When the Thin Bench Gets Thinner: Investment Bank Consolidation and Municipal Finance

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Background

- Security issuance is a pillar of the financial system
- In the U.S. in 2022, the total amounts of new issuance are
  - Corporate equity: $102 billion
  - Corporate bond: $883 billion
  - Municipal bond: $410 billion

- Has the security issuance market reached its full potential in serving the real economy?
  - Maybe not? Could inefficiencies in the underwriting process be a reason?
- How should we view the underwriting fees?
  - Rightfully compensated for the skills demanded and risks involved?
  - Or, do underwriters possess market power and earn economic profits?

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Background

Short on financial knowledge, some school districts get bad deals on bonds

Districts can fall prey to financial firms that put their own interests first

by **SARAH BUTRYMOWICZ** and **NICHOLE DOBO**
April 22, 2019

Investigate Midwest:

- Issuers (school districts) can "*easily be taken advantage of—urged to issue needless or poorly structured bonds, pushed to accept high interest rates or duped into paying hundreds of thousands in unreasonable fees*"

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Background

- To study underwriters' market power, an instinctive strategy is to use M&As as a shifter of market power
- The municipal bond underwriting market is highly geographically fragmented
- Moreover, it is a dynamic industry with ample consolidating activities in recent decades
  - $\Rightarrow$ A natural laboratory

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Research Question

1. Do M&As among municipal bond underwriters lead to higher underwriting fees?
2. If so, can the evidence be viewed as municipal bond underwriters having market power?
3. Do these M&As lead to efficiency gains and better services that could offset the rise in fees from the standpoint of the issuers?
4. Do these M&As worsen the financial health of local governments?

Recent Policy Discussion

- President Biden has shown support for major bank antitrust reforms (Reuters, 2021, 2023)
- A key aspect is for the Justice Department to work with bank regulators and heighten the scrutiny of bank M&A deals
- Prior research shows that bank mergers could cause branch closures (Nguyen, 2019), raise borrowing costs and fees (Garmaise and Moskowitz, 2006), reduce credit access (Fraisse et al., 2018; Ratnadiwakara and Yerramilli, 2022), and endanger communities' financial health and safety (Garmaise and Moskowitz, 2006)
- Investment banking activities are often neglected in bank antitrust scrutiny

Data and Sample

- Municipal bond issuance
  - Source: SDC Platinum Global Public Finance Database
  - Variables:
    - Underwriting spread: The difference between the reoffering price to initial investors and the proceeds that the government receives, expressed as a fraction of the principal amount
- M&A sample:
  - I hand-collect M&As among municipal bond underwriters active in 1970-2022
  - I complement the sample with SDC Platinum M&A Database and SNL Financial M&A Database
  - 256 M&A deals, among which 160 have geographic overlaps

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Data and Sample

- The municipal bond underwriting market is much more geographically fragmented compared to corporate securities underwriting
- Average cosine similarity of underwriters for a state-pair is
  - Corporate equity: 0.508
  - Corporate bond: 0.613
  - Municipal bond: 0.193
- Reasons for the highly fragmented form:
  - Local governments' favorism over local businesses
  - Local underwriters have better access to same-state investors, who are the prominent owners of municipal bonds due to tax advantages (Babina et al., 2020)
  - Accumulated, substantial experience in underwriting for nearby governments (Butler, 2008)

Data and Sample

Treated: CSAs where M&As would lead to *predicted* Δ_{HHI} >= 100
$\Rightarrow$ 215 "local M&A episodes"

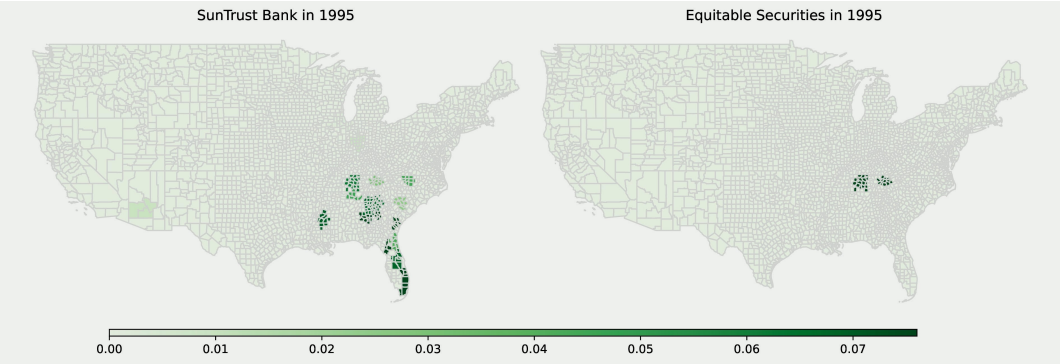
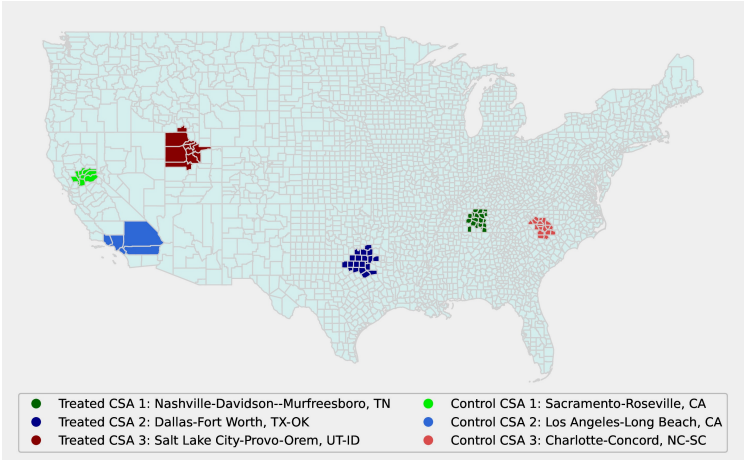


Figure: An Example of M&A and Local Market Share

Data and Sample

Control: One CSA that is closest in terms of population and income per capita, and not affected by within-market M&As during $[-4, +4]$



Main Results: Effects on Underwriting Spread

- I estimate

$$y_{d,c} = \beta_1 Treated_{a,c} + \beta_2 Post_{c,t} + \beta_3 Treated_{a,c} \times Post_{c,t} + \theta_i + \theta_t + e_{d,c}$$

  where
  - d is the subscript for each bond issue, i.e., each deal
  - a is the subscript for each Combined Statistical Area (CSA)
  - c is the subscript for each cohort of treated and control CSAs
  - i is the subscript for each issuer
  - t is the subscript for the calendar year

- Theoretically, the direction of the effect is unclear
  - M&As can bolster market power and raise underwriting spread
  - Alternatively, M&As could create synergies and reduce marginal cost

Main Results: Effects on Underwriting Spread

M&As that would lead to *predicted* Δ_{HHI} >= 100

$\Rightarrow$ A 5.3 bps. increase in underwriting spread from a sample mean of 103.0 bps.

	Predicted Δ_{HHI} >= 100	Market Share >= 5%	*Predicted* $\Delta_{Top\ 5\ Share}$ >= 5%
	(1) Underwriting Spread (bps.)	(2) Underwriting Spread (bps.)	(3) Underwriting Spread (bps.)
Treated × Post	5.31***	4.47***	4.54***
	(4.82)	(5.16)	(3.66)
Observations	89,636	170,254	82,928
Year FE	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes
Clustering	Issuer	Issuer	Issuer
Adjusted R-squared	0.547	0.538	0.518

Table: Effects of M&As on Underwriting Spread

Main Results: Effects on Underwriting Spread

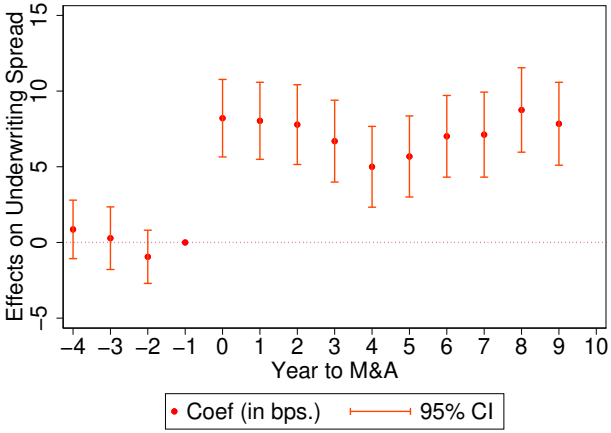
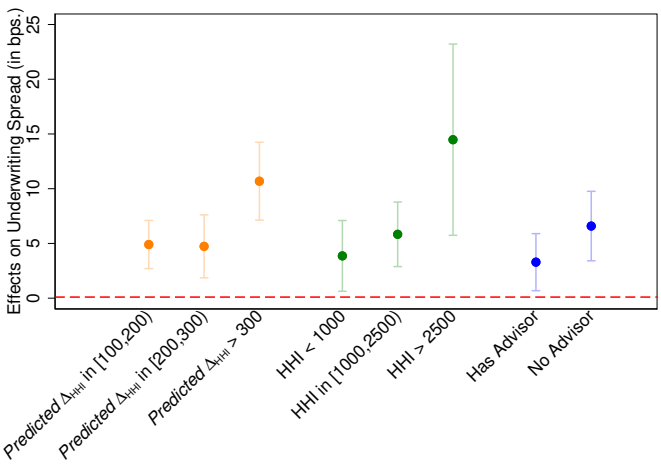


Figure: Underwriting Spread Around M&As that Lead to *Predicted* Δ_{HHI} >= 100

Main Results: Effects on Underwriting Spread

Consistent with increased market power

Figure: Cross-Sectional Heterogeneities in Effects More



Main Results: Addressing Endogeneity Concerns

- Main concern: Local economic dynamics drive both M&As among underwriters and the underwriting spread
- Effects hold when
  - #1: Consider only M&As for which the rationales, according to news reports, are orthogonal to the local economy
  - #2: Consider only scenarios where the M&A-affected areas account for a small fraction of the total businesses of the merging underwriters (Sunderam and Scharfstein, 2017)

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Main Results: Addressing Endogeneity Concerns

Reason for M&A	Count
The acquiror's desire to gain local/regional dominance ⏩ Example	24
The acquiror's desire to expand geographically ⏩ Example	19
The acquiror's desire to gain industry-wide dominance	15
Synergy from combining different lines of business ⏩ Example	14
Financial stress of the target	13
Synergy from cost management ⏩ Example	12
The acquiror's desire to diversify its revenue sources	12
Acquiror or target's desire to fend off a hostile takeover	1

Table: Top Reasons Behind M&As According to News Reports

Main Results: Addressing Endogeneity Concerns

	(1) Underwriting Spread (bps.)	(2) Underwriting Spread (bps.)
Treated × Post	5.78***	4.41**
	(3.23)	(2.18)
Observations	26,815	18,753
Year FE	Yes	Yes
Issuer FE	Yes	Yes
Clustering	Issuer	Issuer
Adjusted R-squared	0.536	0.531

Table: Using M&As Driven by Rationales Likely Orthogonal to Local Economic Dynamics

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Main Results: Placebo Tests

Effects are absent for

- #1: Cross-market underwriter M&As
  - $\Rightarrow$ Results are not driven by factors that lead to M&A activities of underwriters in general
- #2: Within-market (purely) commercial bank M&As
  - $\Rightarrow$ Results are not driven by factors that lead to within-market consolidation of financial institutions in general
- #3: Within-market withdrawn underwriter M&As
  - $\Rightarrow$ Results are not driven by factors that lead to both successful and withdrawn M&As

Main Results: Offering Terms

	(1) Reoffering Yield (bps.)	(2) Yield Spread (bps.)	(3) Initial Underpricing	(4) If Callable
Treated × Post	-2.53	-0.31	0.07**	-0.02***
	(-1.54)	(-0.33)	(2.14)	(-3.38)
Observations	170,112	157,873	36,334	259,753
Year FE	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes
Clustering	Issuer	Issuer	Issuer	Issuer
Adjusted R-squared	0.753	0.464	0.200	0.380

Table: Effects of M&As on Offering Terms

Variable definition

Main Results: Efficiency Gains

- Two major themes of M&A research: Market power and efficiency gains
- Are there efficiency gains to underwriter M&As?
  - Do issuers enjoy benefits that could compensate for the rise in the underwriting spread?
- Outcome variables:
  - If using bond insurance (mean = 18.7%, average cost = 80.4 bps.)
  - If using credit ratings (mean = 15.4%, average cost = 12.4 bps.)
  - If using financial advisors (mean = 49.2%, average cost = 49.8 bps.)
- Can observe *if* using these for the whole sample, but costs are only available for California (California Debt and Investment Advisory Commission)

Main Results: Efficiency Gains

	(1) Has Rating	(2) Insured Ratio	(3) Has Advisor
Treated × Post	-0.02***	-0.01***	-0.02***
	(-4.30)	(-2.76)	(-3.66)
Observations	259,753	259,753	259,753
Controls	No	No	No
Year FE	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes
Clustering	Issuer	Issuer	Issuer
Adjusted R-squared	0.377	0.387	0.578

Table: Effects of M&As on the Use of Credit Rating, Insurance, and Financial Advisor

Main Results: Efficiency Gains

Total issuing cost is the sum of the underwriting spread, credit rating fee (imputed), insurance fee (imputed), and financial advisor fee (imputed)

- Imputation is based on a statistical model estimated using California data

	Predicted Δ_{HHI} >= 100	Market Share >= 5%	*Predicted* $\Delta_{Top\ 5\ Share}$ >= 5%
	(1)	(2)	(3)
	Total Issuing Cost (bps.)	Total Issuing Cost (bps.)	Total Issuing Cost (bps.)
Treated × Post	4.99***	3.63***	4.70***
	(3.93)	(3.60)	(3.34)
Observations	88,419	167,656	81,953
Year FE	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes
Clustering	Issuer	Issuer	Issuer
Adjusted R-squared	0.533	0.526	0.506

Table: Effects of M&As on Total Issuing Costs

Main Results: Local Government Finances

- Data: The Annual Survey of State and Local Government Finances conducted by the U.S. Census Bureau
- 3,386 counties, 12,282 townships, 18,584 municipalities, and 23,045 school districts from 1970 to 2022
- Motivation:
  - Validate findings from issuance outcomes
  - Fully quantify the total effects of M&As on local government finances
    - Municipal bond issues can have complex features beyond the underwriting spread and reoffering yield (Brancaccio and Kang, 2023)
    - Potential indirect effects through local fiscal multiplier (Suárez Serrato and Wingender, 2016)

Main Results: Local Government Finances

Annually, a median county impacted by consolidation

- Incurs $0.15 million more in interest payment
- Cuts new issuance by $1.06 million

	(1) Interest Paid/ Exp. (in %)	(2) New Issuance/ Exp. (in %)	(3) Inter-Gov. Trans./ Exp. (in %)	(4) Total Taxes/ Exp. (in %)	(5) Property Tax/ Exp. (in %)	(6) Budget Surplus Ratio (in %)
Treated × Post	0.07**	-0.51***	-2.20***	1.42***	1.45***	-1.02***
	(2.05)	(-2.68)	(-5.88)	(3.42)	(3.56)	(-2.98)
Observations	342,378	342,378	342,378	342,378	342,378	342,378
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Government FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	County	County	County	County	County	County
Adjusted R-squared	0.626	0.131	0.814	0.756	0.828	0.324

Table: Effects of M&As on Local Government Finances

Variable definition | Regression specification | Evidence from State Government Finances

Conclusion

- The underwriting spread for municipal bonds rises after M&As among underwriters
- Results are consistent with a market power interpretation
- Despite some efficieny gains, the issuers are hurt overall
- The findings provide a novel perspective on bank antitrust regulations that traditionally focus on deposit-taking and lending activities

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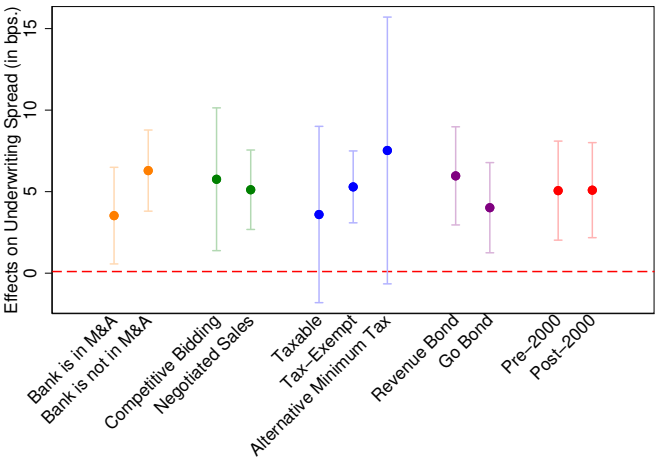
Main Results: Effects on Underwriting Spread

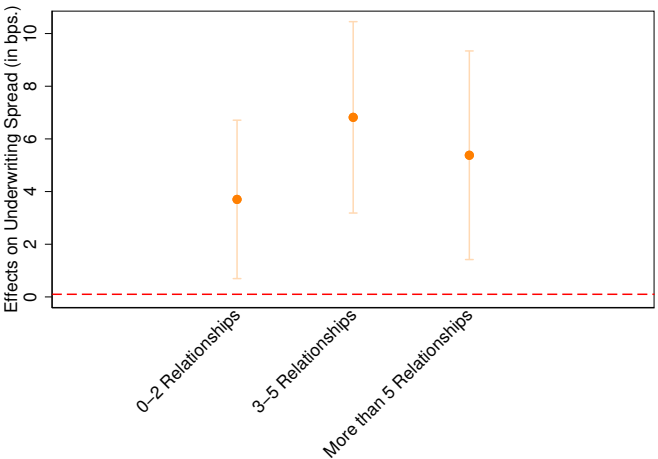
Figure: Cross-Sectional Heterogeneities in Effects Back



Main Results: Effects on Underwriting Spread

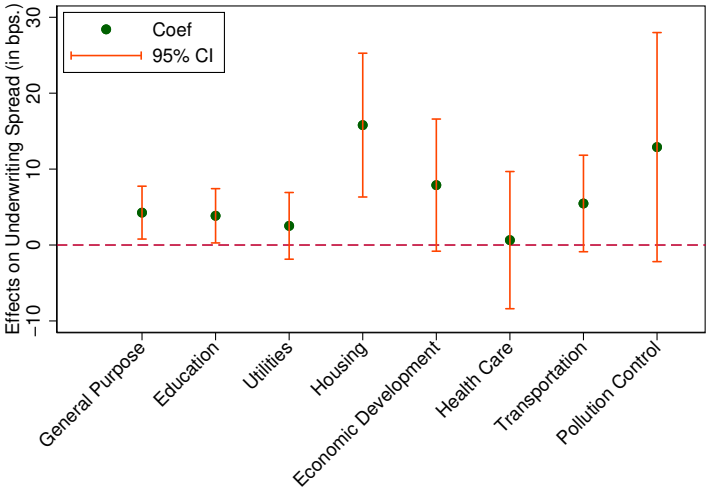
Source of market power: (a) tacit coordination ✓ (b) switching cost

Figure: Cross-Sectional Heterogeneities in Effects Back



Main Results: Effects on Underwriting Spread

Figure: Effects by the Main Use of Proceeds Back



Main Results: Addressing Endogeneity Concerns

PNC Bank & Midlantic Bank, 1995

The Morning Call: *"The move, along with PNC Bank's pending acquisition of 84 branches of Chemical Bank New Jersey, will strengthen PNC Bank's position in the New Jersey and Philadelphia markets, placing it second in those areas."*

⇒ **The acquiror's desire to gain local/regional dominance**

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Main Results: Addressing Endogeneity Concerns

RBC Bank & Dain Bosworth, 2000

The Wall Street Journal: *"The acquisition, which is subject to approval by regulators and Dain Rauscher shareholders, would give Royal Bank the toehold it has long sought in the U.S. wealth-management market."*

⇒ **The acquiror's desire to expand geographically**

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Main Results: Addressing Endogeneity Concerns

Morgan Stanley & Dean Witter Reynolds, 1997

The New York Times: *"In recent years, as the securities markets have changed, however, both firms started to covet what the other had. Dean Witter's 9,300 brokers needed more products to sell to the firm's Main Street customers, specifically the initial public offering stocks and municipal bonds that Morgan Stanley frequently underwrites. Morgan Stanley, meanwhile, wanted to broaden its customer base beyond its corporate clients and large institutions to the individual investors who have been flocking to the market."*

⇒ **Synergy from combining different lines of business**

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Main Results: Addressing Endogeneity Concerns

Stifel Nicolaus & City Securities, 2016

Indianapolis Business Journal: "*'Post Dodd-Frank, one of the effects that it had on the entire industry was to lay a lot of additional regulatory costs on everybody—probably disproportionately on smaller firms,' Bosway (City Securities CEO Mike Bosway) said. 'So that was clearly a factor in considering this more so than we had in the past. The need for scale today, because of that, is greater than it ever had been.'*"

⇒ **Synergy from cost management**

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Main Results: Offering Terms

Outcome variables:

- Reoffering Yield: Yield based on the price that initial investors pay to underwriters
- Yield Spread: Spread between municipal bond and U.S. treasury securities
- Initial Underpricing: Day 15-30 trading price minus initial trading price
- If Callable: Whether the issuer can retire the bond prior to the maturity

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Main Results: Local Government Finances

- Outcome variables:
  - Interest Paid/Total Expenditures
  - New Issuance/Total Expenditures
  - Inter-Governmental Transfer/Total Expenditures
  - Total Taxes/Total Expenditures
  - Property Tax/Total Expenditures
  - Surplus Ratio $= \frac{\text{Total Revenue}}{\text{Total Expenditure}} - 1$
- Findings are robust to using per-capita/per-student amounts or logged amounts

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Main Results: Local Government Finances

I estimate

$$y_{l,t,c} = \beta_1 Treated_{a,c} + \beta_2 Post_{c,t} + \beta_3 Treated_{a,c} \times Post_{c,t} + \theta_l + \theta_t + e_{l,t,c},$$

where

- l is the subscript for each local government
- a is the subscript for each Combined Statistical Area (CSA)
- c is the subscript for each cohort of treated and control CSAs
- t is the subscript for the calendar year

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Main Results: Local Government Finances

	(1) Total Trans. to Local/Exp. (%)	(2) Total Construction /Exp. (%)	(3) Total Capital Outlay/Exp. (%)	(4) Total Current Operation/Exp. (%)	(5) Interest Paid /Exp. (%)	(6) New Issuance /Exp. (%)
Treated × Post	-0.95**	0.42*	0.30	-0.42	0.57	0.17
	(-2.05)	(1.86)	(1.14)	(-0.74)	(1.41)	(1.48)
Observations	1,079	1,079	1,079	1,079	1,079	1,079
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	State	State	State	State	State	State
Adjusted R-squared	0.883	0.831	0.830	0.905	0.587	0.867

Table: Effects of M&As on State Government Finances

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