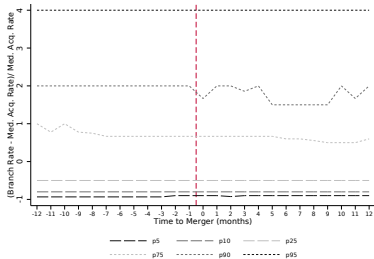
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Differences-in-Differences: Matched Control Sample

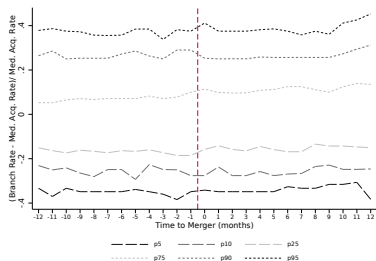
Panel A: 1yrCD



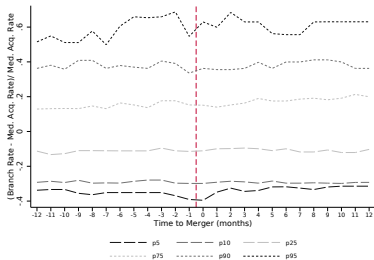
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



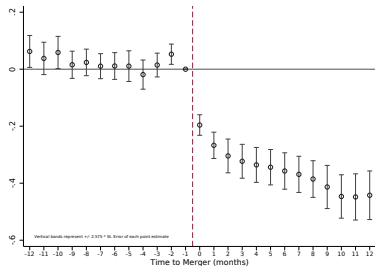
Differences-in-Differences

$$Y_{i,s,t} = \gamma_t + \theta_i + \beta_0 \text{Post-Acq}_s + \beta_1 \text{Post-Acq}_s \times \text{Acq. Branch}_i + \epsilon_{i,s,t}$$

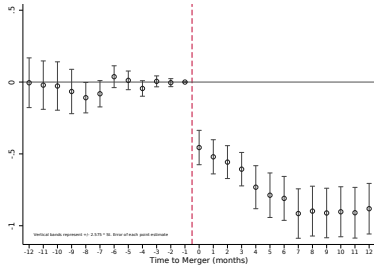
	(1)	(2)	(3)	(4)
		$\frac{\text{Branch Rate} - \text{Acq. Med. Rate}}{\text{Acq. Med. Rate}}$		
	1yrCD	SAV100K	Personal	HELOC
Post-Acq.	0.066** (0.028)	0.023 (0.022)	-0.034* (0.020)	0.035** (0.015)
Acq-Branch \times Post-Acq.	-0.447*** (0.027)	-0.693*** (0.063)	-0.151*** (0.021)	-0.168*** (0.026)
Observations	495983	197413	56772	68686
Adjusted R^2	0.636	0.856	0.818	0.889
State \times Month FEs	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes

Differences-in-Differences: Tracing the Effects over Time

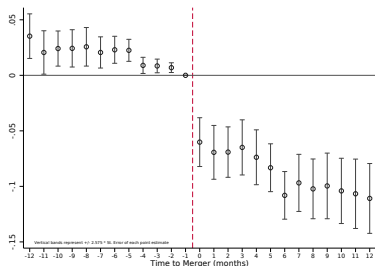
Panel A: 1yrCD



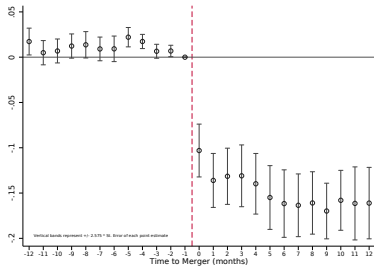
Panel B: SAV100K



Panel C: HELOC



Panel D: Personal



Decomposing Rate Convergence

	(1)	(2)	(3)	(4)	(5)	(6)
	(Branch - Acq. Med. Rate) ^{Pre} > 0			(Branch - Acq. Med. Rate) ^{Pre} < 0		
	Br - Acq. Med.	Branch	Acq. Med.	Br - Acq. Med.	Branch	Acq. Med.
1yrCD						
Post-Acquisition	-0.160*** (0.014)	-0.128*** (0.014)	0.032*** (0.007)	0.125*** (0.011)	0.094*** (0.011)	-0.030*** (0.008)
Observations	126038	126038	126038	105508	105508	105508
Adjusted R ²	0.714	0.981	0.989	0.886	0.983	0.990
SAV100K						
Post-Acquisition	-0.051*** (0.006)	-0.049*** (0.006)	0.002 (0.001)	0.040*** (0.004)	0.035*** (0.004)	-0.005*** (0.002)
Observations	29955	29955	29955	26212	26212	26212
Adjusted R ²	0.746	0.835	0.939	0.799	0.887	0.944
Personal						
Post-Acquisition	-1.732*** (0.170)	-1.446*** (0.201)	0.285*** (0.099)	1.073*** (0.137)	1.094*** (0.155)	0.021 (0.072)
Observations	86707	86707	86707	50760	50760	50760
Adjusted R ²	0.891	0.941	0.969	0.852	0.943	0.975
HELOC						
Post-Acquisition	-0.720*** (0.054)	-0.687*** (0.052)	0.034 (0.021)	0.331*** (0.073)	0.208*** (0.049)	-0.122*** (0.045)
Observations	47863	47863	47863	134138	134138	134138
Adjusted R ²	0.850	0.937	0.952	0.924	0.963	0.979
State × Month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Branch FEs	Yes	Yes	Yes	Yes	Yes	Yes