The Effect of Local Market Concentration on Deposit Price Dispersion

Nur Al Faisal
Department of Finance, Louisiana State University
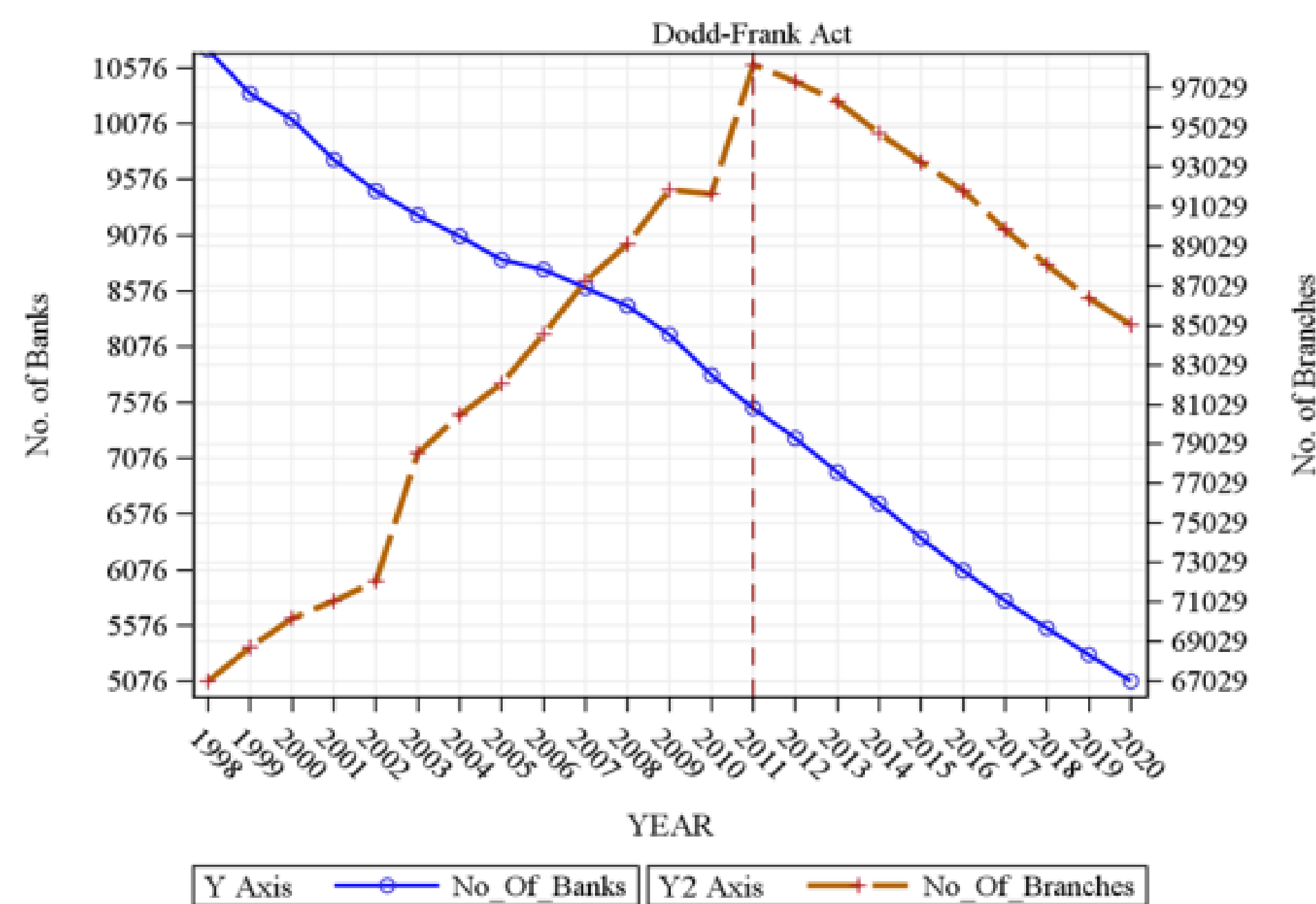
Motivation of This Study

- One of the **core issues of Microeconomics** is the **relationship** between **market competition** and **product pricing**. There are **different microeconomics theories** that try to **explain** how local market competition can **affect** the price dispersion.

- There are also **a lot of empirical works** that try to answer this basic question in different perspectives. For example- Gerardi and Shapiro [2009] & Borenstein and Rose [1994] explore it for the **airline industry**; Maudos and De Guevara [2004] explores it for the **mortgage market** and Barron, Taylor, and Umbeck [2004] explores it for the **fuel market** etc. However, the findings of these works **are not conclusive**.

- So, in this paper, I explore this important question (relationship between local market competition and price dispersion) for the deposit market of the banking sector.

Why Banking Industry?

- The **structure and organized framework** of the **Banking Industry** provides the **ideal scenario** to disentangle the relationship between market concentration and price dispersion.

- In the last few decades, **U.S. banking sector** is **becoming more and more concentrated**.(Laeven et al. [2016] and Saidi and Streitz [2018]). I find that the number of banks in U.S. **shrinks gradually** from **10,738 to 5,076** during the period **1998 to 2020**.

- The **concentration of the banking sector** has a **lot of economic consequences**. So, it is **important to** carefully **gauge the effect** of **bank concentration on the deposit market**.

Research Questions

- How does **local market concentration** affect **price or price dispersion for deposit** products? Is the effect **monotonic**?
- Is the effect **same or uniform** for **all types of deposit** products?
- What is the **mechanism or channel** of this effect?
- Does the influence of concentration on price **depend** on **monetary condition**?

Key Findings

- The **local market's bank concentration** has a **negative effect** on the **price dispersion** of the deposit products. [**HHI** (Local Market) ↑ ⇒ Deposit **Price Dispersion** ↓]
- This effect is **not monotonic** as it **attenuates** with the increase in HHI.
- This negative effect holds only for **core** products but it does **not** hold for **non-core** Products.
- Price Dispersion increases in less concentrated market because of **branch entry** as the **entrant banks** always offer **higher price** over the incumbent banks.
- The effect exists during **loosening or tightening period** of the monetary policy **but goes away** during **upper zero bound of the Fed Rate**.

Methods

To get the answers to those questions, I analyze the data following the literature on local market's bank concentration. I run the following baseline model in Ordinary Least Square(OLS) using the panel data:

Baseline Model

$$PriceDisp_{i,j,t} = \beta_0 + \beta.HHI_{j,t} + \gamma.Z_{j,t} + \theta_t + \alpha_i + \delta_j + \epsilon_{i,j,t}.$$

- $PriceDisp_{i,j,t}$: The Gini/SD/Range for the price of deposit product i for a given county j in a given year t.
- $HHI_{j,t}$: A proxy for local market concentration of a given county j in a given year t.
- $Z_{j,t}$: Controls for local market characteristics for a given county j.
- θ_t: Year fixed effects.
- α_i: Product fixed effect.
- δ_j: Region fixed effect.

Results of the Baseline Regressions

This table reports the regression results on Gini for All Deposit Products

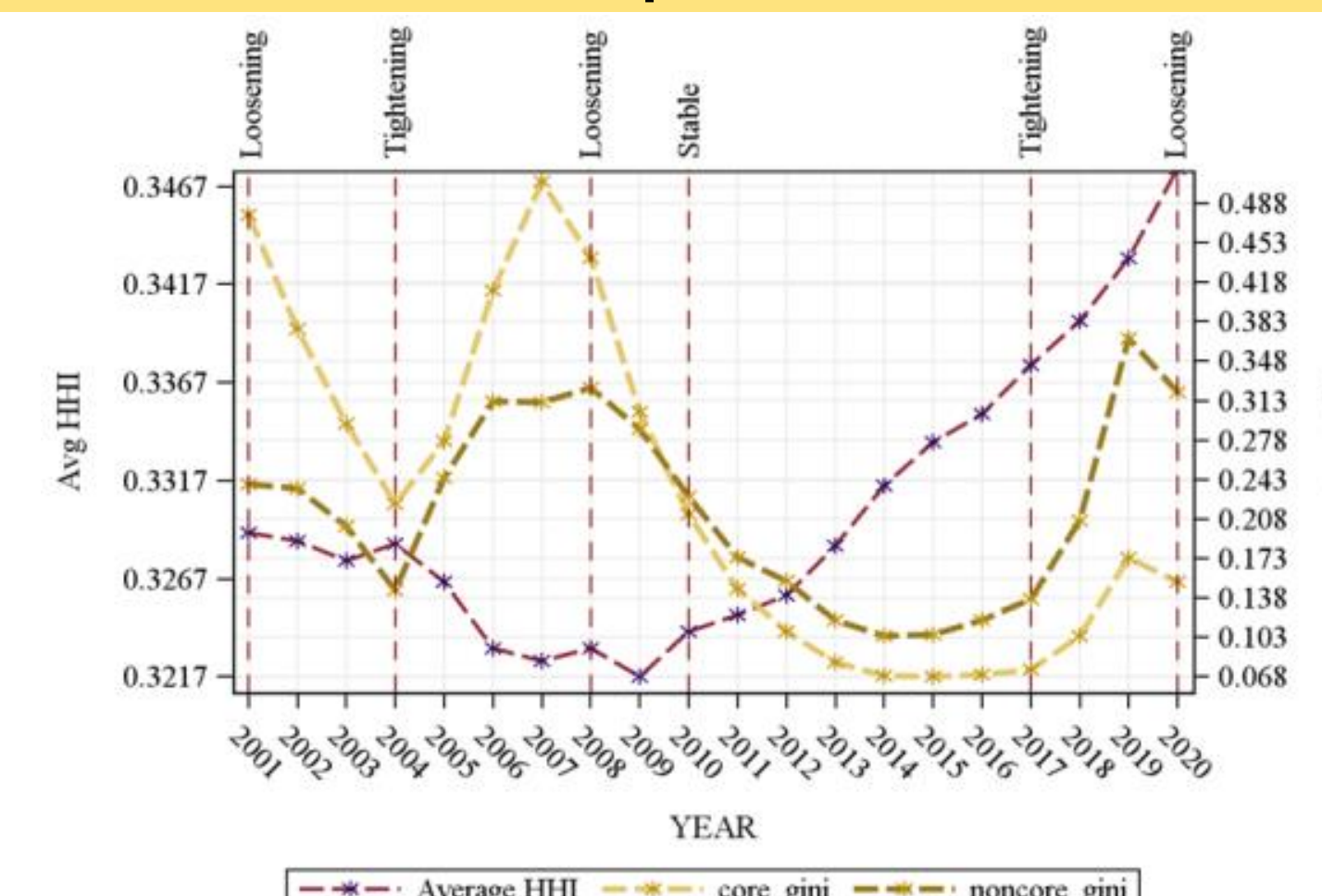| Variables	(1) Gini	(2) Gini	(3) Gini Lwst Qrtl	(4) Gini Hghst Qrtl
HHI	-0.03773***	-0.07858***	-0.31701***	-0.02629***
	(0.003)	(0.008)	(0.027)	(0.004)
HHISQR		0.04536***		
		(0.007)		
Log_wage	0.08094***	0.08124***	0.08672***	0.02217***
	(0.002)	(0.002)	(0.008)	(0.003)
Observations	8,151,729	8,151,729	2,041,191	2,029,093
Adjusted R-squared	0.304	0.304	0.331	0.272
Product FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- The table shows that the HHI (proxy for local market concentration) is **negatively related** with price dispersion.
- The positive coefficient of HHI Square indicates that the relationship is not **monotonic.**
- The **Higher Coefficient** for **Highest HHI Quartile** region also suggests non-monotonic relationship.

Results fore Core vs Non-core Products

This table reports the regression results on Gini for Core vs Non-core Deposit Products

Variables	Gini Core	Gini NonCore
HHI	-0.08560***	-0.14476
	(0.016)	(0.096)
Observations	186,943	30,365
Adjusted R-squared	0.355	0.389
Product FE	Yes	Yes
Year FE	Yes	Yes
Region FE	Yes	Yes

So, there is a **negative non-monotonic relationship** between **HHI and Price Dispersion.** The relationship prevails only for **core products** which is relatively **stable source** of funds for banks.

Branch Entry/Exit

This table examines whether Branch Entry/Exit is related with Price Dispersion.

Variables	Gini	Gini	Gini
banks_no	0.00211***		
	(0.000)		
brnchentry		0.00564***	
		(0.000)	
brnchclosing			-0.00305***
			(0.000)
Observations	8,151,729	8,151,729	8,151,729
Adjusted R-squared	0.304	0.304	0.304
Product FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Region FE	Yes	Yes	Yes

- The results show that **Branch Entry** is **positively related** with Gini.
- So, the price charged by new vs incumbent branches might explain the relationship between HHI and Price Dispersion.

Average Price for New Entrants

This part examines whether new entrant branches charge higher price for deposit products.

Variables	AvgPrice All	AvgPrice Core	AvgPrice NonCore
NewBr	0.05668***	0.04287***	0.05873***
	(0.001)	(0.006)	(0.011)
Observations	8,391,544	199,839	31,753
Adjusted R-squared	0.865	0.790	0.947
Product FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Region FE	Yes	Yes	Yes

- So, the **new branches** usually **offer higher prices** than the incumbent banks which explains the negative relationship between HHI and Price Dispersion.

IV and Robustness Tests

- To **address** the concern for **endogeneity**, I use **Interstate Branching Deregulation Status** as the **instrument variable** for the **local market's bank concentration**. The IV regression results are similar to the results of the baseline regressions.
- For the robustness checks, I also use **Alternative Measures of Price Dispersion** and **Commuting Zones** in stead of County.

Conclusions

- By using the **Interstate Branching Deregulation status** of a region as the **IV** for the bank concentration, I find that the local market's **bank concentration** has a **negative effect** on the **price dispersion** of deposit products.
- I also discover that the **negative effect of the local market's bank concentration** on the price dispersion is driven by the **higher prices** of the **entrant branches**.

References

Barron, John M, Beck A Taylor, and John R Umbeck, 2004, Number of sellers, average prices, and price dispersion, International Journal of Industrial Organization 22, 1041-1066.

Borenstein, Severin, and Nancy L Rose, 1994, Competition and price dispersion in the us airline industry, Journal of Political Economy 102, 653-683.

Gerardi, Kristopher S, and Adam Hale Shapiro, 2009, Does competition reduce price dispersion? new evidence from the airline industry, Journal of Political Economy 117, 1-37.

Laeven, Luc, Lev Ratnovski, and Hui Tong, 2016, Bank size, capital, and systemic risk: Some international evidence, Journal of Banking & Finance 69, S25-S34.

Maudos, J., and J. F. De Guevara, 2004, Factors explaining the interest margin in the banking sectors of the european union, Journal of Banking & Finance 28, 2259-2281.

Saidi, Farzad, and Daniel Streitz, 2018, Bank concentration and product market competition, Work. Pap., Stockh. Sch. Econ., Stockholm Google Scholar Article Location .

Thank You