The Effects of Investment Bank Consolidation on Municipal Finance*

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Abstract

Antitrust regulators historically focused on commercial banking. Does investment bank consolidation have competitive effects? Using the municipal bond market as a natural laboratory, I find that underwriting spreads increase by 4.5% of their sample mean following within-market consolidation. The effects double for larger M&As or in concentrated markets. Narrative analysis and placebo tests support a causal interpretation. Consolidation does not generate efficiency gains that manifest as lower bond yields or substitution of other issuer-paid services. Further, Census data indicate a decline in issuance after consolidation. My findings provide a novel perspective on bank antitrust regulations.

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1 Introduction

Security issuance is a pillar of the financial system. In 2022, the U.S. saw $102 billion in corporate equity issuance, $883 billion in corporate bond issuance, and $410 billion in municipal bond issuance. Economists have documented imperfect competition and market power in many segments of the financial system. However, the role of underwriters' market structure and market power in security issuance remains relatively underexplored. Theoretically, underwriters with market power can charge underwriting spreads above the competitive levels. They can also steer offering terms towards directions that facilitate the marketing and distribution of securities but impose costs on issuers.

In this paper, I examine the setting of municipal bond issuance and use M&As as a shifter of underwriter market power. Notably, studying these M&As is important in its own right, as investment banking activities have historically been overlooked in bank antitrust regulations. Several features make the municipal bond primary market an ideal natural laboratory for analyzing how shifts in market power affect security issuance outcomes. First, the market carries great importance as its size rivals corporate security markets and it finances essential public services and infrastructure. Second, anecdotal evidence suggests that local governments are vulnerable to powerful underwriters and 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" (The Hechinger Report, 2019). Relatedly, Joffe (2015) estimates that annual municipal bond issuance costs in the U.S. total $3–4 billion. Third, this market features a large number of heterogeneous issuers, high geographic fragmentation (Butler, 2008; Cestau, 2020; Babina et al., 2020), stable issuance flows, and, importantly, substantial consolidation among local and regional underwriters over the past several decades.

I hand-collect data on M&As among municipal bond underwriters and complement the sample with standard M&A databases. I find 258 M&A deals during 1970-2022, of which

162 occur between underwriters with overlapping geographic operations. I then define a market as a geographic unit and identify treated and control markets. Treated markets consist of those that experience M&As that would lead to an increase in the underwriter Herfindahl–Hirschman Index (HHI) by more than 100 points. For each treated market, I find a matched control market that most closely resembles the treated in terms of local economic and demographic characteristics. I assemble a sample of bond issues from treated and control markets and estimate a stacked difference-in-differences model (Gormley and Matsa, 2011, 2016).

I find that underwriting spreads increase by 4.6 basis points following within-market consolidation, relative to a sample mean of 103.0 basis points. There is a sharp increase in the year of the M&A and no pre-consolidation differential trend. For a median bond issue with a principal amount of $8.9 million, this effect implies an additional $4,137 financial burden on the issuing government. My specification exploits within-issuer variation, alleviating concerns about composition effects. The findings are robust to adding control variables, to controlling for time-varying underwriter characteristics, and across both halves of the sample period. Effects are similar when treated markets are defined as those where M&As would lead to an increase in the combined market share of the top five underwriters by more than 5%. The effects do not dissipate over time when examining longer post-consolidation horizons of up to ten years.

My findings run counter to the alternative hypothesis that M&As generate synergies that lower the marginal cost of underwriting and, in turn, reduce underwriting spreads. Instead, consistent with investment banks exercising enhanced pricing power, the point estimates roughly double for more significant M&As that raise HHI by more than 200 points or for markets that are already concentrated, i.e., those with HHI above 2,500. The effects hold regardless of the method of sales, source of repayment, taxable status, refunding status, or the size and maturity length of the bond issue. Moreover, both the merging underwriters and their competitors in the same market increase their underwriting spreads, indicating a

shift in the overall market structure.

The primary challenges to a causal interpretation are that local economic dynamics could drive both M&As and changes in underwriting spreads, and that underwriters might choose to merge in anticipation of future changes in the underwriting spread. To address these endogeneity concerns, I first show that the findings hold when focusing on cases where the consolidation-affected markets constitute only a small fraction of the merging underwriters' overall businesses. In such cases, the M&A decisions are less likely to be shaped by contemporaneous or anticipated local economic conditions (Garmaise and Moskowitz, 2006; Dafny et al., 2012; Sunderam and Scharfstein, 2017). Second, following the narrative approach (Romer and Romer, 2010), I classify M&As based on rationales reported in news articles. Common rationales include "the acquiror's intent to gain local or regional dominance", "the acquiror's intent to expand geographically", "the acquiror's intent to gain nationwide dominance", "synergy from combining different lines of business", and "synergy from cost management". While the first two could be related to local economic conditions, it is hard to argue so for the other three. My findings hold when restricting attention to M&As that, according to the news reports, are likely not influenced by local economic dynamics.

To further rule out potential confounding explanations, I conduct four placebo tests. First, focusing on M&As that would increase HHI in certain geographic areas, I examine other areas where only one side of the merging investment banks had a pre-M&A presence and do not find an increase in underwriting spreads. Second, I show that M&As between investment banks operating in separate geographic markets do not raise underwriting spreads. Together, these results confirm that it is within-market consolidation — rather than M&A activity per se — that drives the price effects. Third, I trace out the geographic distribution of commercial banks using the FDIC Summary of Deposits data (Cetorelli and Strahan, 2006; Bouwman and Malmendier, 2015) and show that within-market consolidation among purely commercial banks does not increase underwriting spreads, rendering it unlikely that the results reflect omitted variables that prompt consolidation among any financial institutions.

Fourth, I find that withdrawn within-market investment bank M&As are not followed by higher underwriting spreads. Beyond these placebo tests, I construct an additional sample in which markets with one-side but no simultaneous presence of the merging underwriters serve as controls for markets with simultaneous presence. The effects of underwriter consolidation remain robust in this within-M&A comparison.

While I have shown that within-market consolidation increases underwriting spreads, the overall effect on issuers remains unclear. I next examine whether consolidation generates efficiency gains that benefit issuers and offset the rise in underwriting spreads. As the total financing costs for local governments include both the underwriting spread and interest costs, I first study effects on yields, measured either directly or as yield spreads over Treasury securities. I find no statistically significant changes. However, in the subsample with secondary-market transaction data available, I observe a small increase in initial underpricing of \$0.11 per \$100 face value. The effects are concentrated in issues where underwriters have greater influence over offering terms. Such initial underpricing facilitates marketing and distribution but harms issuers, consistent with underwriters exercising market power. Notably, the evidence contradicts the hypothesis that underwriters, operating in a two-sided market, acquire enhanced monopoly power over initial investors after consolidation.

In search of potential efficiency gains that could benefit issuers, I also examine the usage of other issuer-paid services. M&As could improve underwriter ability to market and distribute bonds, potentially reducing the need for credit ratings, a form of third-party certification. Similarly, bond insurance, i.e., the credit guarantee that an insurer steps in and repays in case of government default, might become less essential (Gore et al., 2004; Vanda and Singh, 2004; Cornaggia et al., 2024). M&As might also endow underwriters with expertise that typically resides with financial advisors (Bergstresser and Luby, 2018). This kind of in-house integration could reduce issuers' demand for formally hiring a financial advisor. However, I do not find statistically significant changes in the use of credit ratings, bond insurance, or financial advisors after consolidation. I also calculate the total issuance expenses that

include the underwriting spread, credit rating fee, bond insurance fee, and financial advisor fee, and observe an increase comparable in magnitude to the rise in the underwriting spread. In addition, I examine liquidity measures including the trading volume and dealer markups, and find no evidence of improved liquidity. These findings from the secondary market is consistent with the lack of yield changes in the primary market.

Finally, I examine the effects of investment bank consolidation on local government finances using data from the Annual Survey of State and Local Government Finances conducted by the U.S. Census Bureau (Pierson et al., 2015; Adelino et al., 2017; Yi, 2021). I find that the issuance amount, expressed as the ratio to total expenditures, declines by 0.79 percentage points and does not exhibit pre-treatment differential trend. This indicates that local governments are adversely affected by underwriter consolidation.

My paper is the first to study investment bank consolidation, as called for by Berger et al. (1999). Recent evidence documents that U.S. industries are becoming increasingly concentrated (Covarrubias et al., 2020; Philippon, 2019; Grullon et al., 2019; Kwon et al., 2024) and that economic profits and markups are rising (De Loecker et al., 2020). Focusing on the financial industry, the existing literature has examined the effects of consolidation among commercial banks that engage in deposit-taking and lending. Several studies document adverse effects on depositors and borrowers. For example, Prager and Hannan (1998) and Pakes et al. (2024) find declines in deposit rates and Garmaise and Moskowitz (2006) show that consolidation increases loan rates and generates negative real economic consequences. Relatedly, Liebersohn (2024) finds that mandatory divestiture attenuates the consumer harm of commercial bank consolidation. Other research identifies efficiency gains in certain contexts or over longer time horizons. Focarelli and Panetta (2003) find that deposit rates increase in the long run following consolidation; Sapienza (2002) shows that loan rates decline when the acquired bank has a small market share; and Erel (2011) demonstrates that consolidation reduces the average loan spreads for U.S. industrial and commercial loans. Despite this extensive literature on commercial bank consolidation, little is known about the effects

of consolidation among investment banks. My findings indicate that issuers are adversely affected in the context of municipal bond issuance.

My paper contributes to the literature on underwriter market structure and market power in security issuance. Chen and Ritter (2000) argue that the prevalent 7% IPO underwriting spread reflects a collusive outcome.[1] Gande et al. (1999) and Kim et al. (2008) find that underwriting spreads for corporate securities decline after commercial banks become legally eligible to underwrite. Manconi et al. (2019) show that powerful corporate bond underwriters can extract rents at the expense of issuers. In the municipal bond context, Cestau (2019) finds that the use of competitive bidding reduces underwriters' market concentration. Cestau (2020) further shows that underwriters tend to specialize in either competitive bidding or negotiated sales, and that their specialization investments in respective fields contribute to their market power. Garrett and Ivanov (2024), the closest study to mine, examine anti-ESG legislation in Texas and find that the resulting contraction in the pool of underwriters significantly increases local governments' borrowing costs.

My paper contributes to the literature on the determinants of financing costs in the municipal bond market. The literature shows that a range of social, economic, political, and environmental factors shape municipal financing costs.[2] Regarding frictions in the issuing process, Cestau et al. (2020) provide estimates for the effects of using negotiated sales on reoffering yields. Garrett et al. (2022) document a greater-than-unity pass-through elasticity

[1] Hansen (2001) challenges this argument and Liu and Ritter (2011) develop a theory of differentiated underwriting services and localized competition to explain the apparent lack of competition. Lyandres et al. (2018) develop tests for IPO underwriter conducts and find evidence supportive of collusion.

[2] Prior research finds that better credit ratings (Adelino et al., 2017; Cornaggia et al., 2017), access to renewable natural resources (Cornaggia and Iliev, 2024), and reduced ESG-related uncertainty (Garrett et al., 2025) reduce interest costs, while corruption (Butler et al., 2009), racial discrimination (Dougal et al., 2019), political uncertainty (Gao et al., 2019b), impaired information production (Gao et al., 2020), and climate risks (Painter, 2020; Goldsmith-Pinkham et al., 2023) increase interest costs. Additionally, studies by Butler and Yi (2022), Cheng et al. (2023), Cornaggia et al. (2021), Gao et al. (2019a), Gustafson et al. (2023), Han (2021), Li and Zhu (2019), and Lu and Ye (2023) illustrate the effects of various demographic and political factors on interest costs. Moreover, corruption, discrimination, and climate risks have been shown to inflate underwriting spreads (Butler et al., 2009; Dougal et al., 2019; Painter, 2020), and Luby et al. (2013) empirically examines factors associated with higher underwriting fees in Texas.

from tax subsidies to borrowing costs and attribute this to the imperfectly competitive nature of auctions and the endogenous participation of underwriters. Additionally, Garrett (2024) finds that banning dual advisor-underwriters significantly reduces interest costs.

I proceed as follows. Section 2 describes my data and sample construction. Section 3.1 presents my main findings, followed by tests to address endogeneity concerns in Sections 3.2 and 3.3. In Section 3.4, I examine effects on offering terms and investigate potential efficiency gains. In Section 4, I provide additional tests and discussion. Section 5 delves into policy implications and concludes the paper.

2 Data and Sample Construction

2.1 Data

I obtain data on municipal bond issuance from the SDC Platinum Global Public Finance Database (GPF), which reports issuer and underwriter identities, purpose of debt, amount, maturity, underwriting spread, reoffering yield, and other bond characteristics. I provide summary statistics in Table 1 and variable definitions in Internet Appendix Table A1. My main variable of interest is the underwriting spread, defined as "the difference between an underwriter's purchase price and resale price" (SDC Platinum, 2024), which represents a major source of underwriter revenue. Prior research (e.g., Butler 2008; Dougal et al. 2019) has used the underwriting spread in the GPF as a primary outcome variable.[3] The database also records the county in which the issuer is located. Using the Core-Based Statistical Areas Delineation Files from the U.S. Census Bureau, I identify the Combined Statistical Area (CSA) in which the issuer is located.

I define a "local market" as a CSA, which is economically and socially interconnected

[3]Butler (2008) shows that local investment banks charge lower underwriting spreads on municipal bond issues, and Dougal et al. (2019) find that historically black colleges and universities incur higher underwriting spreads.

while relatively isolated from other CSAs by construction. As of 2023, the Census Bureau designates 181 CSAs in the U.S. I later show that my findings are robust to alternative market definitions. On average, an issuer has 1.7 bond issuances per year, and all issuers in a county have 12.3 issuances combined annually. Internet Appendix Figure A1 presents the distribution of the number of active underwriters across CSAs. A median CSA has 8 active underwriters, with larger CSAs featuring more. Internet Appendix Section III describes the issuance process and the two primary methods of sales, competitive bidding and negotiated sales. In my sample, 47.7% of the bond issues are sold through competitive bidding, i.e., via auctions. I also obtain the bidding outcomes for these auctions from The Bond Buyer (Garrett et al., 2022; Garrett, 2024).

I hand-collect data on M&As among municipal bond underwriters active during 1970–2022 from public records, including national and local newspapers, Wikipedia, firm websites, and corporate filings. I then supplement this sample with two standard M&A databases, the SDC Platinum M&A Database and the SNL Financial M&A Database (a part of S&P Global). I link underwriters in the GPF to these M&As using both exact and fuzzy matching. I identify 258 M&A deals, of which 162 involve underwriters with overlapping geographic operations. These M&As are listed in Internet Appendix Table A2.

I also review news articles to identify the reported rationales for the M&A deals. I find articles with sufficient information to determine the rationales for 101 of the 162 geographically overlapping deals. Internet Appendix Table A3 summarizes the findings. The top five rationales for M&As are "the acquiror's intent to gain local or regional dominance", "the acquiror's intent to expand geographically", "the acquiror's intent to gain nationwide dominance", "synergy from combining different lines of business", and "synergy from cost management". Internet Appendix Table A4 provides examples and Internet Appendix Section V reports the full sample. Importantly, many of the deals do not appear to be driven by local economic conditions that could also affect underwriting spreads.

I obtain credit rating fees, bond insurance fees, and financial advisor fees from the Cali-

fornia Debt and Investment Advisory Commission and the Texas Bond Review Board. While the GPF records whether an issuer uses credit ratings, bond insurance, or financial advisors, fee information is available only for California and Texas. Additionally, I obtain data on local government finances from the Annual Survey of State and Local Government Finances conducted by the U.S. Census Bureau (Pierson et al., 2015; Adelino et al., 2017; Yi, 2021).

2.2 Sample construction

I measure CSA exposure to M&As and identify "local consolidation episodes". For each CSA, beginning from the year 1970, I calculate the HHI of the CSA a $\times$ year t based on underwriter market shares in the three years preceding year t. Next, I identify all M&A deals completed between t to $t+3$ and calculate the would-be HHI if the acquiror and the target in these M&As became a single firm, also based on underwriter market shares in CSA a in the three-year period prior to year t. The *predicted* Δ_{HHI} is the difference between this *predicted* HHI and the actual HHI. Only within-market consolidation, i.e., M&As between underwriters with overlapping geographic operations, could lead to a positive *predicted* Δ_{HHI}. I say that CSA a experiences a local consolidation episode starting in t if the *predicted* Δ_{HHI} exceeds 100 points. If t marks the onset of an episode, I next evaluate $t+4$; otherwise, I proceed to $t+1$. This methodology parallels how the Department of Justice (DOJ) evaluates commercial bank M&As.[4]

I identify 219 local consolidation episodes. I refer to the affected CSAs as "treated" CSAs and construct a treatment-control matched sample. For each treated CSA, I select a control CSA that most closely resembles it in average income and population using the Mahalanobis distance. In addition, the control CSA must not itself experience within-market consolidation from $t-4$ to $t+4$. I later show that my findings are robust to a range of alternative matching

[4]The DOJ states that a commercial bank M&A warrants antitrust scrutiny if it is *predicted* to increase the HHI by more than 100 points based on the *pre-consolidation* deposit market shares in a given market (Department of Justice, 2023).

schemes. Each treated CSA and its matched control constitute a cohort. I then assemble a "stacked sample" consisting of all bond issues in the year the consolidation episode begins, as well as in the surrounding years, for both treated and control CSAs.

Figures 1 and 2 illustrate the construction of the matched sample. Panel A of Figure 1 shows the market shares by each CSA in 1995 of SunTrust Bank and Equitable Securities, two underwriters that subsequently engaged in an M&A. SunTrust Bank had a broad presence across the U.S. Southeast, whereas Equitable Securities operated more locally within Tennessee. The M&A would therefore affect CSAs where they both underwrote municipal bonds, such as "Nashville-Davidson–Murfreesboro, TN", but not the CSAs where only one was active, such as those in Florida. Figure 2 shows that "Sacramento-Roseville, CA" is the matched control for this treated CSA.

2.3 Market fragmentation

The market for municipal bond underwriters is far more geographically fragmented compared to those for corporate securities (Cestau, 2020; Chen et al., 2024). While corporate issuers are predominantly served by large, national investment banks that are typically headquartered on the Wall Street, the municipal bond market features a plethora of underwriters whose geographic coverage can be only one or several states. Internet Appendix Table A5 lists the top ten underwriters in California and Massachusetts for corporate securities and municipal bonds. Although corporate security underwriters overlap substantially across the two states, their municipal bond underwriters are much more distinct. For example, none of the top three municipal bond underwriters in Massachusetts during 2010-2020 — Eastern Bank, Century Bank, or TD Bank — appears in the top ten in California, nor vice versa.

To quantify this fragmentation, I calculate the cosine similarity of underwriter market shares for each state-pair. I represent the market shares in state s in year t of all B underwriters as a vector $v_{s,t}$ of length B. For a state-pair s_1 and s_2, the cosine similarity in year

t is calculated as

$$c_{s_1,s_2,t} = \frac{v_{s_1,t} \cdot v_{s_2,t}}{\|v_{s_1,t}\|\|v_{s_2,t}\|}. \tag{1}$$

The average cosine similarity in municipal bond underwriters across state-pairs is 0.193, compared with 0.613 for corporate bond underwriters and 0.508 for corporate equity underwriters. Internet Appendix Table A6 confirms the differences in a regression framework, which also shows that the similarity in municipal bond underwriters declines with geographic distance. Internet Appendix Figure A2 further shows that the pattern holds throughout the sample period.

Such fragmentation might seem surprising, as municipal bond underwriting might appear to be a generic task. Several factors explain the highly fragmented structure. First, by using local underwriters and keeping underwriting activity geographically proximate, local governments can promote local businesses, create job opportunities, and even collect additional income taxes from underwriters. Second, in most states, the interest income on municipal bonds is exempt from state taxes for in-state investors but not for out-of-state investors, which leads to disproportionately high same-state ownership (Babina et al., 2020). Incumbent underwriters have superior knowledge of and access to local investors, giving them an advantage in marketing and distributing the bonds (Cestau, 2020). Third, incumbent underwriters accumulate substantial experience underwriting for nearby governments. Under negotiated sales, issuers heavily weigh an underwriter's past experience in serving the local area (U.S. Securities and Exchange Commission, 2012). Even under competitive bidding, incumbents with deeper local knowledge may hold informational advantages when formulating bids. This accumulated experience creates entry barriers for non-incumbents and reinforces market fragmentation.

3 Evidence from Bond Issuance

3.1 Effects on underwriting spread

3.1.1 Main results

I begin by examining how underwriting spreads evolve around consolidation. If consolidation leads to more concentrated local markets and enhances underwriter market power, underwriting spreads should increase afterwards. Conversely, if consolidation generates synergies and lowers the marginal cost of underwriting, these cost savings could be passed on to local governments through competition, resulting in lower underwriting spreads.

I estimate the following regression specification,

$$y_{d,c} = \beta_1 Treated_{a,c} \times Post_{c,t} + \theta_{i,c} + \theta_{c,t} + e_{d,c}. \tag{2}$$

Here d indexes bond issues, i.e., deals, a indexes CSAs, c indexes cohorts consisting of a treated CSA and its matched control, i indexes issuers, and t indexes calendar years. $Treated$ equals one for issues in treated CSAs and $Post$ equals one in the year a local consolidation episode begins and thereafter. My methodology of pooling cohorts of treated and control observations as a stacked sample and estimating a difference-in-differences model follows Gormley and Matsa (2011), Gormley and Matsa (2016), and Gormley et al. (2024). *Treated* and *Post* are not included as they are absorbed by the issuer-times-cohort fixed effects $\theta_{i,c}$ and cohort-times-year fixed effects $\theta_{c,t}$, respectively. Standard errors are double-clustered at the CSA and calendar-year levels.

I report the findings in Table 2. In column (1) of Panel A, I show that the underwriting spread increases by 4.6 basis points (t = 3.04) in the four years following consolidation, relative to a sample mean of 103.0 basis points. This effect represents 4.5% of the sample mean. For a bond issue with the median principal amount of $8.9 million, the increase translates into an additional $4,137 in underwriting spread. On average, a CSA issues $1,312 million

per year, and this increase implies an extra financial burden of $609,902.

I also estimate a dynamic version of Equation (2), using the year prior to consolidation as the baseline, and plot the coefficients in Figure 3. I observe a sharp increase in the underwriting spread at the onset of the local consolidation episodes and no evidence of pre-treatment differential trends between treated and control CSAs. These effects do not dissipate over longer horizons of up to ten years. The persistence of the effects can be explained by the entry barriers discussed in Section 2.3, which is also supported by the absence of an increase in underwriter entry following consolidation, as shown in Internet Appendix Table A7.

3.1.2 Robustness tests

My findings are robust to alternative definitions of local consolidation episodes. In column (3) of Table 2, I redefine local consolidation episodes as cases in which M&As would lead to an increase in the *predicted* total local market share of the top five underwriters by more than 5%. The effects hold with similar magnitudes. Panel B of Figure 3 further shows that the pre-consolidation parallel trend also holds. My findings are also robust to defining markets at the finer Core-Based Statistical Area (CBSA) level, as shown in columns (2) and (4) of Table 2. As of 2023, the Census Bureau designates 927 CBSAs in the U.S.

My findings are robust to alternative regression specifications. Column (1) of Table A8 shows that the effects hold when I include state-by-calendar-year fixed effects, leveraging that some CSAs might be affected by underwriter consolidation while others might not at the same time within a state. The effects also hold when I include underwriter-by-calendar-year fixed effects in column (2), which absorb any time-varying, underwriter-specific factors that could affect the underwriting spread. Furthermore, the findings remain robust to adding fixed effects for each method of sales, taxable status, source of repayment, and their interactions with the cohort and calendar year as shown in column (3). This mitigates concerns that

certain compositional effects drive my findings.

My findings are also robust to controlling for the principal amount, length of maturity, and their squared terms in column (4). In column (5), I control for whether commercial banks are legally eligible to underwrite the bond issue.[5] While the 1933 Glass-Steagall Act prohibited commercial banks from underwriting most Revenue bonds on the premise that they were riskier than General Obligation (GO) bonds, the Gramm-Leach-Bliley Act in 1997 removed all restrictions on commercial banks from underwriting municipal bonds (U.S. Congress, 1999).[6] I find that the underwriting spread is 16.0 basis points lower (t = -8.3) when commercial banks are allowed to underwrite, consistent with increased competition. Consolidation effects remain unchanged after adding this control. Finally, to address the critique in Wing et al. (2024) that the basic stacked difference-in-differences estimator may not identify the target causal effect because it applies different implicit weights to treatment and control trends, I apply their suggested corrective weights in column (6) and find that my estimate hardly changes.

In addition, my findings are robust to alternative matching schemes. Column (1) of Internet Appendix Table A9 confirms that my findings are robust when I match each treated CSA to three control CSAs rather than one. The findings are also robust to using alternative co-variates in the matching process. Column (2) shows that the findings hold when matching on local income, population, and the growth rates of these variables. Although I avoid matching on issuance outcomes in the baseline to prevent potential overfitting (Bonaimé and Wang, 2024), column (3) shows that my findings hold when matching on a CSA's historical average gross spread and reoffering yield. Column (4) shows that my findings hold when selecting the control CSA with the closest propensity score of being treated. Column (5) confirms that my findings hold in a stacked sample that uses all CSAs not

[5]I use the "Commercial Bank Eligible" variable in the GPF.

[6]The source of funding for the repayment of GO bonds is the overall revenue of a whole government. For Revenue bonds, it is the revenue from a specific project. Revenue bonds are in general perceived to be riskier than GO bonds.

concurrently affected by investment bank consolidation as controls. Finally, to address the critique in Baker et al. (2022) that stacked difference-in-differences estimates may be biased if previously treated units serve as controls, I show in column (6) that the effects remain stable when restricting controls to CSAs that were never previously treated.

3.1.3 Effect heterogeneity

I report findings for three groups of cross-sectional heterogeneity. First, I examine scenarios where ex-ante I expect stronger effects based on an enhanced–market-power interpretation (Table 3). Second, I analyze cross-sections of interest in the institutional setting of municipal bonds, for which there are no clear ex-ante predictions regarding where the effects should be more pronounced (Internet Appendix Table A10). Third, I study cases in which the issues fall within the expertise of the merging underwriters and therefore should be more severely affected (Internet Appendix Table A11). I employ the following regression specification,

$$y_{d,c} = \sum_{g=1}^{G} \mathbb{1}_{\text{issue } d \text{ is in group } g} \times (\gamma_{0,g} + \gamma_{1,g} Treated_{a,c} + \gamma_{2,g} Post_{c,t} + \gamma_{3,g} Treated_{a,c} \times Post_{c,t}) + \theta_{i,c} + \theta_{c,t} + e_{d,c}. \tag{3}$$

Significance of M&As, market concentration, and financial advisors Panel A of Table 3 shows that the point estimates are larger for more significant M&As, i.e., those that would lead to a greater increase in the *predicted* HHI. For local consolidation episodes with a *predicted* Δ_{HHI} above 200 and looking at a ten-year horizon, the estimate is 9.7 basis points (t = 4.9), compared with 5.9 basis points (t = 3.1) for less significant M&As. Panel B shows that the point estimates are larger in already concentrated markets, which is also consistent with underwriters exercising strengthened market power. The estimate is 11.0 basis points (t = 2.0) in highly concentrated markets with HHI above 2,500. Additionally, Panel C further

shows that the point estimates are larger when issuers do not employ a financial advisor and are therefore more susceptible to underwriter market power (Garrett, 2024).

Other heterogeneity of interest Next, I analyze cross-sections that are of interest in the municipal bond market but do not come with clear ex-ante predictions about where effects should be more pronounced. Internet Appendix Table A10 shows that both the underwriters involved in the M&As and other underwriters operating in the same market charge higher underwriting spreads after consolidation. This pattern is consistent with a shift in the overall structure of the local market. The effects are present for bonds sold through either competitive bidding or negotiated sales. Underwriting spreads increase for tax-exempt bonds, taxable bonds, and also bonds subject to the Alternative Minimum Tax.[7] In addition, my findings hold regardless of whether the repayment source is the overall revenue of a government (General Obligation bonds) or the revenues from a specific project (Revenue bonds) and for both non-refunding and refunding issues. These findings are detailed in Panels A to E.

Panel F shows that the findings hold when splitting the sample into pre-2000 and post-2000 periods. Panels G and H show that the estimates are similar for issues with principal amounts or maturity lengths above or below the median. In Panel I, I find similar effects for counties with a Black population share in the top quartile and those without. Finally, Internet Appendix Figure A4 examines heterogeneity by the main use of proceeds, i.e., "general purpose", "education", "utilities", "housing", "economic development", "health care", "transportation", or "pollution control".[8] The effects are strongest for issues financing housing and economic development and are statistically significant for half of the categories.

[7] Alternative Minimum Tax (AMT) is "a separate tax system that requires some taxpayers to calculate their tax liability twice — first, under ordinary income tax rules, then under the AMT — and pay whichever amount is highest" (Tax Foundation, 2023).

[8] I use the variable "Main Use of Proceeds" in the GPF.

Whether bond issues fall within the expertise of merging underwriters In my baseline specification, I define markets as geographic units. One might argue that markets can be further segmented based on issue characteristics, and that defining markets solely at the geographic level may understate the degree of market concentration. For example, underwriters may specialize in competitive bidding or negotiated sales (Cestau, 2020), in issues serving specific purposes such as education or healthcare, or in larger issues that require extensive distribution networks versus smaller ones. I do not adopt a finer market definition in the baseline specification for several reasons. First, I identify market exposure to underwriter M&As using underwriters' historical market shares within the market. The sample size of issues within narrowly defined market would be small, leading to imprecise measurements of exposure to consolidation. Second, not observing a certain underwriter for issues of certain characteristics does not necessarily imply its absence — the underwriter may still compete for such issues but fail to establish a market share. Therefore, further dividing markets can be somewhat arbitrary and potentially misleading.[9]

Nevertheless, bond issues within a CSA can be differentially affected if further segmentation exists. To capture such heterogeneity, I examine whether effects are stronger when a bond issue falls within a category in which the merging underwriters hold expertise. In such cases, the effects should be stronger because the issues are more likely to be directly affected. I categorize bond issues based on five characteristics: (1) amount; (2) maturity; (3) the main use of proceeds; (4) the method of sales; and (5) the presence of credit ratings. I present my findings in Internet Appendix Table A11. For almost all bond issue characteristics, the point estimates are larger when the bond issues fall within the merging underwriters' areas of expertise. These findings suggest that underwriter specialization may exist and that bond issues can be differentially impacted by underwriter consolidation.

[9]In Internet Appendix Table A12, I define markets jointly by CSA and bond issue characteristics. My main findings remain robust. Interestingly, the magnitudes of the estimates are not consistently larger than those in Table 2, likely due to the imprecise measurement of exposure to market concentration in more narrowly defined submarkets.

3.2 Addressing endogeneity concerns

The primary challenge to a causal interpretation is that investment bank consolidation is not random, and local economic conditions could influence both consolidation and underwriting spreads. In addition, investment banks may pursue consolidation in anticipation of future changes in local underwriting spreads. To address concerns about omitted variable bias and reverse causality, I conduct two tests.

My first test adopts the "narrative approach", which prior research has used to identify changes in fiscal and monetary policies that are unrelated to national or state economic conditions (Romer and Romer, 2010; Mertens and Ravn, 2012; Mukherjee et al., 2017; Romer and Romer, 2023). I hand-collect the rationales for M&As from news articles, describe them in Internet Appendix Table A3, and classify them into those that may correlate with local economic conditions and those that are likely orthogonal to such conditions. It is plausible that an acquiror's intention to gain local or regional dominance or to expand geographically could correlate with local economic conditions that also affect underwriting spreads. However, it is difficult to argue that M&As motivated by "the acquiror's intention to gain nationwide dominance", "synergy from combining different lines of business", or "synergy from cost management" would be related to local economic conditions.

I focus on local consolidation episodes in which *all* M&As that increase local concentration have rationales less likely to correlate with local economic conditions. Specifically, I exclude episodes involving M&As motivated by "the acquiror's intention to gain local or regional dominance" or "the acquiror's intention to expand geographically", *as well as* episodes involving M&As for which the rationales are not available from a news article. A total of 103 local consolidation episodes meet these criteria. In Panel A of Table 4, I show that my main findings continue to hold. Moreover, although Internet Appendix Table A3 suggests that most M&As driven by "financial distress of the target" are likely unrelated to local economic conditions, I further exclude episodes involving such M&As in Panel B. Only

79 episodes satisfy these stricter criteria, and while the estimates are no longer statistically significant, the point estimates remain similar to before. I also examine the effects of consolidation by each reported rationale in Internet Appendix Figure A5 and find that the effects are present across most categories.

My second test examines scenarios in which the affected CSA constitutes only a small fraction of the merging underwriters' overall operations. In such cases, it is less likely that the current or anticipated economic conditions in the CSA are a significant driver of the M&A decision. More specifically, I focus on local consolidation episodes where the affected CSA accounts for less than 5% of each merging underwriter's total municipal bond underwriting business in the preceding three years. For episodes involving multiple M&As that cumulatively lead to within-market consolidation, I require that the affected CSA account for less than 5% of each merging underwriter's total business in every M&A. This approach parallels those of Garmaise and Moskowitz (2006), Dafny et al. (2012), and Sunderam and Scharfstein (2017) that address the endogeneity of financial institution M&As to local economic conditions.

There are 96 local consolidation episodes that satisfy these criteria. I report the findings in Panel C of Table 4 and my main findings continue to hold. Interestingly, the magnitude of the effects is larger than my baseline estimates. This may reflect the fact that CSAs accounting for a small share of underwriters' total activity tend to be smaller and often have more concentrated underwriting markets, where consolidation effects are more pronounced. One might argue that a small CSA could be adjacent to a larger CSA with correlated economic fundamentals that drive underwriter M&A decisions. To address this concern, Panel D of Table 4 examines cases where both the affected CSA and all adjacent CSAs account for less than 5% of each merging underwriter's total business. The findings remain robust.

In summary, underwriting spreads increase in scenarios where M&A decisions are less likely to be driven by current or anticipated local economic conditions, consistent with a

causal interpretation of my main findings.

3.3 Placebo tests

3.3.1 Markets without simultaneous presence

In this section, I conduct four placebo tests to further rule out alternative explanations. My first placebo test examines markets where the merging underwriters do not have simultaneous presence. For each local consolidation episode described in Section 2.2, I randomly select a CSA in which the acquiror has a market share greater than 10%, the target has no market share, *and* the CSA does not itself experience within-market consolidation around the onset of the episode.[10] From the perspective of these CSAs, an in-market underwriter consolidates with an out-of-market underwriter. I similarly identify CSAs where the target operates but the acquiror does not. These CSAs form the treated group, and I find control CSAs using the same matching criteria as in Section 2.2.

Panel A of Table 5 shows in column (1) that there is no statistically significant effect on underwriting spreads. Given that such randomly selected CSAs tend to be small as an underwriter is more likely to have market share above 10% in a smaller market, I also construct a sample in which treated markets are chosen to be the closest in population size to the markets with simultaneous presence. Column (2) shows that the sample size increases, but again I find no statistically significant effects. The findings are similar when I relax the 10% threshold and instead allow merging underwriters to have any positive market share in markets without simultaneous presence, as shown in columns (3) and (4).

In addition, I construct an additional sample using these markets as the control group. For each market with simultaneous presence of merging underwriters, I identify control markets where only one side operates but not both. This within-M&A comparison of markets

[10] If a local consolidation episode involves multiple M&As, I define the main M&A as the one with the highest joint market share of the merging underwrters.

with versus without aggravated concentration helps isolate the causal effect of market concentration on underwriting spreads. My findings are reported in Internet Appendix Table A13. I observe an increase in underwriting spreads comparable in magnitude to the estimates in Section 3.1.1. This pattern holds whether I use all markets without simultaneous presence as controls or restrict the controls to the single market most similar to the treated market.

3.3.2 Cross-market M&As

My second placebo test examines cross-market M&As, i.e., those between underwriters that do not have any geographic overlap in their municipal bond underwriting businesses. In Panel B of Table 5, I define treated markets as those in which one side of the merging underwriters has more than 5% (10%) market share in columns (1) and (2) ((3) and (4)). The market is defined as a CSA in columns (1) and (3) and as a CBSA in columns (2) and (4). I require that treated markets do not experience within-market consolidation themselves around the M&As and find control CSAs using the same matching criteria as in Section 2.2.

I do not observe statistically significant changes in underwriting spreads around cross-market M&As. The findings in Panels A and B show that it is increased within-market concentration — rather than M&A activity per se — that has price effects, consistent with post-consolidation market power as the mechanism. Moreover, although cross-market consolidation could arguably pool expertise and widen the distribution networks, thereby lowering the marginal costs of underwriting, I do not observe a decrease in underwriting spreads neither. Hence, any efficiency gains from cross-market consolidation are not passed through to issuers in the form of lower underwriting spreads.

3.3.3 Commercial bank consolidation

My third placebo test examines within-market commercial bank (CB) consolidation. I obtain CB M&As from the SDC Platinum M&A Database and the SNL Financial M&A Database. In addition, I acquire the county-bank-year level deposit data from the FDIC Summary of Deposits survey for the period 1994-2022. Prior research (Cetorelli and Strahan, 2006; Bouwman and Malmendier, 2015; Goetz et al., 2016; Kundu et al., 2022) uses this data to trace out the geographic presence of CBs.

I aggregate deposits to the CSA-bank-year level and calculate CBs' local market shares. I then identify local CB consolidation episodes following a process analogous to Section 2.2 but substituting CB market shares for those of municipal bond underwriters. I also require that the CSA is not affected by within-market municipal bond underwriter consolidation around the onset of the CB consolidation episodes. My sample contains 1,424 CB pairs that engaged in within-market consolidation, and I identify 148 local CB consolidation episodes that would increase the *predicted* CB HHI by more than 100 points.

Panel C of Table 5 reports the estimated effects of CB consolidation on municipal bond underwriting spreads. I do not find an increase in underwriting spreads following CB consolidation. The patterns are similar when I consider episodes that would increase the combined market share of the top five CBs by more than 5%, or when I define local markets as CBSAs. These results indicate that my findings are specific to within-market underwriter consolidation and are unlikely to be driven by local economic conditions that broadly lead to financial institution consolidation.

3.3.4 Withdrawn M&As

My fourth placebo test focuses on withdrawn M&As. I obtain withdrawn underwriter M&As from both the SDC Platinum M&A Database and the SNL Financial M&A Database. I then calculate the would-be increase in HHI if these M&As had been completed and construct a

sample of local withdrawn M&A episodes. My sample includes 12 withdrawn M&As between same-market peers, and I identify 4 local withdrawn M&A episodes that would have increased the HHI by more than 50 points. In Panel D of Table 5, I show that there is no evidence of an increase in underwriting spreads following withdrawn M&As. The sample size is small relative to the other placebo tests, however. I find similar patterns when using a threshold of 20 points or when defining markets as CBSAs. These results are consistent with the conclusion that my findings are not driven by confounding factors that influence both successful and withdrawn M&As.

Prior research (Seru, 2014; Bena and Li, 2014; Bernstein, 2015) uses withdrawn M&As or IPOs as control groups to identify effects on firm outcomes. In Internet Appendix Table A14, I re-examine the effects of completed underwriter M&As using markets that experience withdrawn M&As as controls. For each market that experiences withdrawn M&As, I find a market that experiences completed M&As and is most similar in terms of local income and population. I then construct a sample in which issues in markets that experience completed M&As serve as the treated group and issues in markets that experience withdrawn M&As serve as the control. My main finding that underwriting spreads increase after underwriter consolidation continues to hold.

3.4 Other underwriting outcomes

The debate on antitrust regulation of M&As centers on two themes: market power and efficiency gains. While the evidence points to enhanced market power, M&As could create synergies and lower firms' marginal costs, which could be passed through to consumers or service users in the form of lower prices or improved products and services (Focarelli and Panetta, 2003; Sapienza, 2002; Erel, 2011). In this section, I examine whether municipal bond underwriter M&As generate synergies that benefit issuers.

3.4.1 Offering terms

The theoretical prediction for the effect of consolidation on the reoffering yield is ambiguous.[11] Under negotiated sales, underwriters with substantial market power have incentives to pressure issuers into accepting a lower reoffering price for two reasons.[12] First, underwriters bear significant inventory risk and exert considerable effort in marketing and distributing municipal bonds (Kidwell and Sorensen, 1983; Joehnk and Kidwell, 1984). Holding the underwriting spread constant, they naturally prefer a higher reoffering yield — i.e., a lower reoffering price — because it facilitates distribution and reduces inventory risk. Second, underwriters often act as dealers and can benefit from initial underpricing (Wall Street Journal, 2019). A large fraction of bonds change hands multiple times among investors and dealers within the first month of issuance. Dealers — often underwriters on the same bond issues — earn significant markups in the process.[13] Conversely, if the synergies from M&As substantially improve underwriters' capabilities, they may be able to market and distribute bonds at a higher reoffering price, thereby benefiting issuers. For example, underwriters might agree to a higher reoffering price under negotiated sales, or submit higher bids under competitive bidding.

I first examine how underwriter consolidation affects the yield spread over Treasury rates. Following Schwert (2017) and Li and Zhu (2019), I calculate the tax-adjusted spread of the reoffering yield over a comparable synthetic Treasury security. I present the findings in Table 6. The yield spread changes by -1.01 basis points (t = -0.67), which is not statistically signif-

[11]The reoffering yield is the yield calculated from the reoffering price. Following Green et al. (2007), I distinguish between the "issuer's proceeds" and the "reoffering price". The former is the price that underwriters promise to issuers and the latter is the price paid by initial investors to underwriters.

[12]I introduce the two commonly used methods of sales, competitive bidding and negotiated sales, in Internet Appendix Section III. Under negotiated sales, the underwriting spread is largely agreed upon when the underwriter is hired and before the reoffering price is set. Conditional on the underwriting spread, the underwriter's revenue does not decline with a lower reoffering price.

[13]Under competitive bidding, a lower reoffering price reduces the underwriting spread. Therefore, I expect the reoffering price to be determined by investor demand rather than by the underwriter's market power over issuers, and I do not expect underwriter consolidation to affect the reoffering price.

icant. Additionally, I find no significant effects when examining issues sold via competitive bidding or negotiated sales separately, or when using the spread over the Municipal Market Advisors AAA-rated curve (the "MMA curve") or the reoffering yield itself as the outcome variable.

Next, I calculate initial underpricing as a measure of underwriting quality. A high-quality underwriter prices bonds close to their fundamental value, thereby keeping issuers' interest costs low. Conversely, an underwriter that is of low quality or can manipulate offering terms price bonds at a discount, which can manifest in the dynamics of trading prices as initial underpricing. Following Garrett (2024), I calculate the difference between the day-15-to-day-30 average trading price of each bond and its price on the initial trading day. Column (5) of Table 6 shows that, for each unit of \$100 face value, initial underpricing increases by \$0.11 (t = 3.56) in markets affected by consolidation. This increase in underpricing is inconsistent with issuers benefiting from higher-quality underwriting. Instead, it suggests that powerful underwriters manipulate offering terms in ways that facilitate marketing and distribution. The effects are concentrated under negotiated sales with a magnitude of \$0.17 (t = 3.82), which is precisely where underwriters have the incentive and ability to influence offering terms.[14] These findings support the empirical relevance of underwriter market power as an explanation for initial underpricing in the municipal bond market, complementing Green et al. (2007) and Doan (2025).

In the final column, I examine how underwriter consolidation affects the number of bids in auctions for bonds sold via competitive bidding. The median (mean) number of bidders is 4.0 (4.1). I do not observe statistically significant changes. This test may lack statistical power, as The Bond Buyer started publishing bidding outcome data only after 2008. It may also indicate that a reduction in the number of bids is not necessary for consolidation to hinder competition.

[14]One caveat is that the trading data required for calculating initial underpricing are available only for 2005 and onwards.

Overall, my findings do not suggest that M&As create synergies that translate into lower financing costs. Notably, the null effects on the reoffering yield contradict the possibility that underwriters — operating in a two-sided market as the intermediaries between issuers and initial investors — gain enhanced monopoly power over initial investors after consolidation. A likely explanation is that many other classes of assets serve as substitutes for municipal bonds, thereby limiting underwriters' market power on the investor side.

3.4.2 Non-price efficiency gains

While I have shown that the reoffering yield does not change after consolidation, issuers could still benefit in other ways. I next examine how consolidation affects the use of other issuer-paid services — credit ratings, bond insurance, and financial advisors. Based on issues in California and Texas and conditional on using the service, the costs of credit ratings, bond insurance, and financial advisors as a fraction of the principal amount are 12.4, 80.4, and 49.8 basis points, respectively.

I first examine how consolidation affects the use of credit ratings. Although credit ratings are less costly than the underwriting spread, they nonetheless impose a financial burden on local governments (Joffe, 2017). It is possible that consolidation improves underwriters' ability to market and distribute bonds — through economies of scale, pooled expertise, or enhanced investor relationships — and that underwriters could therefore place the same bonds without third-party certification. Consequently, issuers might find it optimal not to incur the cost to solicit credit ratings. However, I do not find supportive evidence. In column (1) of Table 7, I observe a -1.8% (t = -1.2) change in the probability of obtaining credit ratings after consolidation, which is not statistically significant.

Prior research shows that good credit ratings causally and substantially lower the reoffering yield (Cornaggia et al., 2017; Adelino et al., 2017). Consequently, I expect that changes in the use of credit ratings, if any, should be concentrated in issues for which the incremental

benefits of credit ratings are minimal. Cornaggia et al. (2024) show that investors tend to view insured issues as having risks comparable to those of the insurer, which often has an excellent credit ratings. Motivated by this, I examine insured and uninsured issues separately. For insured issues — where the benefits of credit ratings should be smaller — the frequency of obtaining credit ratings changes by a larger -2.2% (t = -1.21) after consolidation, while the effect is essentially zero for uninsured issues (coefficient = 0.1%, t = 0.24). Although this pattern is consistent with credit ratings and bond insurance being substitutes (Cornaggia et al., 2022), the effects are not statistically significant, suggesting that any efficiency gains from underwriter consolidation are minimal.

Issuers may also be less likely to purchase bond insurance if a more capable underwriter can distribute the same bonds without additional credit guarantees. Additionally, consolidation may allow underwriters to acquire expertise that typically resides with financial advisors. Such in-house integration could reduce issuers' demand for formally hiring a financial advisor. I find that the insured ratio changes by -1.8% (t = -1.4) and the probability of hiring a financial advisor changes by -1.5% (t = -1.4) after consolidation. While the directions of these estimates are consistent with efficiency gains, they are not statistically significant. I also examine whether the effects differ depending on whether the underwriter engages in the M&As. Although the point estimates are more negative, they are marginally significant only when the outcome variable is the insured ratio (coefficient = -2.6%, t = -1.8) and insignificant otherwise. Overall, the evidence of efficiency gains, if any, is weak.

Next, I examine how underwriter consolidation affects total issuance expenses, defined as the underwriting spread plus credit rating fee, bond insurance fee, and financial advisor fee. While I observe whether an issuer uses credit ratings, bond insurance, or financial advisors for all bond issues, the data on the fees are available only for the states of California and Texas. To address this limitation, I estimate a statistical model of these fees using the combined California and Texas samples. I incorporate the explanatory variables outlined in Cornaggia et al. (2022), including county population and income, maturity length, principal

amount, method of sales, taxable status, source of repayment, and whether the issuer has a prior relationship with the service provider. I then impute fees for all issues using the model-predicted values. I find in Panel A of Table A15 that total issuance expenses increase by 4.6 basis points (t = 2.3) after consolidation, consistent with the limited evidence of efficiency gains.

A remaining concern is that some underwriters also serve as broker-dealers, and their M&As improve secondary-market liquidity, thereby benefiting issuers. However, the evidence on the reoffering yield does not support this possibility, as improvements in secondary-market liquidity should lead to reduced reoffering yields. Nevertheless, I construct liquidity measures following Chernenko and Doan (2022) and Bagley et al. (2023), assemble a CUSIP-year level treatment-control matched sample, and examine how liquidity evolves after consolidation. My findings are reported in Internet Appendix Table A16. I do not observe statistically significant changes in the number of trades, trading volume, or dealer markups, suggesting that the M&As in my sample do not improve secondary-market liquidity.

4 Additional Evidence and Discussion

4.1 Evidence from local government finances

In this section, I investigate how municipal bond underwriter consolidation affects local government finances using data from the Annual Survey of State and Local Government Finances conducted by the U.S. Census Bureau (Pierson et al., 2015; Adelino et al., 2017; Yi, 2021). Each year, the Census Bureau surveys local governments on revenues, expenditures, and other aspects of their finances. I construct outcome variables including interest paid, issuance amount, and budget surplus. The numbers of distinct counties, townships, municipalities, and school districts in the sample are 1,778, 14,019, 10,233, and 12,903, respectively.[15] I

[15]The school districts in the Annual Survey of State and Local Government Finances are independent school districts. Dependent school districts, whose finances are controlled by the county, township, or

provide summary statistics in Table A17 and variable definitions in Internet Appendix Table A1. For counties, townships, and municipalities, the average annual revenue per capita is $1,290, and the expenditure per capita is $1,314. Interest payments account for 3.0% of total expenditures, and the quantity of debt issuance is equivalent to 5.9% of expenditures. For school districts, the average annual revenue per student is $13,321 and spending is $14,947. Interest payments account for 2.0% of total expenditures, and the average ratio of issuance amount to total expenditures is 5.5%.

I construct a treatment-control matched sample using local-government-year level observations and estimate the following model,

$$y_{l,t,c} = \beta_1 Treated_{a,c} \times Post_{c,t} + \theta_{l,c} + \theta_{c,t} + e_{l,t,c}, \tag{4}$$

where the new index l denotes each local government. I double-cluster standard errors at the CSA and calendar-year levels and report my findings in Table 8. I find that the issuance amount, expressed as a ratio to total expenditures, decreases by 0.79 percentage points (p.p.) (t = -2.99) and does not exhibit pre-treatment differential trends, as shown in Panel B of Internet Appendix Figure A6. For a median county affected by consolidation, this corresponds to a reduction in debt issuance of $2.35 million.[16] The interest payments as a ratio to total expenditures change by 0.04 p.p. for local governments in CSAs affected by underwriter consolidation, which is not statistically significant (t = 0.64). The budget surplus ratio, defined as total revenues minus total expenditures and then scaled by total expenditures, changes by -0.97 p.p. to the negative direction (t = -1.47). Although the direction is consistent with an overall deterioration in local government financial health, the effect is not statistically significant. Internet Appendix Table A18 shows that the findings are

municipality that they depend on, are not part of the survey (U.S. Census Bureau, 2006).

[16]As a comparison, Adelino et al. (2017) show that a 14 basis points drop in bond yields due to the recalibration of Moody's ratings scale leads to a 20% increase in local government issuance amount. The price-quantity elasticity in my sample appears stronger, possibly because the underlying relationship is concave and my estimates capture a steeper segment of the curve.

largely robust to addressing endogeneity concerns and potential confounding factors. Overall, the evidence suggests that local governments reduce their use of the public financing market following underwriter consolidation.

4.2 Predicting consolidation

In this section, I examine which demographic, economic, and market characteristics predict within-market consolidation. Column (1) of Internet Appendix Table A19 reports the regression of the *predicted* Δ_{HHI} over the next three years on lagged explanatory variables including underwriter HHI, local population, population growth rate, local income, income growth rate, population age, minority share, and past issuance per capita. I find that no variable statistically significantly predicts consolidation. Column (2) shows statistically significant relationships between an indicator for *predicted* Δ_{HHI} exceeding 100 and two explanatory variables, prior HHI and population growth rate, although the magnitudes are small. A 1% higher population growth rate is associated with a 0.69% higher probability of *predicted* Δ_{HHI} due to consolidation exceeding 100. A 100 points higher lagged HHI is associated with a 0.12% lower probability. Next, I re-estimate the regression specification (2) while controlling for variables that significantly predict consolidation in column (3) and while controlling for all variables in column (4). The main findings remain consistent across these specifications, indicating that the findings are not driven by local demographic, economic, or market characteristics that could jointly influence consolidation and underwriting spreads.

4.3 Commercial bank consolidation

Prior research has documented negative effects of commercial bank (CB) consolidation on local economies. Garmaise and Moskowitz (2006) find that large CB M&As result in higher interest rates, diminished local construction, and higher property crime rates. Nguyen (2019)

reports similar findings for small business lending. It is possible that CB consolidation, by reducing loan creation and slowing business dynamism, puts strain on tax revenues or creates additional expenditures, thereby decreasing local governments' creditworthiness and leading to higher compensation for underwriting. Furthermore, some local governments borrow from private banks (Bergstresser and Orr, 2014; Ivanov and Zimmermann, Forthcoming), and CB M&As may raise the costs of private financing and increase the demand for municipal bond underwriting, which in turn leads to higher underwriting spreads.

While I show in Section 3.3.3 that CB M&As alone do not lead to higher underwriting spreads, this may not fully address the concern above. The effects of CB M&As could be heterogeneous, increasing the underwriting spread only when there is concurrent investment bank consolidation. Therefore, I restrict the local consolidation episodes to those without concurrent CB M&As that increase the local CB HHI by more than 100 (50). In Panel E (F) of Table 4, I show that my main findings remain robust, indicating that CB consolidation is not a crucial confounding factor in my analysis.

4.4 Discussion

Regulatory attention Historically, initiatives to scrutinize competitiveness among security underwriters have been limited. The Department of Justice (DOJ) launched an investigation in 1999 into whether investment banks conspired to fix IPO underwriting spreads, but dropped the probe two years later after finding no evidence of collusion (Wall Street Journal, 2001). A similar investigation by UK authorities in 2010 reached the same conclusion (The Times, 2011). Nonetheless, concerns about potential collusion persist. For instance, the OECD noted in a report that in the IPO market, "high levels of fees and parallel pricing (akin to tacit collusion) appear to have increased" (Financial Times, 2017). Underwriter market power may have also contributed to the decline in U.S. IPOs in recent decades, alongside the regulatory costs of being public (Ewens et al., 2024) and the growing

supply of private capital (Ewens and Farre-Mensa, 2020).

Impediments to competition in settings outside IPOs have received even less attention. A rare exception is the prohibition on municipal advisors simultaneously acting as underwriters (Garrett, 2024). Recently, a class-action lawsuit filed by Baltimore, Philadelphia, and San Diego alleged that eight major banks conspired to raise the rates on local government financing, potentially causing billions of dollars in damages (Reuters, 2019; Banking Dive, 2023).

Findings generalizability My findings might not necessarily generalize to corporate security underwriting. On the one hand, comptrollers for counties and cities and superintendents for school districts, who oversee bond issuance, may have less specialized or effective financial training than corporate CFOs. Consequently, local governments might be more susceptible to underwriter market power. On the other hand, corporate security underwriting typically involves larger deal sizes, which provide greater per-deal collusive benefits and may give underwriters stronger incentives to coordinate. I look forward to future research on corporate security underwriters that builds upon the contributions of Chen and Ritter (2000), Hansen (2001), Liu and Ritter (2011), and Manconi et al. (2019), which will offer a more comprehensive answer to the broader question of the implications of underwriter market power.

Industry trends Internet Appendix Figure A7 shows that the average underwriter HHI initially declined from around 2,000 in 1970 to roughly 1,000 in 1990, and then gradually rose back to around 1,500 by 2022. The average underwriting spread, on the other hand, increased from around 140 basis points in 1970 to a peak of over 200 basis points in the early 1980s, and has experienced a secular decline since then. The simultaneous increase in HHI and decline in underwriting spreads in recent decades is not at odds with my findings. Rather, the shrinking spread has been driven by factors including the entry of commercial

banks hastened by the Gramm-Leach-Bliley Act (The American Banker, 1988; U.S. Congress, 1999), the advancement of business automation technologies, increased market transparency (Hund et al., 2024), and anti-corruption initiatives (Butler et al., 2009). By empirical design, my findings are interpreted as, holding everything else constant, greater market concentration leads to higher underwriting spreads. I also predict that, under the counterfactual of no consolidation, underwriting spreads would have declined even further.

Other efficiency gains Underwriters might benefit from M&As in several ways. They might avoid redundancy, spread regulatory and compliance costs over larger operations, strengthen investor relationships, or expand distribution networks. Despite these possibilities, I show that any such gains do not translate into lower financing costs or the substitution of other issuer-paid services. From the standpoint of taxpayers and the general public, on whom the repayment obligations of municipal bonds ultimately fall, the effects of underwriter consolidation are detrimental.

5 Conclusion

Using the geographically fragmented municipal bond underwriting market, I find that underwriting spreads increase following underwriter consolidation. My examinations of M&As less likely to be influenced by local economic conditions, combined with four placebo tests, help establish causality. Cross-sectional heterogeneity points to enhanced market power as the underlying mechanism. From the issuers' standpoint, the efficiency gains from consolidation, if any, do not offset the increase in the underwriting spread. Additionally, Census data suggest that local governments reduce their issuance amount following consolidation.

Amidst a new and wide-ranging antimonopoly movement, concerns about the structure of the American banking system and concentrated financial power have taken center stage (Grischkan, 2024). Former President Biden signed an executive order directing the DOJ to

heighten scrutiny of bank M&As (Reuters, 2021) and expressed support for bank antitrust reform (Reuters, 2023). The discussion, however, has focused primarily on deposit-taking and lending activities (Tarullo, 2022; Kress, 2022).

My paper highlights an often-overlooked aspect — investment banking activities — which fall outside traditional regulatory focus yet have significant implications for security issuers. There appears to be a regulatory gap concerning investment bank consolidation in the U.S. While regulators have scrutinized M&As among deposit-taking financial institutions, many of which also engage in investment banking activities, they typically consider how these transactions affect depositors and borrowers, but not their investment banking clients. The SEC, the primary regulator of investment banks in the U.S., has predefined mandate that does not include competition-based merger review. Moreover, investment bank M&As, particularly those among local and regional firms, often fall below the Hart-Scott-Rodino reporting threshold for pre-notification to the Federal Trade Commission and the DOJ, which is $119.5 million for a transaction in 2024.

Calling for antitrust attention to investment banking activities, my findings lead to several specific suggestions. First, regulators should consider the competitive landscape of more narrowly defined markets, especially in settings with entry barriers and geographic segmentation. This echoes the insights of Benson et al. (2024) for commercial banking and Wollmann (2019, 2023) for healthcare markets. Second, to identify scenarios where the price effects of consolidation are most pronounced, regulators can follow simple rules based on market concentration and the *predicted* increase in underwriter HHI. This approach parallels the existing test based on deposit market shares that regulators use for commercial bank M&As. Third, my analysis underscores the importance of evaluating both the benefits and costs of M&As using an evidence-based approach. In the case of municipal bond underwriter consolidation, there is little evidence of efficiency gains that benefit issuers. Hence, the costs of investment bank M&As significantly outweigh any benefits from the standpoint of the issuers and the general public.

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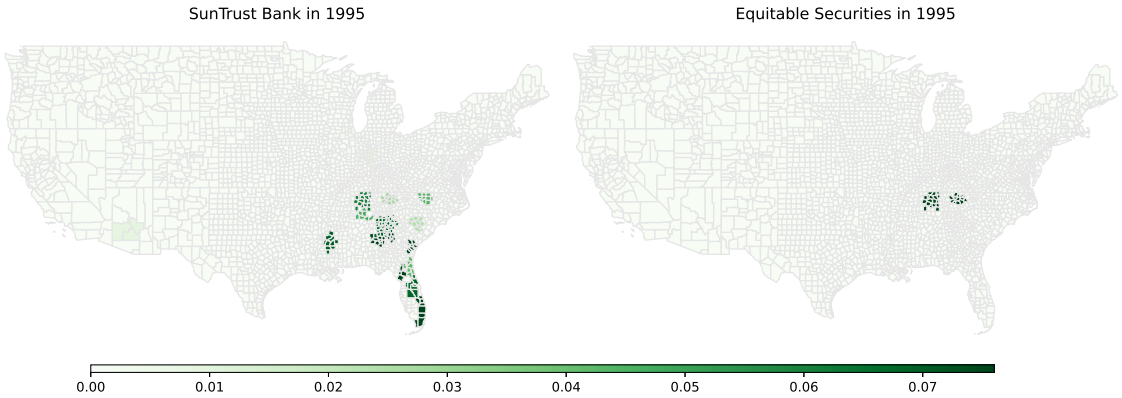
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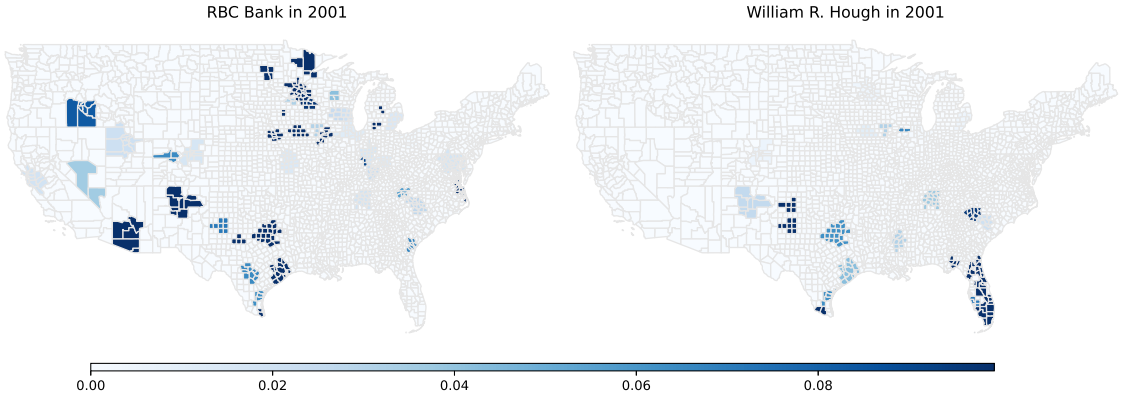
A. Figures

Figure 1: Local Market Share of Merging Underwriters

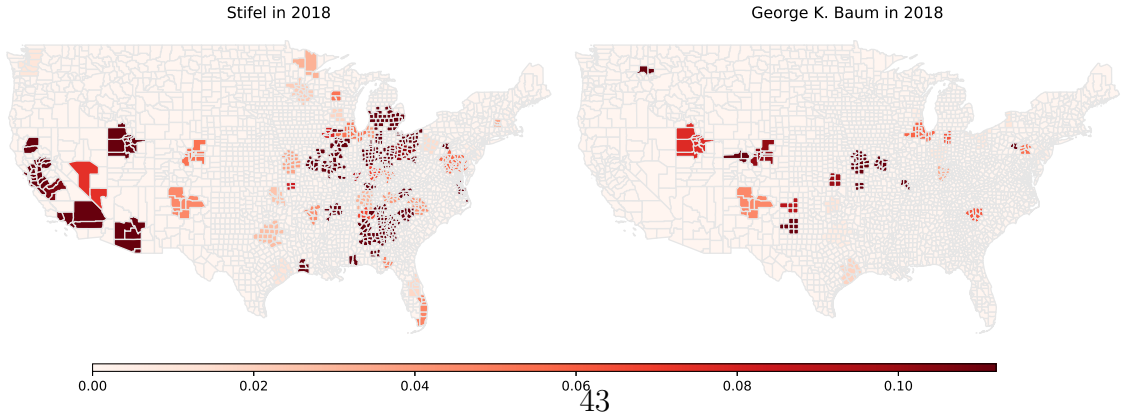
Panel A: SunTrust Bank and Equitable Securities



Panel B: RBC Bank and William R. Hough

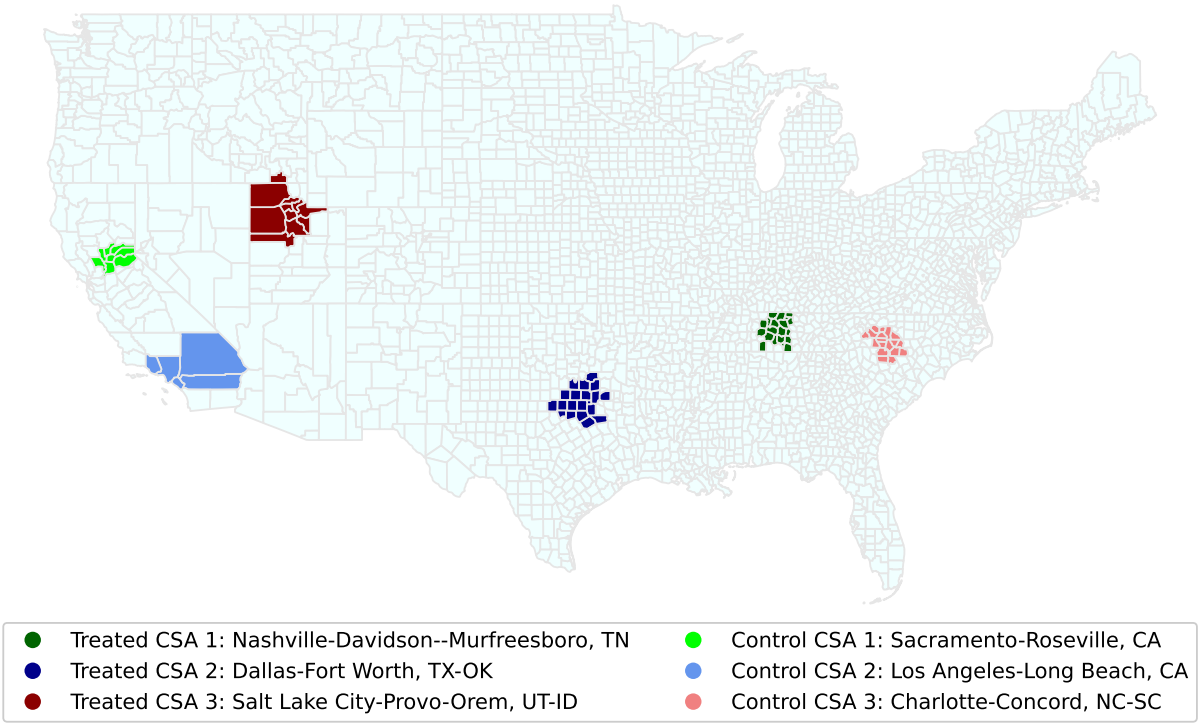


Panel C: Stifel and George K. Baum



Note: This figure shows three examples of municipal bond underwriter M&As. I plot the market shares of each bank in each CSA in the year prior to consolidation. Darker shades represents higher market shares.

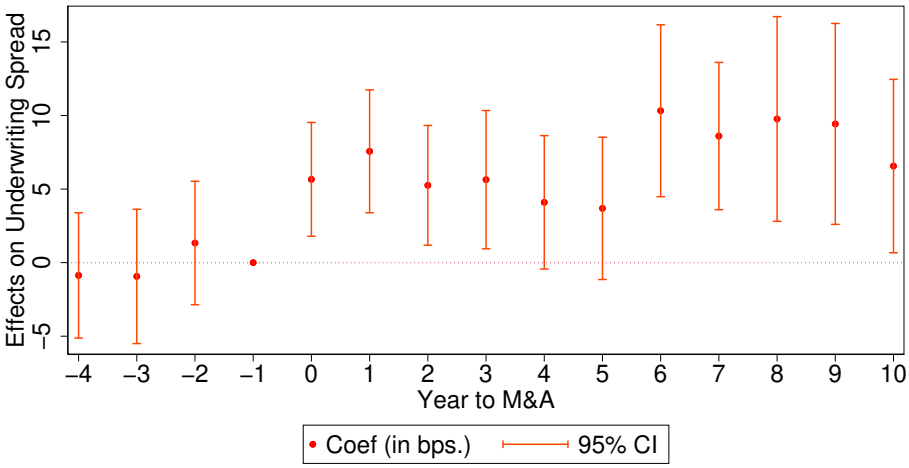
Figure 2: Illustration of Treatment-Control Matched Sample



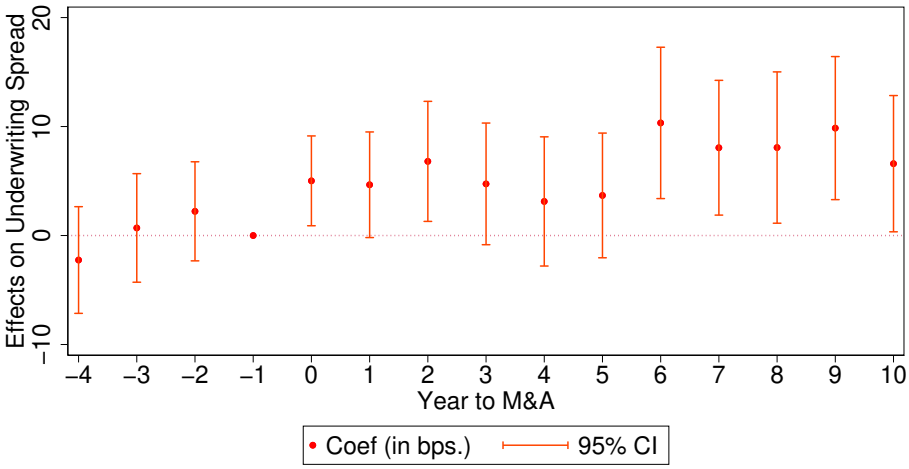
Note: This figure shows three consolidation-affected CSAs along with their matched controls. For each treated CSA, I find a control CSA that most closely resembles the treated in terms of local income and population based on the Mahalanobis distance, *and* does not experience within-market consolidation in the $t-4$ to $t+4$ time period around the onset of the local consolidation episode.

Figure 3: Effects of Consolidation on Underwriting Spread

Panel A: *Predicted* $\Delta_{HHI} >= 100$



Panel B: *Predicted* $\Delta_{Top\,5\ Share} >= 5\%$



Note: This figure plots the evolvement of the underwriting spread for issues in treated CSAs relative to control CSAs. Panel A uses treated CSAs with *predicted* $\Delta_{HHI} >= 100$. Panel B uses treated CSAs with *predicted* $\Delta_{Top\,5\ Share} >= 5\%$. I estimate the following regression

$$y_{d,c} \quad = \quad Treated_{a,c} \times \Big(\sum_{s=-4}^{-2} \gamma_s \times \mathbb{1}(\tau = s)_{c,t} + \sum_{s=0}^{10} \gamma_s \times \mathbb{1}(\tau = s)_{c,t} \Big) + \theta_{i,c} + \theta_{c,t} + e_{d,c}. \tag{5}$$

Here t represents the calendar year and τ represents the year relative to the onset of the local consolidation episode. $\mathbb{1}(\tau = s)_{c,t}$ is a dummy variable that turns on if the bond issuance occurs $-s$ years before the treatment (for $s = -4, -3, -2$) or s years after the treatment (for $s = 0, 1, 2, \ldots, 10$). I plot the estimates for each γ_s along with their 95% confidence intervals. Standard errors are double-clustered at the CSA and calendar-year levels.

B. Tables

Table 1: Summary Statistics

	Mean	SD	25%	Median	75%	N
Panel A: SDC Sample						
Amount ($ Million)	28.9	64.2	3.1	8.5	23.5	442,091
Maturity (Years)	5.9	7.6	1.0	1.6	9.2	278,700
Underwriting Spread (bps.)	103.0	65.4	55.0	89.0	140.0	162,001
Reoffering Yield (bps.)	351.0	216.4	165.0	355.0	497.4	277,964
Reoffering Yield Spread over Treasury (bps.)	90.1	83.1	30.9	66.5	133.3	255,201
Reoffering Yield Spread over MMA (bps.)	47.2	73.8	5.0	23.0	63.4	176,499
Initial Underpricing ($)	0.4	1.4	–0.2	0.3	1.2	82,195
Total Issuance Expenses (bps.)	138.1	84.1	75.0	125.0	190.0	156,304
Total Issuance Expenses, Year FE (bps.)	131.5	90.0	64.1	110.0	181.5	103,208
Number of Bidders	4.07	2.56	2.00	4.00	5.00	59,548
Method of Sale: Competitive Bidding	0.48	0.50	0.00	0.00	1.00	442,091
Method of Sale: Negotiated Sales	0.48	0.50	0.00	0.00	1.00	442,091
Method of Sale: Private Placement	0.04	0.20	0.00	0.00	0.00	442,091
Tax Status: Tax Exempt	0.91	0.29	1.00	1.00	1.00	442,091
Tax Status: Taxable	0.06	0.24	0.00	0.00	0.00	442,091
Tax Status: Alternative Minimum Tax	0.03	0.17	0.00	0.00	0.00	442,091
Soource of Repayment: General Obligation	0.66	0.47	0.00	1.00	1.00	442,091
Soource of Repayment: Revenue	0.34	0.47	0.00	0.00	1.00	442,091
Has Advisor	0.49	0.50	0.00	0.00	1.00	442,091
Has Credit Rating	0.15	0.36	0.00	0.00	0.00	442,091
Insured Ratio	0.18	0.39	0.00	0.00	0.00	442,091
If Insured	0.19	0.39	0.00	0.00	0.00	442,091
If Commercial Banks Eligible	0.87	0.34	1.00	1.00	1.00	442,091
Panel B: Local Consolidation Episodes						
Acquiror Market Share	0.12	0.09	0.05	0.09	0.17	219
Target Market Share	0.11	0.09	0.04	0.08	0.15	219
Δ_{HHI}	285.8	295.3	124.9	187.3	308.2	219
Panel C: California & Texas Sample						
Financial Advisor Fee (bps.)	72.0	69.6	18.0	45.5	101.3	25,920
Credit Rating Fee (bps.)	15.7	12.5	7.5	12.0	19.8	30,131
Insurance Fee (bps.)	59.2	72.2	3.3	33.8	82.3	18,710

Note: All variables are winsorized at the 1% and 99% percentiles. Variable definitions are available in Internet Appendix Table A1.

Table 2: Effects of Consolidation on Underwriting Spread

	Predicted $\Delta_{HHI} >= 100$		*Predicted* $\Delta_{Top\ 5\ Share} >= 5\%$	
	(1)	(2)	(3)	(4)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Panel A: [–4, +4]				
Treated × Post	4.65***	7.20***	3.80**	7.62***
	(3.04)	(4.30)	(2.21)	(4.87)
Observations	79,553	76,228	74,191	63,027
Adjusted R-squared	0.532	0.537	0.508	0.532
Panel B: [–4, +7]				
Treated × Post	5.86***	8.37***	5.24***	9.16***
	(4.19)	(4.57)	(3.13)	(5.16)
Observations	111,684	105,920	104,179	88,395
Adjusted R-squared	0.520	0.526	0.501	0.523
Panel C: [–4, +10]				
Treated × Post	6.89***	10.56***	6.01***	11.16***
	(3.94)	(5.06)	(3.04)	(5.33)
Observations	142,118	134,881	133,179	112,999
Adjusted R-squared	0.517	0.520	0.497	0.517
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CBSA & Year	CSA & Year	CBSA & Year

Note: In this table, I report the estimates from the double-differences regression specification (2) using the underwriting spread as the outcome variable. Columns (1) and (2) use local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$. Columns (3) and (4) use local consolidation episodes with *predicted* $\Delta_{Top\ 5\ Share} >= 5\%$. The market is defined as a CSA in columns (1) and (3) and as a CBSA in columns (2) and (4). The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in Panel A (B/C). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels in columns (1) and (3) and at the CBSA and calendar-year levels in columns (2) and (4). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Cross-Sectional Heterogeneity in Effects of Consolidation on Underwriting Spread

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]
Panel A: By the significance of M&A			
Predicted Δ_{HHI} in [100,200)	3.75**	5.07***	5.91***
	(2.30)	(3.16)	(3.08)
Predicted $\Delta_{HHI} \geq 200$	7.28***	8.13***	9.67***
	(3.16)	(4.57)	(4.91)
Panel B: By pre-consolidation HHI			
HHI in [0,1000)	5.18***	5.92***	7.40***
	(3.27)	(5.25)	(5.61)
HHI in [1000,2500)	4.11*	5.71**	6.89**
	(2.00)	(2.48)	(2.49)
HHI $\geq$ 2500	9.44	11.70*	11.03**
	(1.31)	(1.72)	(2.02)
Panel C: By if having financial advisor			
If has advisor	3.04*	3.20**	4.33**
	(1.69)	(2.04)	(2.45)
If no advisor	5.10**	7.29***	7.97***
	(2.31)	(3.36)	(3.34)
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: In this table, I report the findings from the regression specification (3) using the underwriting spread as the outcome variable. Panel A presents findings when the sample is divided by the significance of merging underwriters in the treated CSA, measured as the *predicted* Δ_{HHI} for the treated CSA due to consolidation. Panel B presents findings when the sample is divided by the degree of market concentraion in the CSA prior to the onset of the local consolidation episode. Panel C presents findings when the sample is divided by whether the issuer is using a financial advisor. The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in column (1) ((2)/(3)). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Effects of Consolidation on Underwriting Spread, Using Local Consolidation Episodes Less Confounded by Endogeneity Concerns or Alternative Explanations

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]
Panel A: All M&As have rationales likely unrelated to local economic conditions			
Treated × Post	4.85	5.53*	5.90*
	(1.53)	(1.85)	(1.74)
Observations	26,414	37,563	48,437
Adjusted R-squared	0.537	0.528	0.517
Panel B: Further exclude M&As driven by financial distress of the target			
Treated × Post	4.50	4.39	4.05
	(1.35)	(1.42)	(1.18)
Observations	20,514	28,543	36,781
Adjusted R-squared	0.541	0.517	0.506
Panel C: CSA makes up ≤ 5% of the total businesses of the merging underwriters			
Treated × Post	7.25**	9.76***	9.92***
	(2.19)	(3.53)	(3.61)
Observations	7,738	11,174	14,605
Adjusted R-squared	0.559	0.547	0.547
Panel D: Affected and neighbouring CSAs make up ≤ 5% of the total businesses of the merging underwriters			
Treated × Post	8.33***	9.97***	10.49***
	(2.91)	(4.46)	(4.49)
Observations	3,301	4,887	6,470
Adjusted R-squared	0.628	0.598	0.586
Panel E: Exclude local consolidation episodes with concurrent CB M&As ≥ 100			
Treated × Post	8.04***	9.75***	11.65***
	(4.52)	(5.43)	(5.09)
Observations	38,886	51,816	63,214
Adjusted R-squared	0.484	0.476	0.475
Panel F: Exclude local consolidation episodes with concurrent CB M&As ≥ 50			
Treated × Post	7.81***	9.33***	11.05***
	(4.19)	(5.03)	(4.99)
Observations	36,083	47,804	58,050
Adjusted R-squared	0.488	0.481	0.481
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: In this table, I report the estimates from the double-differences regression specification (2) using the underwriting spread as the outcome variable. In Panels A and B, I report the estimates from a subsample where all M&As in the local consolidation episodes are *not* driven by reasons possibly related to local economic conditions according to the news articles. Panel A excludes local consolidation episodes with M&As driven by "acquiror's intent to gain local/regional dominance" or "acquiror's intent to expand geographically", or M&As for which reported reasons are unavailable. Panel B additionally excludes M&As driven by "financial distress of the target". In Panel C, I report the estimates from a subsample where the treated CSAs account for a small percentage (less than 5%) of the total businesses of the merging underwriters. In Panel D, I further require that both the treated CSA and all its neighbouring CSAs make up less than 5% of the total businesses of the merging underwriters. In Panel E (F), I require that around the onset of the local consolidation episodes there is no concurrent commercial bank consolidation that would increase the degree of local commercial bank HHI by more than 100 (50). The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in column (1) ((2)/(3)). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Placebo Tests for Effects of Consolidation on Underwriting Spread

Panel A: Effects in markets without simultaneous presence

	Market Share >= 10%		Market Share > 0%	
	(1)	(2)	(3)	(4)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Treated × Post	-3.18	-0.21	-0.67	0.61
	(-1.37)	(-0.11)	(-0.51)	(0.40)
Observations	33,855	53,940	118,367	113,861
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year
If Similar Population	No	Yes	No	Yes
Adjusted R-squared	0.626	0.623	0.594	0.589

Panel B: Effects of cross-market M&As

	Market Share > 5%		Market Share > 10%	
	(1)	(2)	(3)	(4)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Treated × Post	0.24	0.81	-0.70	0.07
	(0.16)	(0.65)	(-0.30)	(0.05)
Observations	66,910	95,590	33,181	53,354
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CBSA & Year	CSA & Year	CBSA & Year
Market Definition	CSA	CBSA	CSA	CBSA
Adjusted R-squared	0.534	0.543	0.527	0.553

Panel C: Effects of commercial banks consolidation

	Predicted $\Delta_{CB\ HHI}$ >= 100		*Predicted* $\Delta_{CB\ Top\ 5\ Share}$ >= 5%	
	(1)	(2)	(3)	(4)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Treated × Post	2.19	0.01	2.55	-3.23
	(0.86)	(0.00)	(0.96)	(-1.46)
Observations	10,911	16,212	8,015	12,919
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CBSA & Year	CSA & Year	CBSA & Year
Market Definition	CSA	CBSA	CSA	CBSA
Adjusted R-squared	0.525	0.524	0.487	0.516

Table 5: Placebo Tests for Effects of Consolidation on Underwriting Spread (Continued)

Panel D: Effects of withdrawn M&As

	Predicted $\Delta_{HHI} >= 50$		*Predicted* $\Delta_{HHI} >= 20$	
	(1)	(2)	(3)	(4)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Treated × Post	-6.89	-8.35	-5.74	-25.18**
	(-0.61)	(-0.44)	(-1.55)	(-2.19)
Observations	118	453	1,347	1,078
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CBSA & Year	CSA & Year	CBSA & Year
Market Definition	CSA	CBSA	CSA	CBSA
Adjusted R-squared	0.146	0.300	0.475	0.459

Note: In this table, I report the estimates from the double-differences regression specification (2) using the underwriting spread as the outcome variable. In Panel A, I examine the effects in markets where underwriters do not have simultaneous presence. In columns (1) and (3), I randomly select a CSA where no within-market consolidation takes place *and* an underwriter that engages in within-market consolidation in another CSA has a market presence. Columns (2) and (4) additionally require the population size to be similar to those treated with within-market consolidation. In columns (1) and (2), I require that the underwriter has a more than 10% local market share. In columns (3) and (4), I allow the underwriter to have any positive local market share. In Panel B, the treatment is cross-market M&As between underwriters that do not have any geographic overlaps in their municipal bond underwriting businesses. I define treated markets as markets where one side of the merging underwriters has more than 5% (10%) market share in columns (1) and (2) ((3) and (4)). The market is defined as a CSA in columns (1) and (3) and as a CBSA in columns (2) and (4). In Panel C, the treatment is within-market consolidation among commercial banks that would lead to an increase of the *CB HHI* above 100, i.e., the HHI based on local deposit market shares of commercial banks, or an increase of the *CB Top 5 Share* above 5%. The market is defined as a CSA in columns (1) and (3) and as a CBSA in columns (2) and (4). In Panel D, the treatment is withdrawn M&As among municipal bond underwriters that would increase market concentration if they had been completed. I use withdrawn M&As that would hypothetically lead to a Δ_{HHI} greater than 50 (20) in columns (1) and (2) ((3) and (4)). The market is defined as a CSA in columns (1) and (3) and as a CBSA in columns (2) and (4). Across all Panels, the time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels or at the CBSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Effects of Consolidation on Offering Terms

	(1) Yield Spread over Treasury (bps.)	(2) Yield Spread over Treasury (bps.)	(3) Yield Spread over MMA (bps.)	(4) Reoffering Yield (bps.)	(5) Initial Under-pricing	(6) Initial Under-pricing	(7) N of Bids
Treated × Post	-1.01		1.38	-2.68	0.11***		0.08
	(-0.67)		(0.49)	(-0.72)	(3.56)		(0.75)
Treated × Post × Competitive Bidding		-3.85				-0.01	
		(-1.40)				(-0.13)	
Treated × Post × Negotiated Sales		-0.10				0.17***	
		(-0.05)				(3.82)	
Observations	143,894	143,894	83,884	157,511	33,216	33,216	22,063
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Adjusted R-squared	0.396	0.409	0.426	0.697	0.131	0.139	0.455

Note: In this table, I study the effects of local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ on the offering terms. I report the estimates from the double-differences regression specification (2). Columns (1) uses the tax-adjusted reoffering yield spread over Treasury securities as the outcome variable. Column (2) uses the tax-adjusted reoffering yield spread over Treasury securities as the outcome variable and examines effects separately for different methods of sales. Column (3) uses the reoffering yield spread over the Municipal Market Advisors AAA-rated curve (the "MMA curve") as the outcome variable. Column (4) uses the reoffering yield as the outcome variable. Column (5) uses initial underpricing for each unit of $100 face value as the outcome variable. Column (6) uses initial underpricing as the outcome variable and examines effects separately for different methods of sales. Column (7) uses the number of bids in auctions for bond issuances via competitive bidding as the outcome variable (Garrett et al., 2022; Garrett, 2024). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Effects of Consolidation on Use of Credit Rating, Bond Insurance, and Financial Advisor

	(1) Has Rating	(2) Has Rating	(3) Has Rating	(4) Insured Ratio	(5) Insured Ratio	(6) Has Advisor	(7) Has Advisor
Treated × Post	-0.018			-0.018		-0.015	
	(-1.24)			(-1.39)		(-1.41)	
Treated × Post × Bank is not in M&A		-0.018			-0.016		-0.015
		(-1.12)			(-1.05)		(-1.25)
Treated × Post × Bank is in M&A		-0.023			-0.026*		-0.021
		(-1.39)			(-1.80)		(-1.56)
Treated × Post × If Insured			-0.022				
			(-1.21)				
Treated × Post × If Not Insured			0.001				
			(0.24)				
Observations	249,165	249,165	249,165	249,165	249,165	249,165	249,165
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Adjusted R-squared	0.408	0.408	0.889	0.425	0.425	0.630	0.630

Note: In this table, I study the effects of local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ on whether the bond issue has credit ratings, the insured ratio, and whether the issuer hires a financial advisor. Columns (1), (4), and (6) report the estimates from the double-differences regression specification (2). Column (3) reports the estimates from the regression specification (3) where the sample is divided by whether the bond is insured. Columns (2), (5), and (7) report the estimates from the regression specification (3) where the sample is divided by whether the underwriter is involved in M&As that increase local market concentration. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: Effects of Consolidation on Local Government Finances

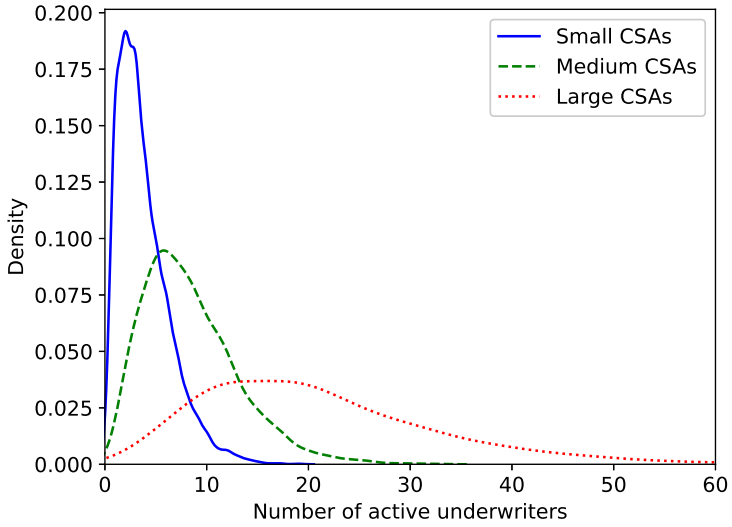
	(1) Issuance/ Exp. (in %)	(2) Interest Paid/ Exp. (in %)	(3) Budget Surplus/ Exp. (in %)
Treated × Post	–0.79***	0.04	–0.97
	(–2.99)	(0.64)	(–1.47)
Observations	361,463	361,463	361,463
Adjusted R-squared	0.104	0.735	0.426
Government × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: In this table, I examine local government finances outcomes and report the estimates from the double-differences regression specification (4). Variables are expressed as ratios to the total expenditures of the local government and definitions are provided in Internet Appendix Table A1. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Internet Appendix

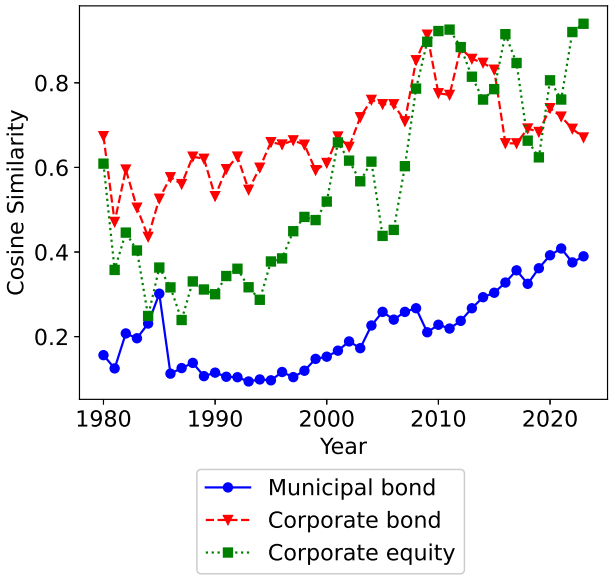
I. Internet Appendix Figures

Figure A1: Distribution of Number of Active Underwriters in a CSA



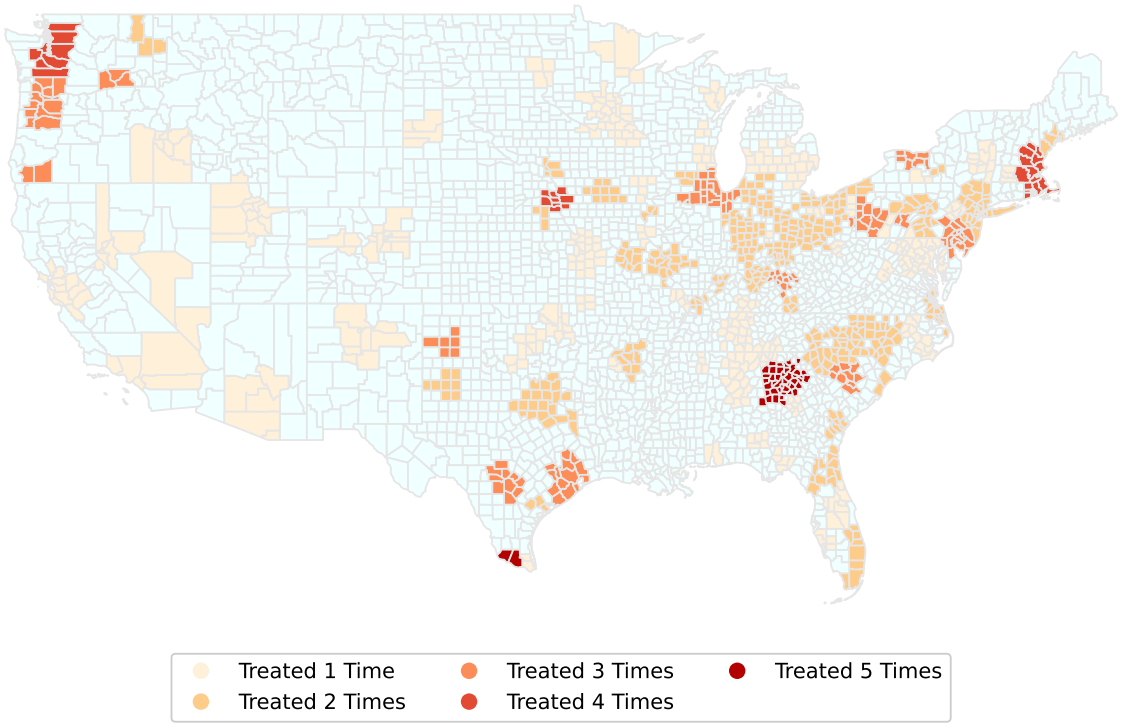
Note: This figure plots the kernel density of the distribution of the number of active underwriters in a CSA in a certain year. I divide all CSAs into three equal-sized groups based on annual total issuance amounts and plot the kernel density within each group.

Figure A2: Underwriter Similarity for State-Pairs by Security Type



Note: This figure plots the average cosine similarity of underwriter market shares in each pair of states for municipal bonds, corporate bonds, and corporate equity, respectively, from 1980 to 2022.

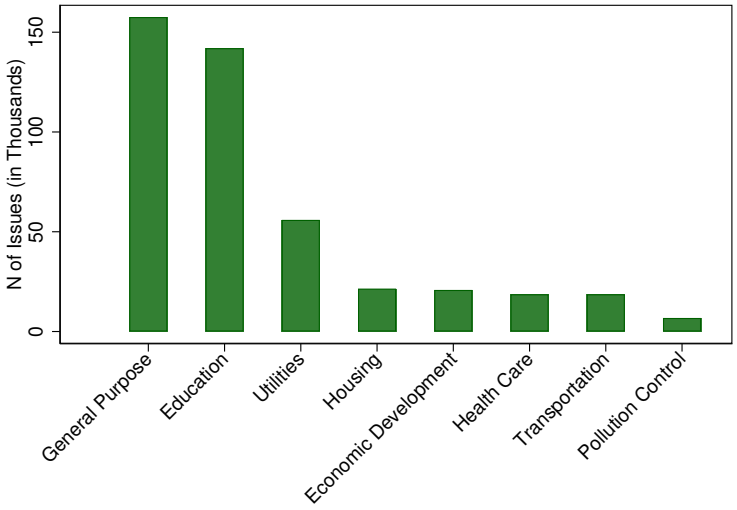
Figure A3: Frequency of Treatments by CSA



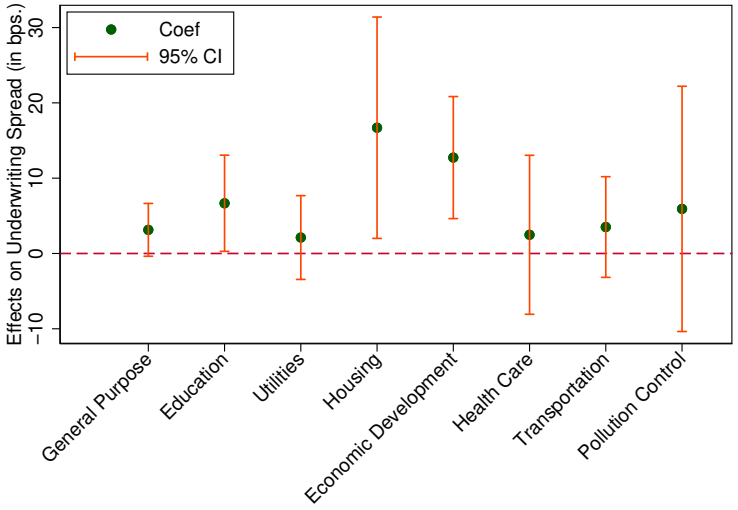
Note: This figure plots the frequency of treatments, i.e., local consolidation episodes, for each CSA in the U.S. during the sample period of 1970 to 2022.

Figure A4: Effects of Consolidation on Underwriting Spread by Main Use of Proceeds

Panel A: Number of issues by main use of proceeds

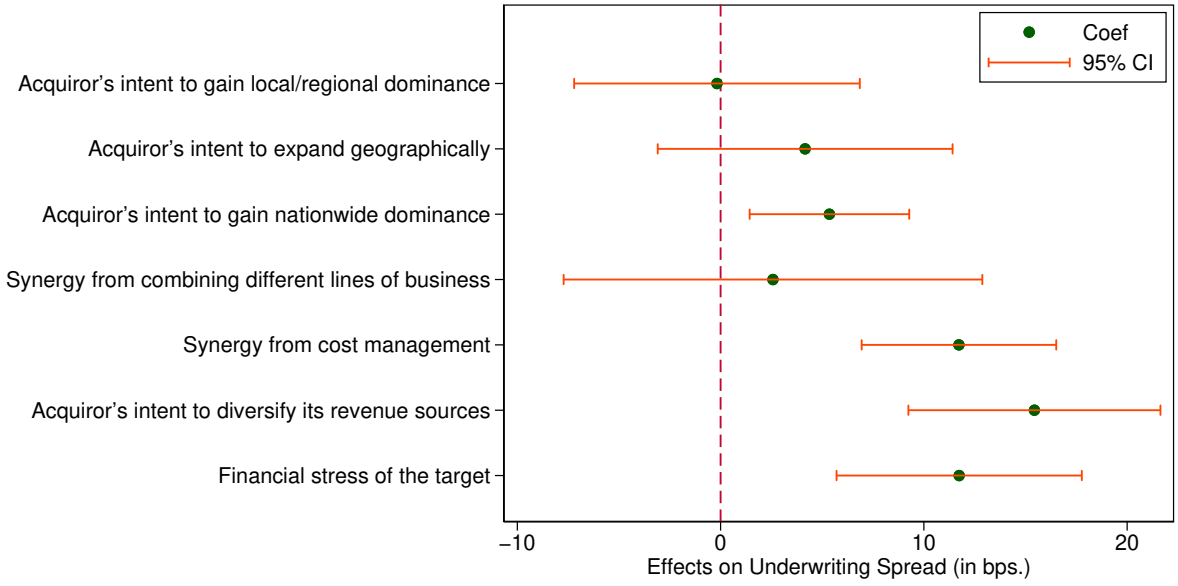


Panel B: Estimated effects by main use of proceeds



Note: Panel A shows the number of bond issues by the main use of proceeds during 1970-2022. Bond issues are classified into different groups according to the "Main Use of Proceeds" variable in the GPF. Panel B shows the breakdown of the effects of consolidation on the underwriting spread by the main use of proceeds of the issue. I estimate the regression specification (3) and plot each $\gamma_{3,g}$ from left to right along with the 95% confidence intervals. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. Standard errors are double-clustered at the CSA and calendar-year levels.

Figure A5: Effects of Consolidation on Underwriting Spread by Rationales According to News Reports

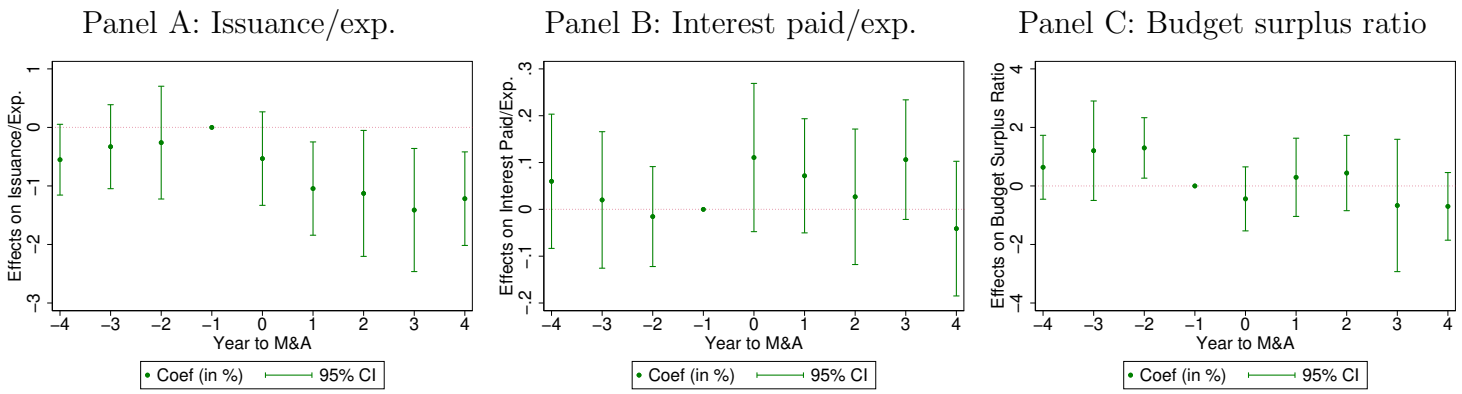


Note: This figure plots the effects of consolidation on underwriting spread by each category of rationales according to news reports. To obtain the first coefficient in the figure, I divide the local consolidation episodes based on whether the main M&A is driven by "acquiror's intent to gain local/regional dominance" according to the news reports. If a local consolidation episode involves multiple M&As, I define the main M&A as the one with the highest joint market share of the merging underwrters. I estimate the following regression specification,

$$y_{d,c} = \beta_1 TreatedLocalDominance_{a,c} \times Post_{c,t} + \beta_2 TreatedNotLocalDominance_{a,c} \times Post_{c,t} + \theta_{i,c} + \theta_{c,t} + e_{d,c}.$$

Here $TreatedLocalDominance$ equals one for issues in treated CSAs in local consolidation episodes where the main M&A is driven by "acquiror's intent to gain local/regional dominance". $TreatedNotLocalDominance$ equals one for issues in treated CSAs in local consolidation episodes where the main M&A is driven by other reasons. I repeat the above process for each category of rationales. I then plot each β_1, the estimated effects of local consolidation episodes for which the rationale of the main M&A falls into a certain category, along with their 95% confidence intervals. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. Standard errors are double-clustered at the CSA and calendar-year levels.

Figure A6: Effects of Consolidation on Local Government Finances



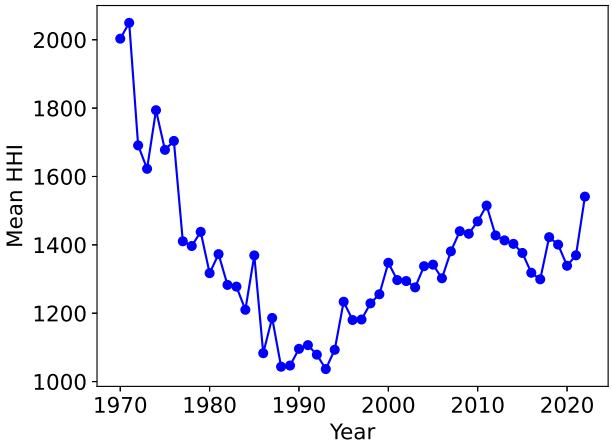
Note: This figure plots the evolvement of local government finances outcomes for local governments in treated CSAs relative to control. All variables are expressed as ratios to the total expenditures of the local government. I estimate the following regression specification,

$$y_{l,t,c} = Treated_{a,c} \times \Big(\sum_{s=-4}^{-2} \gamma_s \times \mathbb{1}(\tau = s)_{c,t} + \sum_{s=0}^{4} \gamma_s \times \mathbb{1}(\tau = s)_{c,t} \Big) + \theta_{l,c} + \theta_{c,t} + e_{l,t,c}. \quad (6)$$

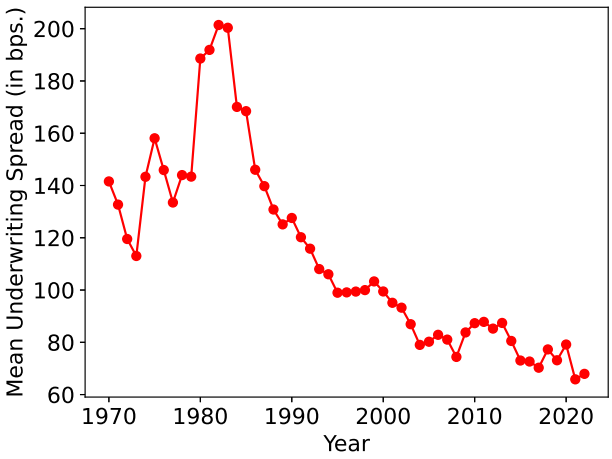
Here t represents the calendar year and τ represents the year relative to the treatment. $\mathbb{1}(\tau = s)_{c,t}$ is a dummy variable that turns on if the observation is $-s$ years before the treatment (for $s = -4, -3, -2$) or s years after the treatment (for $s = 0, 1, 2, 3, 4$). I plot the estimates for each γ_s along with their 95% confidence intervals. Standard errors are double-clustered at the CSA and calendar-year levels.

Figure A7: Time Trends of HHI and Underwriting Spread

Panel A: Trend of HHI, 1970-2022

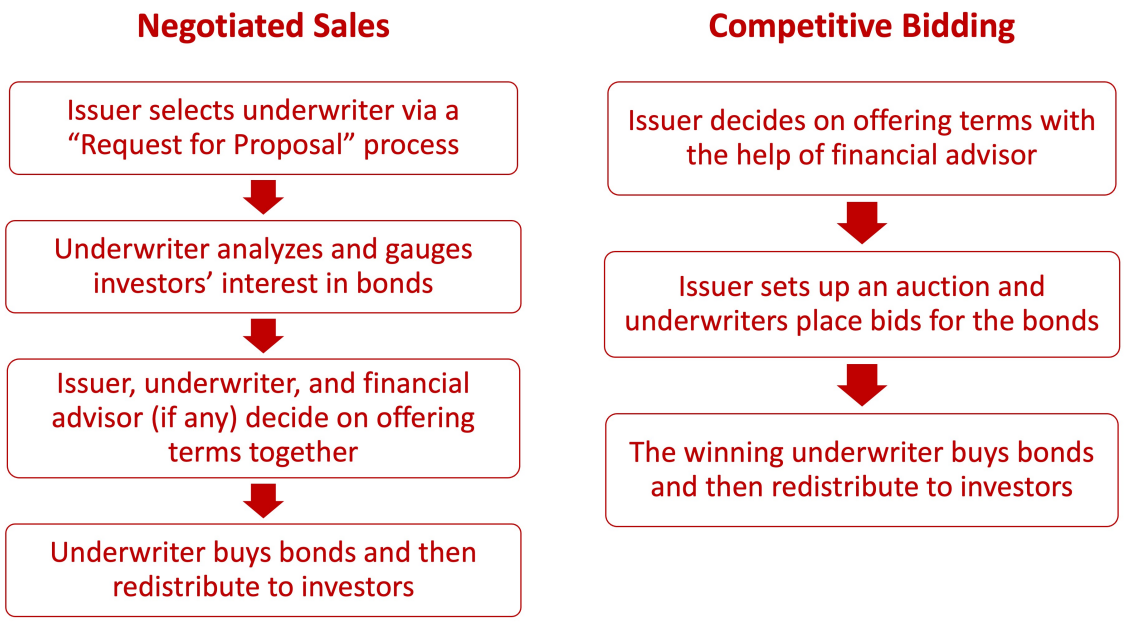


Panel B: Trend of underwriting spread, 1970-2022



Note: Panel A shows the average CSA-level underwriter HHI in each year from 1970 to 2022. Panel B shows the average underwriting spread in each year from 1970 to 2022.

Figure A8: Illustration of Negotiated Sales and Competitive Bidding



Note: This figure illustrates the steps in the process of negotiated sales and of comptitive bidding.

II. Internet Appendix Tables

Table A1: Variable Definitions

Panel A: SDC Platinum Global Public Finance	
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. It constitutes a major source of revenue for the investment banks.
Reoffering Yield	The yield of the bond issue calculated based on the reoffering price that initial investors pay to underwriters. I outline the details in Internet Appendix Section IV.I.
Reoffering Yield Spread over Treasury	The spread between the yield of a municipal bond issue and its comparable U.S. Treasury securities. I outline the details in Internet Appendix Section IV.I.
Reoffering Yield Spread over MMA	The spread between the yield of a municipal bond issue and the Municipal Market Advisors AAA-rated curve. I outline the details in Internet Appendix Section IV.I.
Total Issuance Expenses	The sum of underwriting spread and predicted credit rating fees, predicted financial advisor fees, and predicted bond insurance fees, if any.
Total Issuance Expenses, Year FE	A version of total issuance expenses. When predicting the credit rating fees, financial advisor fees, and bond insurance fees, I include calendar year fixed effects.
Amount	The principal amount of the bond issue, inflation-adjusted in 2022 dollars.
N of Bids	The number of bids in an auction for bond issues.
Maturity	The maturity length of the bond issue. If an issue contains multiple bonds, the maturity length of the issue is the weighted average maturity of the individual bonds, weighted by the principal amounts.
Method of Sales	Whether the underwriting process is carried out through competitive bidding, negotiated sales, or private placement.
Tax Status	Whether the interest payments received by investors are exempt from federal taxation, taxable, or subject to the Alternative Minimum Tax.

Table A1: Variable Definitions (Continued)

Source of Repayment	Whether the source of funding for repayment comes from the overall revenue of a whole government (i.e., a General Obligation bond) or the revenue from a specific project (i.e., a Revenue bond).
Has Credit Rating	Whether a bond issue has credit rating.
Insured Ratio	The fraction of the bond issue for which the repayment is guaranteed by an insurance company. Most of the time, a bond issue is either fully insured, i.e., insured ratio = 1, or not insured, i.e., insured ratio = 0.
Has Advisor	Whether the issuer formally hires an advisor for this bond issue.
If Callable	Whether the issuer can retire the bond issue prior to the maturity date by paying off the principal early.
If Commercial Bank Eligible	Whether commercial banks are allowed to underwriter the bond issue by law.
HHI	The HHI of a CSA $\times$ year in terms of municipal bond underwriter market shares. The market share is based on the number of deals of each underwriter. For a bond issue underwritten by a group of N underwriters, I add $1/N$ to the number of deals of each underwriter in the group.
Panel B: Local M&A Episodes	
Acquiror Market Share	The market share of the acquiring underwriter in the consolidation-affected CSA in the three-year period before the onset of the local consolidation episode. If a local consolidation episode involves multiple within-market M&As that increase market concentration, it is based on the largest M&A.
Target Market Share	The market share of the target underwriter in the consolidation-affected CSA in the three-year period before the onset of the local consolidation episode. If a local consolidation episode involves multiple within-market M&As that increase market concentration, it is based on the largest M&A.
Predicted Δ_{HHI}	The *predicted* increase in HHI due to the M&As. Based on bond issues in the three-year period before the onset of the local consolidation episode, I calculate the would-be HHI if the acquiror and the target in the M&As become a single firm. I then obtain the difference between this *predicted* HHI and the actual HHI for this three-year period.

Table A1: Variable Definitions (Continued)

Panel C: Local Government Finances	
Total Expenditures	For years prior to 2013, total expenditures are obtained from the field "Total Expenditure" in "Data Files on Historical Finances of Individual Governments: Fiscal Years 1967 and 1970 - 2012". For year 2013 and onwards, total expenditures is calculated as the aggregation of all items starting with "E" (expenditures for the current operation of public facilities), "F" (expenditures for the construction of public facilities), "G" (expenditures for other capital overlay of public facilities), "I" (interest on debt), "J" (subsidies), "L", "M", "Q", "S" (inter-governmental transfers out from the local government), along with "X11", "X12" (withdrawals of employee retirement fund), "Y05", "Y06" (withdrawals of unemployment benefits), "Y14" (workers' benefit payments), "Y53" (benefit payments from the insurance trust system), and "Z00" (total salaries and wages). The amount is then inflation-adjusted into 2022 dollars.
Total Revenues	For years prior to 2013, total revenues are obtained from the field "Total Revenue" in "Data Files on Historical Finances of Individual Governments: Fiscal Years 1967 and 1970 - 2012". For year 2013 and onwards, using the annually released "Annual Survey of State and Local Government Finances" and following the guidance in "Government Finance and Employment Classification Manual" (U.S. Census Bureau, 2006), total revenues is calculated as the aggregation of all items starting with "A" (charges), "B" (inter-governmental transfer from the federal government to the local government), "C" (inter-governmental transfer from the state government to the local government), "D" (inter-governmental transfer from other local governments), "T" (taxes flowing to local governments), "U" (miscellaneous revenues), along with "X01", "X02", "X05", "X08" (contributions to employee retirement fund), "Y01", "Y02", "Y04" (contributions to unemployment benefits), "Y11", "Y12" (contributions to workers' compensation), "Y51", and "Y52" (contributions to the insurance trust system). The amount is inflation-adjusted into 2022 dollars.

Table A1: Definition of Variables (Continued)

Interest Paid/Exp.	Total interest paid on debt scaled by total expenditure.
Issuance/Exp.	Total new issuance of long-term debt scaled by total expenditure.
Budget Surplus Ratio	$\frac{\text{Total Revenue}}{\text{Total Expenditure}} - 1$.
Panel D: California and Texas State Agencies	
Credit Rating Fee	The cost of obtaining credit ratings expressed as a fraction of the principal amount, conditional on using this service.
Insurance Fee	The cost of purchasing bond insurance expressed as a fraction of the principal amount, conditional on using this service.
Financial Advisor Fee	The cost of formally hiring a financial advisor expressed as a fraction of the principal amount, conditional on using this service.
Panel E: Municipal Securities Rulemaking Board (MSRB) Trading Data	
Initial Underpricing	The average day-15-to-day-30 trading price minus the average initial trading price. I outline the details in Internet Appendix Section IV.I.
Trading Volume	The annual total par value traded scaled by the principal amount for a CUSIP.
N Trades	The annual total number of trades of a CUSIP.
Markup	The percentage difference between average customer purchase price and interdealer price for a CUSIP, aggregated to the annual frequency. I construct two versions. First, I identify the months in which a CUSIP has both customer purchase and interdealer sales. Within each month, I calculate the par-value weighted average customer purchase price and interdealer price and take the percentage difference, i.e., $\frac{\text{Customer Purchase Price}-\text{Interdealer Price}}{\text{Interdealer Price}}$. I then take a simple average across these months. I label this as "Markup (within Month)". Second, I construct "Markup (within Week)" similarly by taking an average across weeks for which both customer purchase and interdealer sales exist.

Table A2: Underwriter M&As Sample

Acquiror	Target	Completion Year
Rauscher Pierce Refsnes	First of Texas	1974
Blyth Eastman Dillon	Moore Leonard & Lynch	1978
Merrill Lynch	White Weld	1978
Paine Webber	Blyth Eastman Dillon	1979
E F Hutton	Carleton D Beh	1981
Shearson/American Express	Boston Safe Deposit & Trust	1981
Shearson/American Express	Loeb Rhoades Hornblower	1981
Shearson/American Express	Shearson Hayden Stone	1981
Shearson/American Express	American Express	1981
Paine Webber	Rotan Mosle	1983
Paine Webber	First Mid America	1983
Shearson/American Express	Chiles Heider	1983
BMO Bank	Harris Bank	1984
First Chicago Bank	American National Bank & Trust	1984
Lehman Brothers	Shearson/American Express	1984
Merrill Lynch	AG Becker	1984
Kemper Securities	Boettcher	1985
Lehman Brothers	E F Hutton	1987
Bank of New York Mellon	Irving Trust	1988
Fleet Bank	Adams McEntee	1988
Prudential Securities	Thomson Mckinnon Sec	1989
Banc One	MBank Capital Mkts Dallas NA	1990
Bank South	Lex Jolley	1990
Kemper Securities	Underwood Neuhaus	1990
Kemper Securities	Lovett Mitchell Webb	1990
Raymond James	Arch W Roberts	1990
Fifth Third Bank	The Ohio	1991
Fleet Bank	Bank of New England	1991
McDonald	Gradison	1991
Banc One	Team Bank	1992
Chemical Bank	Manufacturers Hanover Trust	1992
Piper Jaffray	Zahner	1992
PNC Bank	First Eastern	1993
Smith Barney	Shearson/American Express	1993
Dain Bosworth	Clayton Brown & Associates	1994
Mellon Bank	Dreyfus	1994
Mellon Bank	Scheetz Smith	1994
NatWest Bank	Citizens First National Bank	1994

Table A2: Underwriter M&As Sample (Continued)

Acquiror	Target	Completion Year
CoreStates Bank	Meridian Bank	1995
First Chicago Bank	National Bank of Detroit	1995
Fleet Bank	Shawmut Bank	1995
National City Bank	Raffenspergerhughes & Coinc	1995
NationsBank	Bank South	1995
PNC Bank	Midlantic Bank	1995
Southwest Securities	Barre	1995
Chase Bank	Chemical Bank	1996
Firstsouthwest	Masterson Moreland Sauer	1996
Fleet Bank	NatWest Bank	1996
Siebert Cisneros Shank	Grigsby Brandford	1996
Southwest Securities	Masterson Moreland Sauer	1996
Summit Bank	United Jersey Bank	1996
US Bank	West One Bank Oregon	1996
Banc One	First National Bank of Commerce	1997
Banc One	First Commerce Capital	1997
First Union National Bank	Signet Bank Richmond	1997
First Union National Bank	Wheat First Butcher Singer	1997
M&T Securities	OnBank	1997
Miller Johnson & Kuehn	Juran & Moody	1997
Morgan Stanley	Dean Witter Reynolds	1997
National City Bank	First of America Bank	1997
Ross Sinclaire & Associates	Johnston Brown Barnett & Knight	1997
Banc One	First National Bank of Lafayette	1998
Banc One	First Chicago Bank	1998
Bank of America	NationsBank	1998
BB&T	Scott & Stringfellow	1998
BOK Financial	Leo Oppenheim	1998
Citigroup	Salomon Brothers	1998
Citigroup	Smith Barney	1998
Commerce Bank New Jersey	A H Williams	1998
First Union National Bank	CoreStates Bank	1998
Key Bank	McDonald	1998
Tucker Anthony Sutro	Hopper Soliday	1998
UBS Financial Services	Dillon Read	1998
US Bank	Northwest Bank	1998
US Bank	Piper Jaffray	1998
Wells Fargo	Norwest Investment Services	1998

Table A2: Underwriter M&As Sample (Continued)

Acquiror	Target	Completion Year
Bank of America	Seafirst Bank	1999
First Union National Bank	Kemper Securities	1999
Fleet Bank	BankBoston	1999
US Bank	John Nuveen	1999
Wachovia Bank	Interstate/Johnson Lane	1999
JP Morgan	Chase Bank	2000
RBC Bank	Rauscher Pierce Refsnes	2000
RBC Bank	Dain Bosworth	2000
SunTrust Bank	Equitable Securities	2000
SunTrust Bank	Crestar Bank	2000
UBS Financial Services	J C Bradford	2000
UBS Financial Services	Paine Webber	2000
US Bank	Firstar Bank	2000
Wells Fargo	First Security	2000
Wells Fargo	National Bank of Commerce	2000
Citigroup	European American Bank	2001
Fleet Bank	Summit Bank	2001
Regions Bank	Morgan Keegan	2001
SunTrust Bank	The Robinson Humphrey	2001
Wachovia Bank	Central Fidelity Bank	2001
Wachovia Bank	First Union National Bank	2001
RBC Bank	Tucker Anthony Sutro	2002
JP Morgan	RRZ Public Markets	2003
RBC Bank	William R Hough	2003
Wachovia Bank	Prudential Securities	2003
Bank of America	Fleet Bank	2004
Citizens Bank	TGH Securities	2004
JP Morgan	Banc One	2004
SunTrust Bank	NBC Capital Markets Group	2004
TD Bank	Cape Cod Bank	2004
Wachovia Bank	SouthTrust Securities	2004
Janney Montgomery Scott	Parker Hunter	2005
Merrill Lynch	Advest	2005
Ferris Baker Watts	Arthurs Lestrange	2006
Regions Bank	Amsouth Bank	2006
Morgan Keegan	Shattuck Hammond Partners	2007

Table A2: Underwriter M&As Sample (Continued)

Acquiror	Target	Completion Year
RBC Bank	Seasongood & Mayer	2007
RBC Bank	J B Hanauer	2007
TD Bank	Commerce Bank New Jersey	2007
UBS Financial Services	McDonald	2007
Wachovia Bank	A G Edwards & Sons	2007
Bank of America	Merrill Lynch	2008
Capital One Financial	North Fork Bank	2008
Huntington National Bank	Sky Bank	2008
JP Morgan	Bear Stearns	2008
Park National Bank	First Knox National Bank	2008
PNC Bank	Red Capital Markets	2008
PNC Bank	National City Bank	2008
RBC Bank	Ferris Baker Watts	2008
Southwest Securities	M L Stern Investments Sec	2008
Stifel Nicolaus	Butler Wick	2008
Wells Fargo	Wachovia Bank	2008
D A Davidson	Ruan Securities	2009
US Bank	Park National Bank	2009
BMO Bank	M & I Bank	2010
Stifel Nicolaus	Stone & Youngberg	2011
Raymond James	Morgan Keegan	2012
Piper Jaffray	Seattle Northwest Securities	2013
Sterne Agee & Leach	Merchant Capital	2014
Hilltop Securities	Southwest Securities	2015
Piper Jaffray	BMO Bank	2015
D A Davidson	Smith Hayes Financial Services	2016
Huntington National Bank	First Merit Bank	2016
Stifel Nicolaus	City Securities	2016
StoneX Group	Sterne Agee & Leach	2017
NBH Bank	People's National Bank	2018
Robert W Baird	JJB Hilliard WL Lyons	2019
Stifel Nicolaus	George K Baum	2019
Eastern Bank	Century Bank	2021
PNC Bank	BBVA Compass	2021
M&T Securities	People's United Bank	2022
Commerce Bank of Kansas City	LJ Hart	2023

Note: This table lists the M&As among municipal bond underwriters. Due to copyright restrictions, M&As obtained from SDC Platinum or S&P are omitted. Only M&As obtained via hand-collection from public records, i.e., Wikipedia, national and local newspapers, firm websites, corporate filings, and other public information sources, are listed.

Table A3: Rationales Behind M&A Deals According to News Articles

Rationale for M&A	Count	Correlate with Local Economic Conditions
Acquiror's intent to gain local/regional dominance	24	Possibly Yes
Acquiror's intent to expand geographically	19	Possibly Yes
Acquiror's intent to gain nationwide dominance	15	No
Synergy from combining different lines of business	14	No
Synergy from cost management	12	No
Acquiror's intent to diversify its revenue sources	12	No
Financial distress of the target (exposure to subprime mortgage)	5	Possibly Yes
Financial distress of the target (inadequate capital)	1	Possibly Yes
Financial distress of the target (high inventory)	1	Possibly Yes
Financial distress of the target (unsuccessful prior M&As)	1	Possibly Yes
Financial distress of the target (the sharp volatility in prices of fixed-income securities and the slump in trading volume of stocks)	1	No
Financial distress of the target (bad loans)	1	Possibly Yes
Financial distress of the target (vulnerability to the rate environment)	1	Possibly Yes
Financial distress of the target (general reasons)	1	Possibly Yes
Financial distress of the target (pressure to repay TARP funds)	1	No
Acquiror or target's intent to fend off a hostile takeover	1	No

Note: This table summarizes the rationales mentioned in the news articles for the M&As among municipal bond underwriters that would lead to an increase in within-market concentration. Some deals have multiple rationales and fall into multiple categories.

Table A4: Examples of Rationales for M&A Deals According to News Articles

Acquiror	Target	Source	Rationale	Summary
PNC Bank	Midlantic Bank	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."	Acquiror's intent to gain local/regional dominance
RBC Bank	Dain Bosworth	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."	Acquiror's intent to expand geographically
JP Morgan	Banc One	The New York Times	"The merger would create a financial behemoth and a true rival to the world's largest banking company, Citigroup , with $1.1 trillion in assets and 2,300 branches in 17 states."	Acquiror's intent to gain nationwide dominance
Morgan Stanley	Dean Witter Reynolds	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
Stifel Nicolaus	City Securities	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 I had in the past. The need for scale today, because of that, is greater than it ever had been.'"	Synergy from cost management

Note: This table presents examples on the rationales for the M&A deals.

Table A5: Top Underwriters in California and Massachusetts

Panel A: Top ten municipal bond underwriters

Underwriter in CA	Market Share in CA	Underwriter in MA	Market Share in MA
Stifel Nicolaus	14.9%	Eastern Bank	15.4%
Piper Sandler	11.8%	Century Bank	7.2%
Citigroup	7.1%	TD Bank	7.1%
RBC Bank	6.6%	Robert W Baird	5.9%
Morgan Stanley	5.6%	Jefferies	5.1%
Raymond James	5.4%	JP Morgan	4.6%
Stone & Youngberg	5.3%	Morgan Stanley	4.4%
Bank of America	4.8%	Bank of America	4.2%
De La Rosa	3.6%	Fidelity Capital Markets	3.9%
JP Morgan	3.4%	Janney Montgomery Scott	3.6%

Panel B: Top ten corporate bond underwriters

Underwriter in CA	Market Share in CA	Underwriter in MA	Market Share in MA
Bank of America Merrill Lynch	6.8%	JP Morgan	8.1%
JP Morgan	6.7%	Bank of America Merrill Lynch	6.3%
Morgan Stanley	4.8%	Barclays	4.5%
Citigroup	4.6%	Morgan Stanley	4.3%
Goldman Sachs	4.4%	Goldman Sachs	3.5%
Barclays	3.9%	Citigroup	3.1%
Deutsche Bank	3.2%	RBC Bank	2.3%
Wells Fargo Bank	2.8%	US Bank	1.7%
RBC Bank	2.4%	Deutsche Bank	1.7%
US Bank	2.2%	Wells Fargo Bank	1.6%

Panel C: Top ten corporate equity underwriters

Underwriter in CA	Market Share in CA	Underwriter in MA	Market Share in MA
Cowen	2.7%	JP Morgan	3.8%
JP Morgan	2.6%	Cowen	3.8%
Morgan Stanley	2.0%	Jefferies	3.1%
Jefferies	2.0%	HC Wainwright	2.9%
Roth Capital Partners	2.0%	Goldman Sachs	2.8%
Goldman Sachs	1.7%	Morgan Stanley	2.8%
HC Wainwright	1.7%	Canaccord Genuity	2.6%
Citigroup	1.7%	Barclays	2.0%
William Blair	1.5%	Oppenheimer	1.9%
Stifel Nicolaus	1.5%	Citigroup	1.8%

Note: This table lists the top ten underwriters with the highest market shares during 2010-2020 in the states of California and Massachusetts. Panel A examines municipal bond underwriters. Panel B examines corporate bond underwriters. Panel C examines corporate equity underwriters.

Table A6: State-Pair Underwriter Cosine Similarity by Security Type

	(1) Cosine Similarity	(2) Cosine Similarity
Corporate Bond	0.42***	
	(109.32)	
Corporate Equity	0.32***	
	(84.59)	
Geographic Distance, in 1,000 Miles		-0.03***
		(-4.82)
Observations	97,242	32,414
State-Pair FE	Yes	No
Year FE	Yes	Yes
Clustering	State-Pair	State-Pair
Adjusted R-squared	0.644	0.285

Note: This table examines the state-pair cosine similarity of underwriter market shares. Column (1) examines how the state-pair underwriter similarity differs by the type of securities, with municipal bonds as the reference group. The sample consists of observations for each state-pair and calendar year and for municipal bond underwriter similarity, corporate bond underwriter similarity, or corporate equity underwriter similarity. I report estimates from the following regression specification,

$$y_{i,j,c,t} = \beta_1 \text{Corporate Bond}_{i,j,c,t} + \beta_2 \text{Corporate Equity}_{i,j,c,t} + \theta_{i,j} + \theta_t + e_{i,j,c,t}, \tag{7}$$

where i and j indicate a state-pair, c indicates the underwriter type, and t indicates the calendar year. $\text{Corporate Bond}_{i,j,c,t}$ equals one for corporate bond underwriter cosine similarity. $\text{Corporate Equity}_{i,j,c,t}$ equals one for corporate equity underwriter cosine similarity. Data for corporate securities are obtained from the Global New Issuance Database by SDC Platinum. Column (2) examines how geographic distance affects the state-pair cosine similarity in terms of municipal bond underwriters. The sample consists of observations for each state-pair and calendar year. I report estimates from the following regression specification,

$$y_{i,j,t} = \beta_1 \text{Geographic Distance, in 1,000 Miles}_{i,j,t} + \theta_t + e_{i,j,t}, \tag{8}$$

where i and j indicate a state-pair and t indicates the calendar year. The geographic distance between two states is defined as the distance between states' geographic centers. T-statistics are in parentheses. Standard errors are clustered at the state-pair level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Effects of Consolidation on Underwriter Entry

	(1) N New Underwriters	(2) Market Share New Underwriters	(3) N New Underwriters	(4) Market Share New Underwriters
Treated × Post	0.10	-0.00	0.19	-0.01
	(0.64)	(-0.01)	(0.80)	(-1.32)
Observations	5,680	5,680	2,868	2,868
Cohort × Year FE	Yes	Yes	Yes	Yes
CSA × Cohort FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Minimum N Deals	0	0	10	10
Adjusted R-squared	0.557	0.251	0.502	0.297

Note: In this table, I report the estimates from the following double-differences regression specification using local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ and measures of underwriter entry as the outcome variable,

$$y_{a,c,t} = \beta Treated_{a,c} \times Post_{c,t} + \theta_{a,c} + \theta_{c,t} + e_{a,c,t}. \quad (9)$$

Here the observations are at the CSA-by-year level. a is the subscript for each CSA, c is the subscript for each cohort of treated CSA and its matched control, and t is the subscript for the calendar year. $Treated$ equals one for treated CSAs and $Post$ equals one in the year of the onset of local consolidation episodes and afterwards. The outcome variable in columns (1) and (3) is the number of new underwriters that did not underwrite municipal bonds in CSA a before year t. The outcome variable in columns (2) and (4) is the combined market share of new underwriters that did not underwrite municipal bonds in CSA a before year t. In columns (3) and (4), I require that there are at least 10 issues in CSA a in year t to reduce the noise in the measure. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Robustness Tests of Effects of Consolidation on Underwriting Spread

	(1) Underwriting Spread (bps.)	(2) Underwriting Spread (bps.)	(3) Underwriting Spread (bps.)	(4) Underwriting Spread (bps.)	(5) Underwriting Spread (bps.)	(6) Underwriting Spread (bps.)
Treated × Post	12.27**	3.74**	3.64**	3.82**	4.09**	4.85***
	(2.33)	(2.29)	(2.14)	(2.52)	(2.59)	(3.09)
If Commercial Banks Eligible					-16.05***	
					(-8.30)	
Observations	79,471	78,310	77,964	64,558	79,553	79,553
Controls	No	No	No	Yes	No	No
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	No	Yes	Yes	Yes
State × Year FE	Yes	No	No	No	No	No
Underwriter × Year FE	No	Yes	No	No	No	No
Taxable × Cohort × Year FE	No	No	Yes	No	No	No
Method of Sale × Cohort × Year FE	No	No	Yes	No	No	No
Source of Repayment × Cohort × Year FE	No	No	Yes	No	No	No
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Weighting	No	No	No	No	No	Yes
Adjusted R-squared	0.537	0.622	0.536	0.581	0.536	0.549

Note: In this table, I report the estimates from the double-differences regression specification (2) using local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ and the underwriting spread as the outcome variable. Column (1) additionally includes state-by-calendar-year fixed effects. Column (2) includes underwriter-by-calender-year fixed effects. Column (3) includes fixed effects for the interaction of the method of sales, taxable status, and source of repayment with the cohort and the calendar year. Column (4) controls for the amount and maturity length of the issue and their squared terms. Column (5) controls for whether commercial banks are eligible to underwrite the bond issue. Column (6) implements the corrective weights for stacked difference-in-differences designs as proposed in Wing et al. (2024). Additional robustness tests are provided in Table A9. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Additional Robustness Tests of Effects of Consolidation on Underwriting Spread

	(1) Underwriting Spread (bps.)	(2) Underwriting Spread (bps.)	(3) Underwriting Spread (bps.)	(4) Underwriting Spread (bps.)	(5) Underwriting Spread (bps.)	(6) Underwriting Spread (bps.)
Treated × Post	4.03**	3.61***	4.56***	5.58***	3.67***	4.83**
	(2.50)	(3.21)	(3.11)	(3.88)	(2.96)	(2.59)
Observations	123,328	76,027	79,448	71,162	1,000,870	70,324
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Number of Matches	3	1	1	1	Unlimited	1
Matching Co-variates	Local Income and Population	Local Income and Population plus Growth Rates	Local Income and Population plus Issuance Outcomes	Propensity Score	None	Local Income and Population
Restrictions						Requiring No Prior Treatment
Adjusted R-squared	0.513	0.537	0.532	0.529	0.536	0.525

Note: In this table, I report the estimates from the double-differences regression specification (2) using local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ and the underwriting spread as the outcome variable. Column (1) uses three matched control CSAs for each treated CSA. Column (2) uses local income, population, and growth rates of local income and population in the matching procedure. Column (3) uses local income, population, and the CSA-level average gross spread and reoffering yield in the matching scheme. Column (4) uses CSAs with the propensity score of being treated closest to the treated CSA as the matched control. Column (5) constructs a stacked sample using as control all CSAs not affected by concurrent investment bank consolidation. Column (6) requires that the control market was never treated previously to address concerns over difference-in-differences designs proposed by Baker et al. (2022). The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Additional Evidence on Cross-Sectional Heterogeneity in Effects of Consolidation on Underwriting Spread

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]
Panel A: By whether bank is in M&A			
Underwriter is in M&A	2.03	2.94*	3.75*
	(1.24)	(1.73)	(1.88)
Underwriter is not in M&A	4.31**	5.44***	6.63***
	(2.39)	(3.45)	(3.72)
Panel B: By method of sales			
Competitive Bidding	5.75	5.89*	6.04**
	(1.66)	(1.87)	(2.19)
Negotiated Sales	4.27**	5.55***	6.80***
	(2.57)	(3.65)	(3.71)
Panel C: By taxable status			
Tax-Exempt	4.50***	5.93***	7.12***
	(2.82)	(3.98)	(3.80)
Taxable	5.69**	5.76**	5.50*
	(2.19)	(2.14)	(1.91)
Alternative Minimum Tax	4.52	4.05	4.69*
	(1.11)	(1.44)	(1.89)
Panel D: By source of repayment			
REV	5.52**	6.60***	6.71***
	(2.37)	(2.79)	(2.74)
GO	3.12	4.36	6.62**
	(1.19)	(1.64)	(2.14)
Panel E: By if refunding issue			
If refunding issue	5.05**	7.49***	9.27***
	(2.22)	(3.33)	(3.86)
If not refunding issue	4.49***	4.75***	5.18***
	(2.98)	(3.05)	(2.75)
Panel F: Dividing the sample period			
Pre-2000	3.85*	4.37**	4.54*
	(1.74)	(2.14)	(1.98)
Post-2000	5.77***	7.99***	10.46***
	(3.97)	(7.07)	(7.63)
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Table A10: Additional Evidence on Cross-Sectional Heterogeneity in Effects of Consolidation on Underwriting Spread (Continued)

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]
Panel G: By size of issue			
Amount below median	5.15	7.35***	8.26**
	(1.64)	(2.75)	(2.65)
Amount above median	4.26**	5.05***	6.22***
	(2.66)	(3.45)	(3.52)
Panel H: By maturity length of issue			
Maturity length above median	4.88**	5.72***	6.95***
	(2.64)	(3.58)	(3.66)
Maturity length below median	4.66*	5.97**	6.45**
	(1.93)	(2.52)	(2.37)
Panel I: By area racial composition			
Black population ratio in top quartile	5.94***	6.53***	8.10***
	(3.25)	(4.24)	(4.60)
Black population ratio not in top quartile	3.63*	5.15***	5.80***
	(1.94)	(2.89)	(2.80)
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: In this table, I report the estimates from the regression specification (3) using the underwriting spread as the outcome variable. Panel A divides the sample by whether the issue has an underwriter engaging in M&As that increase within-market concentration. Panel B divides the sample by whether the method of sales is competitive bidding or negotiated sales. Panel C divides the sample by the taxable status of the bond (i.e., Taxable, Tax Exempt, or subject to Alternative Minimum Tax). Panel D divides the sample by whether it is a revenue or general obligation bond. Panel E divides the sample by whether it is a refunding issue. Panel F divides the sample by whether the M&As are prior to or post 2000. Panel G divides the sample by whether the deal size is above median when sorted within each year. Panel H divides the sample by whether the maturity length is above median when sorted within each year. Panel I divides the sample by whether the county of the issuer is in the top quartile in terms of the Black population ratio when sorted within each year. The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in column (1) ((2)/(3)). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Effects of Consolidation on Underwriting Spread When Merging Underwriters Are Experts in Bond Category

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]	(4) Underwriting Spread (bps.) [–4, +4]	(5) Underwriting Spread (bps.) [–4, +7]	(6) Underwriting Spread (bps.) [–4, +10]
Panel A: By amount brackets						
Treated × Post × Merging Underwriters are Experts	6.30***	8.21***	9.97***	4.93	5.29	8.47**
	(3.11)	(4.37)	(4.19)	(1.66)	(1.48)	(2.31)
Treated × Post × Merging Underwriters not Experts	3.49**	4.14***	4.63***	4.62***	5.91***	6.70***
	(2.36)	(2.86)	(2.91)	(2.96)	(4.02)	(3.58)
Panel B: By maturity brackets						
Treated × Post × Merging Underwriters are Experts	7.82**	8.48***	10.05***	17.03**	16.90***	19.53***
	(2.10)	(2.86)	(3.49)	(2.53)	(3.03)	(3.60)
Treated × Post × Merging Underwriters not Experts	3.40**	4.56***	5.36***	4.10***	5.38***	6.33***
	(2.01)	(2.74)	(2.79)	(2.78)	(3.88)	(3.56)
Panel C: By main use of proceeds						
Treated × Post × Merging Underwriters are Experts	5.01**	6.58***	8.33***	10.43*	9.36*	12.51***
	(2.60)	(4.34)	(4.18)	(1.74)	(1.73)	(2.82)
Treated × Post × Merging Underwriters not Experts	4.47**	5.42***	5.94***	4.17***	5.59***	6.47***
	(2.54)	(3.14)	(3.00)	(2.76)	(3.95)	(3.59)
Panel D: By method of sales						
Treated × Post × Merging Underwriters are Experts	7.19***	8.33***	9.90***	8.79***	7.35**	8.71***
	(4.23)	(6.14)	(6.16)	(2.72)	(2.25)	(2.89)
Treated × Post × Merging Underwriters not Experts	–0.29	0.66	0.44	3.74**	5.48***	6.41***
	(–0.15)	(0.30)	(0.18)	(2.51)	(3.66)	(3.46)
Panel E: By whether bond issue has credit ratings						
Treated × Post × Merging Underwriters are Experts	6.13***	7.39***	8.99***	11.93***	11.48***	13.62***
	(3.47)	(4.76)	(4.80)	(3.16)	(2.78)	(3.22)
Treated × Post × Merging Underwriters not Experts	0.75	1.70	1.51	3.00*	4.59***	5.41***
	(0.39)	(0.72)	(0.57)	(1.91)	(2.79)	(2.71)
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Ranking of Underwriters	In U.S.	In U.S.	In U.S.	Within CSA	Within CSA	Within CSA

Note: This table examines whether the effects of consolidation on the underwriting spread are stronger when merging underwriters are experts in the bond category, in which case the bond issue is more likely to be affected. Underwriter expertise is identified through the following steps:

1. First, I sort all bond issues each year in the whole country (or within a CSA) into categories based on issue characteristics. I use five characteristics in Panels A to E, repsectively: (1) amount, which I divide into four brackets: mega (top 5%), large (top 25%-top 5%), medium (top 50%-top 25%), and small (bottom 50%); (2) maturity length, which I divide into three equal-sized terciles; (3) the main use of proceeds, as described in Figure A4; (4) the method of sales; and (5) whether the bond issue has credit ratings.

2. Second, within each bond category, I rank underwriters in the whole country (or within a CSA) by the number of issues they underwrite. If an underwriter is among the top 5% in terms of underwriting volume in a bond category, I classify the underwriter as an expert for this bond category.

3. Third, for bond issues in treated markets, I define an indicator *Merging Underwriters are Experts*, which equals one if two merging underwriters are both experts in the bond category of the issue. Experts are defined based on the ranking of underwriting volume in the whole country (within a CSA) in columns (1), (2), and (3) ((4), (5), and (6)). I also define *Merging Underwriters not Experts*, which equals one minus *Merging Underwriters are Experts* for issues in treated markets. These two variables equal zero in control markets.

I then estimate and report the findings from the following regression specification,

$$\begin{aligned} y_{d,c} = {} & \beta_1 MergingUnderwritersAreExperts_{d,c} + \beta_2 Treated_{a,c} \times Post_{c,t} \times MergingUnderwritersAreExperts_{d,c} \\ & + \beta_3 Treated_{a,c} \times Post_{c,t} \times MergingUnderwritersNotExperts_{d,c} + \theta_{i,c} + \theta_{c,t} + e_{d,c}. \end{aligned} \tag{10}$$

The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in columns (1) and (4) ((2) and (5)/(3) and (6)). Coefficient estimates on $MergingUnderwritersAreExperts_{d,c}$ are omitted for brevity. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A12: Effects of Consolidation on Underwriting Spread Using Finer Market Definitions

	(1) Underwriting Spread (bps.) [–4, +4]	(2) Underwriting Spread (bps.) [–4, +7]	(3) Underwriting Spread (bps.) [–4, +10]
Panel A: By CSA × amount brackets			
Treated × Post	6.20***	5.33***	5.95***
	(4.21)	(4.14)	(4.67)
Observations	46,807	68,099	89,973
Adjusted R-squared	0.574	0.568	0.560
Panel B: By CSA × maturity brackets			
Treated × Post	5.11***	5.47***	6.93***
	(3.10)	(3.25)	(3.69)
Observations	34,087	48,536	62,629
Adjusted R-squared	0.589	0.582	0.577
Panel C: By CSA × main use of proceeds			
Treated × Post	1.96	2.87	4.77**
	(1.31)	(1.63)	(2.46)
Observations	47,627	67,591	86,681
Adjusted R-squared	0.568	0.560	0.553
Panel D: By CSA × method of sales			
Treated × Post	3.44*	4.30**	5.55***
	(1.97)	(2.66)	(3.04)
Observations	59,201	84,142	110,035
Adjusted R-squared	0.574	0.564	0.557
Panel E: By CSA × whether bond issue has credit ratings			
Treated × Post	5.66***	5.53***	5.96***
	(3.59)	(3.92)	(4.05)
Observations	63,352	88,004	112,071
Adjusted R-squared	0.563	0.557	0.549
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: This table examines the effects of consolidation on the underwriting spread when I divide markets further by both CSA and bond category. The sample is constructed through the following steps:

1. First, I sort all bond issues each year in the whole country or within a CSA into categories based on issue characteristics. I use five characteristics in Panels A to E, repsectively: (1) amount, which I divide into four brackets: mega (top 5%), large (top 25%-top 5%), medium (top 50%-top 25%), and small (bottom 50%); (2) maturity length, which I divide into three equal-sized terciles; (3) the main use of proceeds, as described in Figure A4; (4) the method of sales; and (5) whether the bond issue has credit ratings.
2. Second, I define a market as a CSA $\times$ bond category, indexed by m. For each CSA $\times$ bond category and starting from the year 1970, I calculate the HHI of the CSA $\times$ bond category $m \times$ year t based on the market shares of municipal bond underwriters in the three years prior to year t. Then, I extract all M&A deals from the period t to $t+3$ and calculate the would-be HHI if the acquiror and the target in these M&As became a single firm, also based on bond issuances in CSA $\times$ bond category m in the three-year period prior to year t. I then take the difference between this *predicted* HHI and the actual HHI as the *predicted* Δ_{HHI}. If the *predicted* Δ_{HHI} exceeds 100 points, I say that CSA $\times$ bond category m experiences a local consolidation episode that starts in t.
3. Third, I identify the control market. For each treated CSA $\times$ bond category, I find a control CSA that most closely resembles the treated CSA in terms of average income and population, using the Mahalanobis distance. I further divide this control CSA into bond categories and the control market consists of bonds in the same bond category as the treated market.

I then estimate and report the findings from the following regression specification,

$$y_{d,c} = \beta_1 Treated_{m,c} \times Post_{c,t} + \theta_{i,c} + \theta_{c,t} + e_{d,c}. \tag{11}$$

Here d is the subscript for each bond issue, i.e., each deal, m is the subscript for each market, i.e., each CSA $\times$ bond category, c is the subscript for each cohort of a treated market and its matched control market, i is the subscript for each issuer, and t is the subscript for the calendar year. The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in column (1) ((2)/(3)). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: Effects of Consolidation on Underwriting Spread Using Markets Without Simultaneous Presence as Control

	(1) Underwriting Spread (bps.)	(2) Underwriting Spread (bps.)	(3) Underwriting Spread (bps.)
Treated × Post	5.22**	3.50**	3.86***
	(2.62)	(2.24)	(2.97)
Observations	64,179	75,085	588,223
Issuer × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year
Choice of Control	Random	Closest in Terms of Local Income and Population	All
Adjusted R-squared	0.533	0.521	0.559

Note: In this table, I report the estimates from the double-differences regression specification (2) using bond issues in markets without simultaneous presence of the merging underwriters as control. For each market with simultaneous presence of the merging underwriters, I find all markets with the presence of one side of the M&A but not both as control. In column (1), I randomly select such a market as the control for each treated market. In column (2), I use the market that is the closest in terms of local income and population as the control. In column (3), I use all such markets as the control. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: Effects of Consolidation on Underwriting Spread Using Withdrawn M&As as Controls

	Predicted $\Delta_{HHI} >= 50$		*Predicted* $\Delta_{HHI} >= 20$		*Predicted* $\Delta_{HHI} >= 0$	
	(1)	(2)	(3)	(4)	(5)	(6)
	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)	Underwriting Spread (bps.)
Treated × Post	79.18***	71.99***	14.11**	22.22***	13.13**	19.73***
	(6.92)	(5.62)	(2.64)	(4.44)	(2.47)	(3.89)
Observations	137	407	1,711	3,956	3,763	6,296
Issuer × Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Market Definition	CSA	CSA	CSA	CSA	CSA	CSA
Number of Matches	1	3	1	3	1	3
Adjusted R-squared	0.134	0.439	0.337	0.403	0.304	0.377

Note: In this table, I report the estimates from the double-differences regression specification (2) using bond issues in markets that experience withdrawn M&As as control. I start by identifying markets that experience withdrawn M&As that would hypothetically lead to an implied Δ_{HHI} greater than 50 (20/0) in columns (1) and (2) ((3) and (4)/(5) and (6)). For each market that experiences withdrawn M&As, I find a market that experiences completed M&As that would lead to an implied Δ_{HHI} greater than 100 (i.e., treated markets described in Section 2.2) and is the closest to the market that experiences withdrawn M&As in terms of local income and population. I construct a sample with issues in markets that experience completed M&As as treated observations and issues in markets that experience withdrawn M&As as control observations. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels or at the CBSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A15: Effects of Consolidation on Total Issuance Expenses

	Predicted $\Delta_{HHI} >= 100$		*Predicted* $\Delta_{Top\ 5\ Share} >= 5\%$	
	(1)	(2)	(3)	(4)
	Total Issuance Expenses (bps.)	Total Issuance Expenses, Year FE Model (bps.)	Total Issuance Expenses (bps.)	Total Issuance Expenses, Year FE Model (bps.)
Panel A: [–4, +4]				
Treated × Post	4.64**	5.28**	3.37	5.43**
	(2.35)	(2.56)	(1.61)	(2.22)
Observations	78,460	49,585	73,329	45,940
Adjusted R-squared	0.500	0.518	0.483	0.512
Panel B: [–4, +7]				
Treated × Post	4.72**	7.29***	4.11*	6.88***
	(2.64)	(3.76)	(1.92)	(2.84)
Observations	110,186	74,746	102,988	68,325
Adjusted R-squared	0.490	0.510	0.475	0.506
Panel C: [–4, +10]				
Treated × Post	6.85***	10.12***	6.45***	9.61***
	(3.54)	(4.02)	(2.81)	(3.55)
Observations	140,259	100,825	131,694	91,986
Adjusted R-squared	0.492	0.513	0.475	0.507
Issuer × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CBSA & Year	CSA & Year	CBSA & Year

Note: In this table, I report the estimates from the double-differences regression specification (2) using the total issuance expenses as the outcome variable. Columns (1) and (2) use local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$. Columns (3) and (4) use local consolidation episodes with *predicted* $\Delta_{Top\ 5\ Share} >= 5\%$. The credit rating fees, financial advisor fees, and bond insurance fees are predicted using a model without year fixed effects in columns (1) and (3) and with year fixed effects in columns (2) and (4). The time window spans from 4 years before to 4 (7/10) years after the onset of local consolidation episodes in Panel A (B/C). T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels or at the CBSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A16: Effects of Consolidation on Secondary-Market Liquidity

	(1) N Trades	(2) Trading Volume	(3) Markup (within Month)	(4) Markup (within Week)
Treated × Post	0.90	-0.01	0.01	0.02
	(1.28)	(-0.63)	(0.18)	(0.92)
Observations	1,936,181	1,936,181	1,349,439	1,310,976
CUSIP × Cohort FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Adjusted R-squared	0.565	0.293	0.094	0.111

Note: In this table, I examine the effects of local consolidation episodes with *predicted* $\Delta_{HHI} >= 100$ on secondary-market liquidity. I assemble a CUSIP-year level treatment-control matched sample. Each cohort consists of CUSIP-year level observations of secondary-market liquidity for bonds by issuers in both treated and control markets in the $t-4$ to $t+4$ window around the onset of the local consolidation episode. I report the estimates from the following double-differences regression specification.

$$y_{\text{CUSIP},t,c} = \beta_1 Treated_{a,c} \times Post_{c,t} + \theta_{\text{CUSIP},c} + \theta_{c,t} + e_{\text{CUSIP},t,c}. \tag{12}$$

Here CUSIP is the subscript for each CUSIP, a is the subscript for each CSA, c is the subscript for each cohort of treated CSA and its matched control, and t is the subscript for the calendar year. $Treated$ equals one for issues in treated CSAs and $Post$ equals one in the year of the onset of local consolidation episodes and afterwards. $y_{\text{CUSIP},t,c}$ is the secondary-market liquidity in year t of the bond identifiable by CUSIP. Columns (1) uses the annual total number of trades of a CUSIP. Column (2) uses the annual total par value traded scaled by the principal dollar amount for a CUSIP. Columns (3) and (4) use the percentage difference between average customer purchase prices and interdealer prices of a CUSIP, aggregated to the annual frequency. In column (3), I identify the months in which a CUSIP has both customer purchase and interdealer sales. Within each month, I calculate the par-value weighted average customer purchase price and interdealer price and take the percentage difference, i.e., $\frac{\text{Customer Purchase Price}-\text{Interdealer Price}}{\text{Interdealer Price}}$. I then take a simple average across these months. I label this as "Markup (within Month)". In column (4), I construct "Markup (within Week)" similarly by taking an average across weeks for which both customer purchase and interdealer sales exist. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A17: Summary Statistics For Local Government Finances

	Mean	SD	25%	Median	75%	N
Panel A: School Districts						
Revenue Per Student	13321.0	6756.9	8818.4	11960.9	15717.3	439,514
Expenditure Per Student	14947.2	9234.0	8713.4	12248.2	18447.5	439,514
Interest Paid/Exp. (%)	2.0	2.2	0.3	1.3	3.0	439,514
Issuance/Exp. (%)	5.5	16.1	0.0	0.0	0.0	439,514
Budget Surplus Ratio (%)	–4.8	17.7	–14.4	0.1	5.8	439,514
Panel B: Municipalities/Townships/Counties						
Revenue Per Capita	1290.4	1369.7	368.1	847.0	1697.6	555,975
Expenditure Per Capita	1313.7	1468.7	347.0	822.0	1716.4	555,975
Interest Paid/Exp. (%)	3.0	4.4	0.0	1.3	4.1	555,975
Issuance/Exp. (%)	5.9	16.4	0.0	0.0	0.2	555,975
Budget Surplus Ratio (%)	6.1	26.6	–8.1	2.9	15.4	555,975

Note: All variables are winsorized at the 1% and 99% percentiles. Variable definitions are provided in Internet Appendix Table A1.

Table A18: Effects of Consolidation on Local Government Finances, Using Local Consolidation Episodes Less Confounded by Endogeneity Concerns or Alternative Explanations

	(1) Issuance/Exp. (in %)	(2) Interest Paid/Exp. (in %)	(3) Budget Surplus/Exp. (in %)
Panel A: All M&As have rationales likely unrelated to local economic conditions			
Treated × Post	–0.91**	0.16*	–0.19
	(–2.34)	(1.86)	(–0.30)
Observations	158,600	158,600	158,600
Panel B: CSA makes up ≤ 5% of the total businesses of the merging underwriters			
Treated × Post	–0.78*	0.01	–0.39
	(–1.92)	(0.11)	(–0.70)
Observations	51,545	51,545	51,545
Panel C: Exclude local consolidation episodes with concurrent CB M&As ≥ 100			
Treated × Post	–0.93**	0.03	–0.28
	(–2.09)	(0.49)	(–0.61)
Observations	140,869	140,869	140,869
Government × Cohort FE	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year

Note: In this table, I report the estimates from the double-differences regression specification (4) and using local government finances outcomes as the outcome variable. Variable definitions are provided in Internet Appendix Table A1. In Panel A, I report the estimates from a subsample where all M&As in the local consolidation episodes have rationales likely *not* related to local economic conditions according to the news articles. In Panel B, I report the estimates from a subsample where the treated CSAs account for a small percentage (less than 5%) of the total businesses of the merging underwriters. In Panel C, I require that around the onset of the local consolidation episodes there are no concurrent commercial bank M&As that would increase local commercial bank HHI by more than 100. The time window spans from 4 years before to 4 years after the onset of local consolidation episodes. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A19: Predictive Factors of Local Market Consolidation

	(1) *Predicted* Δ_{HHI}	(2) $\mathbf{1}_{Predicted\ \Delta_{\text{HHI}} \geq 100} \times 100$	(3) Underwriting Spread (bps.)	(4) Underwriting Spread (bps.)
Treated × Post			4.61***	4.14**
			(2.92)	(2.52)
Prior HHI	-0.0016	-0.0012***	0.00*	0.00*
	(-0.84)	(-4.15)	(1.94)	(2.01)
Population	0.0001	-0.0001		-0.01
	(0.12)	(-0.33)		(-1.14)
Population Growth Rate	324.0629	68.8408*	-85.42	-73.46
	(1.65)	(1.97)	(-0.79)	(-0.73)
Income	0.0185	0.1268		0.69
	(0.02)	(0.85)		(0.93)
Income Growth Rate	-18.6021	-4.8940		-41.36
	(-0.20)	(-0.29)		(-0.87)
Age	2.1907	-0.0990		-0.51
	(1.19)	(-0.33)		(-0.12)
Minority Share	64.4586	2.7598		149.04
	(1.03)	(0.33)		(0.69)
Past Issuance Per Capita	-0.0022	-0.0000		-0.00
	(-1.30)	(-0.08)		(-0.40)
Observations	8,357	8,357	79,032	79,032
Year FE	Yes	Yes	No	No
Issuer × Cohort FE	No	No	Yes	Yes
Cohort × Year FE	No	No	Yes	Yes
Clustering	CSA & Year	CSA & Year	CSA & Year	CSA & Year
Adjusted R-squared	0.064	0.082	0.532	0.532

Note: In columns (1) and (2), I investigate what local demographic, economic, and market characteristics predict within-market consolidation. I use a CSA-year panel and report the estimates from the following regression specification,

$$\begin{aligned} y_{a,t} &= \beta_1 \text{ Prior HHI}_{a,t} + \beta_2 \text{ Population}_{a,t} + \beta_3 \text{ Population Growth Rate}_{a,t} \\ &+ \beta_4 \text{ Income}_{a,t} + \beta_5 \text{ Income Growth Rate}_{a,t} + \beta_6 \text{ Age}_{a,t} + \beta_7 \text{ Minority Share}_{a,t} \\ &+ \beta_8 \text{ Past Issuance Per Capita}_{a,t} + e_{a,t}, \end{aligned} \tag{13}$$

where a indicates a CSA and t indicates a calendar year. Column (1) uses the *predicted* Δ_{HHI} over the next three years as the outcome variable. Column (2) uses a dummy variable for whether the *predicted* Δ_{HHI} exceeds 100. Columns (3) and (4) use the underwriting spread as the outcome variable. In Column (3), I estimate the regression specification (2) while controlling for variables that statistically significantly predict within-market consolidation. In Column (4), I estimate the regression specification (2) while controlling for all local demographic, economic, and market characteristics. In columns (1) and (2), the explanatory variables are lagged by one period, while in columns (3) and (4) the control variables are contempraneous. Prior HHI is the HHI calculated based on the market share of municipal bond underwriters in the preceding three-year period. Population is in thousands, and population growth rate is calculated as $\frac{\text{Population}_t - \text{Population}_{t-1}}{\text{Population}_{t-1}}$. Income is in thousands of dollars, and income growth rate is calculated as $\frac{\text{Income}_t - \text{Income}_{t-1}}{\text{Income}_{t-1}}$. Past issuance per capita is based on the preceding three-year period and in dollars. T-statistics are in parentheses. Standard errors are double-clustered at the CSA and calendar-year levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

III. Introduction to the Issuing Process

Negotiated sales and competitive bidding are the two commonly used method of sales for municipal bonds in the primary market. I illustrate the two methods in Internet Appendix Figure A8. Specifically,

- Under negotiated sales, the underwriter is selected via a "request for proposals" process. Governments interested in issuance put out a "request for proposal". Underwriters can then submit proposals that include their experience, credentials, other qualitative information, and a proposed underwriting spread. Governments review these proposals and select an underwriter based on criteria including the proposed underwriting spread and subjective factors such as the quality of proposals and underwriter credentials and experience. After that, underwriters seek customer indications of interest in the issue through a "presale" process. Finally, the issuer, their financial advisor (if any), and the underwriter jointly agree upon and establish the final bond pricing.

- Under competitive bidding, the issuer and its financial advisor decide on the amount, maturity, coupon rate, and other features of the bond issue (but not the underwriting spread or the reoffering yield). The issuer then sets up a public first-price sealed-bid auction, where underwriters bid for the bonds and the issuer sells the bonds to the underwriter with the highest bid. The underwriter resells the bonds to initial investors at the reoffering price. The underwriting spread is the difference between the reoffering price and the winning bid (U.S. Securities and Exchange Commission, 2012).

Generally, negotiated sales are more common for larger, lower-rated, and more customized bonds, while competitive bidding is more common for smaller, higher-rated, and more standardized bonds. Cestau et al. (2020) discuss the merits of each method, the current landscape of their usage, and also their market implications.

Theoretically, M&As can affect the underwriting spread under either negotiated sales or competitive bidding.

- Under negotiated sales, the underwriting spread is largely agreed upon in the "request for proposal" stage, where potential underwriters submit proposals that include proposed underwriting spreads. Reduced competition could lead to higher underwriting spreads.

- Under competitive bidding, the underwriting spread is the difference between the reoffering price and the winning bid. The reoffering price is primarily driven by investor demand and not affected by underwriter competition. Assuming the reoffering price being relatively fixed, less competition in an auction could result in a lower winning bid, thereby widening the underwriting spread.

IV. Variable Construction

In this Section, I provide further details on variable construction.

IV.I. Reoffering yield and yield spread

IV.I.I. Reoffering yield

A bond issue can contain multiple bonds with different maturities. I take the following steps to calculate the reoffering yield of each individual bond, provided there is sufficient data for the calculation. I use the fields "Dated Date", "Maturity Date", "Maturity Amount", "Coupon Type", "Coupon of Maturity", and "Price/Yield of Maturity" in the Global Public Finance (GPF) database provided by SDC.

1. I calculate the reoffering yield if the type of coupon payment is "fixed rate" or "zero coupon". I do not calculate the reoffering yield for bonds with variable rate coupon

payments, for which the dollar amount of the coupon depends on the general interest rate and other contingent factors.

2. For bonds with a "zero coupon" type of payment, I code the coupon rate as 0. In the raw data, the coupon rate for such bonds is null.

3. If an issue contains multiple bonds but only one coupon rate is given, I assume that the coupon rate applies to all bonds within the issue.

4. I do not calculate the reoffering yield for a bond issue if there is a missing value for the maturity date.

5. I do not calculate the reoffering yield for a bond issue if there is a discrepancy in the number of entries for maturity, coupon rate, and price/yield. In these cases, it is unclear how many bonds are in the bond issue.

6. For a bond within a bond issue:

   (a) If the "price/yield" field is less than 20, I assume it is the reoffering yield of the bond.

   (b) If the "price/yield" field is in between 80 and 120, I assume it is the reoffering price of the bond. I assume that there are $M = \text{round}(\frac{m}{365/2})$ biannual coupon payments on the bond, where m is the number of days from the dated date to the maturity date, and the principal amount is repaid at the end. I calculate the reoffering yield as $(1+r)^2 - 1$, where r solves

$$0 = -P + \sum_{\tau=1}^{M} (\frac{C/2}{(1+r)^{\tau}}) + \frac{100}{(1+r)^{M}},$$

   P is the reoffering price quoted in reference to each \$100 face value, and C is the coupon rate.

(c) If the "price/yield" is any value other than those, I are not certain if the value corresponds to a reoffering price or a reoffering yield. I do not calculate the reoffering yield for this bond.

7. If a bond issue contains multiple bonds, the reoffering yield of the bond issue is the weighted average across bonds, weighted by the principal amount times the maturity length of each bond, i.e., by the "bond year" of each bond.

IV.I.II. Yield spread relative to Treasury securities

To calculate the tax-adjusted reoffering yield spread, i.e., the spread between the yield of a municipal bond issue and its comparable U.S. Treasury securities, I follow the steps outlined by Schwert (2017) and Li and Zhu (2019).

1. I obtain the interpolated U.S. Treasury yield curve provided by Gürkaynak et al. (2007) at `https://www.federalreserve.gov/econres/feds/the-us-Treasury-yield-curve-1961-to-the-present.htm`.

2. I match each bond within the bond issue to a synthetic risk-free bond that has the same payoff structure.

3. I calculate the price of the synthetic bond by discounting its future cash flows using the Treasury yield curve. The Treasury yield is for 30 years at maximum, and data for such long maturities are available only in recent decades. I set the reoffering yield spread to missing if the corresponding Treasury yield is unavailable.

4. Using the price of the synthetic bond, I compute its yield to maturity.

5. I take the difference between a municipal bond's tax-adjusted yield and the yield of its matched synthetic risk-free bond to obtain the yield spread. Specifically, for a bond

exempt from federal taxation:

$$s_i = r_i - r_i^{\text{risk-free}} \times (1 - \tau_t^{fed}),$$

where s_i is the reoffering yield spread for bond i, r_i is the reoffering yield for bond i, $r_i^{\text{risk-free}}$ is the yield of the synthetic risk-free bond, and τ_t^{fed} is the top-bracket federal income tax rate in year t, the year of the bond sale. The downward adjustment $(1-\tau_t^{fed})$ on the yield of the synthetic risk-free bond accounts for the fact that Treasury securities are subject to federal taxation. For a bond not exempt from federal taxation, the spread is:

$$s_i = r_i \times (1 - \tau_t^{fed}) - r_i^{\text{risk-free}} \times (1 - \tau_t^{fed}).$$

6. If a bond issue contains multiple bonds, the reoffering yield spread of the bond issue is the weighted average by the "bond years" of each bond. The "bond years" of a bond equals the maturity length of the bond multiplied by its principal amount.

I can calculate the yield spread for all bond issues from November 25, 1985 to the most recent date, in which period Treasury yields for maturities up to 30 years are available.

IV.I.III. Yield spread relative to MMA curve

I also use the Municipal Market Advisors AAA-rated curve (MMA curve) as a tax-exempt benchmark for calculating the municipal bond yield spread following Goldsmith-Pinkham et al. (2023). This curve is reported daily on Bloomberg from 2001 onward, which is a shorter sample period compared to Treasury securities. I take the following steps:

1. I match each bond within a bond issue to a point on the MMA curve for the closest maturity on the same date, which serves as the comparable risk-free yield.

2. I calculate an average comparable risk-free yield for all bonds in the issue, weighted by the "bond years" of each bond.

As the MMA curve is available only after 2001, the sample size for the yield spread relative to the MMA curve is smaller compared to the yield spread relative to Treasury securities.

IV.II. Initial underpricing

A common measure for the quality of security underwriting is initial underpricing. A high-quality underwriter can price a security close to its actual market value, thereby keeping interest costs low for issuers. To calculate initial underpricing, I follow Garrett (2024) and use the Municipal Securities Transaction Data provided by the Municipal Securities Rulemaking Board (MSRB). This data contain detailed trade-level information, including the security identifier (CUSIP), the timestamp of the trade, and the execution price. Prices are quoted in reference to each $100 face value. I calculate the initial price of a CUSIP as the trade-size-weighted dollar price on the first day of trading. I calculate the day-15-to-day-30 price as the trade-size-weighted dollar price in a $[+15, +30]$ days window after the initial trading date. Initial underpricing is computed as the difference between the day-15-to-day-30 price and the initial price. The data are available from 2006 to 2023.

V. Rationales for M&As According to News Reports

Table B1: Rationales for M&As According to News Reports

Acquiror	Target	Source	Reason	Summary
Merrill Lynch	White Weld	Wikipedia	"As stock markets became more retail-oriented and investment banking became more capital intensive, the firm (White Weld) decided it could not compete and put itself up for sale."	Financial distress of the target (inadequate capital)
Paine Webber	Blyth Eastman Dillon	The New York Times	"(The most important reason for Paine Webber to make the acquisition is) to transform Paine Webber into a major investment banking house that would hold its own against the likes of Morgan Stanley and Shearson Lehman Brothers."	Acquiror's intent to gain nationwide dominance
E F Hutton	Carleton D Beh	UPI	"The president of the Carleton Beh Co. said 'The basic reason for association (between the two investment banks), period, is that I feel it's the definite sign of the times in providing additional capital funds and additional expertise and research.' (..) The Tribune quoted an unnamed Des Moines attorney who said recent financial disclosure statements showed the firm carrying a high inventory of bonds. The attorney speculated the company suffered losses because of high interest expenses for its large inventory."	Financial distress of the target (high inventory)
Shearson/American Express	Loeb Rhoades Hornblower	Wikipedia	"The (prior) Hornblower merger turned out to be disastrous for Loeb, Rhoades. The two firms incurred significant costs attempting to merge their back office operations, both of which had issues prior to the merger. (..) By early 1979, Loeb, Rhoades, now known as Loeb, Rhoades, Hornblower & Co. was suffering and looking for a potential acquiror."	Financial distress of the target (unsuccessful prior M&As)

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Shearson/American Express	Shearson Hayden Stone	Wikipedia	"During the 1980s, American Express embarked on an effort to become a financial services supercompany."	Acquiror's intent to gain nationwide dominance
Paine Webber	Rotan Mosle	The New York Times	"Mr. Marron (the chairman and president of Paine Webber) said he was attracted to Rotan because the Southwest is one of the high-priority areas in Paine Webber's expansion plans. 'This is the part of the country that's going to grow the fastest in the future,' he said. 'A lot of similarities.'"	Acquiror's intent to expand geographically
Paine Webber	First Mid America	The New York Times	"The First Mid America merger 'is part of Paine Webber's continued plans for expansion,' Mr. Marron said."	Acquiror's intent to expand geographically
BMO Bank	Harris Bank	BMO's Website	"While BMO was the first Canadian bank to expand to the United States and had maintained operations there since its earliest days, it took a major leap forward in 1984 with the acquisition of Harris Bancorp in Chicago. The move would set the bank on a path to become a truly continental bank, with seamless operations on both sides of the Canada-U.S. border."	Acquiror's intent to expand geographically
Lehman Brothers	Shearson/American Express	The New York Times	"Mr. Peterson, former Commerce Secretary under President Nixon and now a private investor, said yesterday: 'It's a very impressive and exciting marriage. The sum total is even better than each of the parts. (..) Shearson/American Express acquires one of the finest corporate finance, commercial paper, investment management and government trading operations anywhere. The Lehman group gets access to a much stronger distribution network, a wider array of products and a large amount of new capital from one of the most significant financial institutions in the world.'"	Synergy from combining different lines of business

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Merrill Lynch	AG Becker	The New York Times	"Mr. Pinet (the executive of AG Becker) said 'the first six months of 1984 accelerated the changes in the markets and the securities industry.' The sharp volatility in prices of fixed-income securities and the slump in trading volume of stocks led to Becker's big operating losses, which totaled $77 million in the nine months ending July 31. Although Wall Street firms had all suffered from the Dow's decline, Becker's losses were proportionately greater."	Financial distress of the target (the sharp volatility in prices of fixed-income securities and the slump in trading volume of stocks)
Lehman Brothers	E F Hutton	The New York Times	"The acquisition would increase Shearson's competitiveness by significantly enlarging the firm's capital base and by giving it the industry's biggest brokerage sales force by far, with at least 12,300 people, 800 more than Merrill Lynch & Company, the current industry leader."	Acquiror's intent to gain nationwide dominance
Bank of New York Mellon	Irving Trust	The New York Times	"Bank of New York will eventually realize savings as it eliminates duplicated efforts. 'In the securities processing business, where both companies are strong and have the large staff you need to constantly refine the systems, the new company can operate with one and a half staffs, instead of two staffs,' Mr. Brown said."	Synergy from cost management
Fleet Bank	Bank of New England	Wikipedia	"The Bank of New England Corporation was a regional banking institution based in Boston, Massachusetts, which was seized by the Federal Deposit Insurance Corporation (FDIC) in 1991 as a result of heavy losses in its loan portfolio and was placed into Chapter 7 liquidation."	Financial distress of the target (bad loans)
McDonald	Gradison	The Bond Buyer	"Mr. Summers (McDonald President) said the merger with Gradison would give McDonald a strong presence in southern Ohio, where Gradison has been operating since 1925. 'Gradison is a well-respected name and is well connected and involved in its communities,' he said. 'I feel that with Gradison we'll have an even better story to tell in serving my public finance clients.' "	Acquiror's intent to expand geographically

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Banc One	Team Bank	UPI	"A spokesman for Banc One said his company had been in discussions with Team Bancshares for several months. 'We've made a number of acquisitions since coming to Texas and this one is part of that,' said the spokesman. 'It is a healthy bank and very desirable. It has good management and employees and they have got great locations.'"	Acquiror's intent to expand geographically
Mellon Bank	Dreyfus	The New York Times	"Dreyfus, a pioneer in the mutual-fund business, has been led through most of its 42-year history by Howard Stein, one of Wall Street's best-known bears. That (the acquisition) emphasizes the trend by banking companies to try to make money from financial services rather than relying on the traditional income source of spreads between borrowing and lending rates."	Acquiror's intent to diversify its revenue sources
Mellon Bank	Scheetz Smith	The American Banker	"Larry F. Clyde, executive vice president of capital markets for Mellon Bank said its transaction would strengthen the bank's service to sate and local governments and boarden the geographic reach of Sheetz, which had $4 million of revenue last year."	Synergy from combining different lines of business; Acquiror's intent to expand geographically
First Chicago Bank	National Bank of Detroit	The New York Times	"First Chicago and NBD complement each other on a variety of fronts. 'Along comes an opportunity where the stars lined up just right where I have a compatibility of product lines, a compatibility of geographic areas and a compatibility of customer bases,' said Richard L. Thomas, chairman and chief executive of First Chicago."	Synergy from combining different lines of business
NationsBank	Bank South	Los Angeles Times	"The deal, the latest in a series of mergers in the banking industry, would solidify the position of Charlotte, N.C.-based NationsBank in the robust Atlanta market and take away another of the few remaining banks that call the city home. The proposed merger could also serve as a preemptive move by NationsBank to prevent other competitors from entering the Atlanta market by acquiring Bank South, long considered an attractive takeover target."	Acquiror's intent to gain local/regional dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
PNC Bank	Midlantic Bank	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."	Acquiror's intent to gain local/regional dominance
Chase Bank	Chemical Bank	The Washington Post	"Like other recent bank mergers, the Chase-Chemical agreement was encouraged by major investors who think the institutions can operate more efficiently and afford the talent and new technologies that will keep earnings and stock prices high."	Synergy from cost management
Fleet Bank	NatWest Bank	Wikipedia	"Having struggled without success to make the operation profitable, NatWest Bancorp was divested for US$2.5 billion in 1996; its 300 branch network merging with Fleet Bank of New York, N.A. to form Fleet Bank, N.A."	Financial distress of the target
Summit Bank	United Jersey Bank	The New York Times	"UJB (United Jersey Bank) has for many years lagged behind many other banks of its size in profitability and expense control, and the merger plan projects sharp improvement as a result of cost cutting. By eliminating duplicated expenses, including executives, computer centers and branch offices, the two companies expect to trim $78 million of expenses annually, or nearly half the noninterest expenses at Summit."	Synergy from cost management
Banc One	First National Bank of Commerce	Los Angeles Times	"Banc One, based in Columbus, Ohio, already operates in Louisiana as a result of its 1995 acquisition of Baton Rouge-based Premier Bancorp. But the new deal would give Banc One a major presence in New Orleans, where First Commerce is based, plus additional banks elsewhere in Louisiana."	Acquiror's intent to gain local/regional dominance
M&T Securities	OnBank	Buffalo Business First	"Another possibility is expansion into adjoining states such as Pennsylvania, New Jersey, Ohio and New England. M&T already has taken that step by gaining a foothold in Pennsylvania with Onbancorp's Franklin First Savings and Loan Association, the No. 2 deposit-taker in the Scranton-Wilkes Barre market."	Acquiror's intent to expand geographically

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Miller Johnson & Kuehn	Juran & Moody	The Minneapolis/St. Paul Business Journal	"Eldon Miller, CEO of Golden Valley securities dealer Miller, Johnson & Kuehn Inc., figured the purchase of St. Paul bond house Juran & Moody Inc. would boost his firm's monthly municipal bond sales."	Acquiror's intent to gain local/regional dominance
Morgan Stanley	Dean Witter Reynolds	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
National City Bank	First of America Bank	Los Angeles Times	"National City said the companies expect one-time, merger-related, pretax charges of $350 million and an expense reduction of $243 million, or 30% of First of America's operating expenses."	Synergy from cost management
Banc One	First Chicago Bank	Investor Relations, JPMorgan Chase & Co.	"McCoy (CEO of Banc One) said, 'This merger leverages the many strengths of both companies to create a powerful national banking franchise. With greater economies of scale and skill, I will be an even stronger player in the financial services industry. I will be able to enhance my technological capabilities and will be a major competitive force in credit cards, retail and business banking across the country.'"	Acquiror's intent to gain nationwide dominance
Bank of America	NationsBank	The New York Times	"'Bigger is indeed better,' said Hugh McColl, the NationsBank chief executive, announcing the deal at a news conference. The combined institution, which would keep the BankAmerica name, would have about 8 percent of U.S. domestic deposits and aims to be 'America's bank, at home and all around the world,' he said."	Acquiror's intent to gain nationwide dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
BB&T	Scott & Stringfellow	Triangle Business Journal	"BB&T entered the investment banking business in October 1997 with its acquisition of Craigie Inc. of Richmond. With completion of this deal, Craigie will be merged into Scott & Stringfellow, which will operate as an independent subsidiary of BB&T."	Acquiror's intent to diversify its revenue sources
BOK Financial	Leo Oppenheim	The Journal Record	"Hargis (the vice chairman of BOK Financial) said that the new firm supports BOK Financial's strategy of providing services to public and commercial customers. 'We're combining the market leaders of four distinct lines of business, and creating a leading securities firm not only in Oklahoma, but in the entire region,' he said. 'It is a logical combination that will enable us to increase my ability to meet the total banking needs of public entities, not-for-profit enterprises and private citizens.' "	Synergy from combining different lines of business
Citigroup	Salomon Brothers	The New York Times	"A key goal of the combination, John Reed, the Citicorp chairman, said at a news conference, would be to make investment products such as stocks and bonds available to middle-class customers around the world. Citicorp has built a global retail franchise alongside its worldwide corporate banking business, while Travelers is an investment and insurance conglomerate that last year bought Salomon Brothers Inc. to add to its Smith Barney brokerage operations."	Synergy from combining different lines of business
First Union National Bank	Corestates Bank	The Washington Post	"First Union of Charlotte, which recently received regulatory approval to purchase Signet Banking Corp. of Richmond, is again acquiring a company to solidify its market presence along the East Coast. By buying CoreStates, First Union – which would have $204 billion in assets – would become the largest banking company in Philadelphia and have top market share in Pennsylvania and New Jersey."	Acquiror's intent to gain local/regional dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Key Bank	McDonald	Cincinnati Business Courier	"For Key, the deal lets it step up several notches and compete with corporate finance giants. It doubles its investment banking business and provides entry into underwriting. 'This really evens the playing field,' said Marty Piazza, Cincinnati district president for Key Bank. 'My inability before to offer these products was a shortcoming to being a big player in the financial services industry. It's hard to grow investment banking internally.'"	Acquiror's intent to diversify its revenue sources
UBS Financial Services	Dillon Read	The New York Times	"The transaction, which was negotiated in just the last few weeks, is further evidence of the determination of big European banks to build investment banking franchises in the United States. (..) Simon Canning, president and chief executive of SBC Warburg (the immediate predecessor of UBS), Swiss Bank's investment banking and capital markets division, said, 'I want to be able to offer the widest possible range of investment banking services to my clients worldwide, and that requires a first-rate U.S. investment banking presence.'"	Acquiror's intent to expand geographically
US Bank	Piper Jaffray	Los Angeles Times	"U.S. Bancorp, the 15th-largest U.S. bank, on Monday agreed to buy Piper Jaffray Cos. for about $730 million in cash in order to lock in Midwestern customers with a broader array of financial services. (..) 'This is a natural addition to my overall strategy and allows us to provide full service to my customer base,' said John Grundhofer, president and chief executive of U.S. Bancorp."	Acquiror's intent to diversify its revenue sources
Wells Fargo	Norwest Investment Services	The Washington Post	"Wells Fargo of San Francisco could tap Norwest's network of offices in 16 states to sell its commercial loan products, while Norwest would gain access to Wells Fargo's West Coast markets for its insurance and mortgage businesses."	Synergy from combining different lines of business

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
First Union National Bank	Kemper Securities	The New York Times	"'This gives them (First Union National Bank) the Midwest exposure that they haven't had,' said Daniel Eagan, a managing director at Blackrock Inc. (..) 'It helps with the retail distribution.' (..) First Union estimates that in combining Everen (the current name of Kemper Securities) with its brokerage business, it will save about $75 million by eliminating overlapping technology and jobs."	Synergy from cost management
Fleet Bank	BankBoston	The Hartford Courant	"New England's two biggest banks said Sunday they would join as one in a $16 billion megadeal designed both to fend off outside aggressors and grow beyond their combined status as the nation's eighth-largest bank."	Acquiror's intent to gain local/regional dominance
Wachovia Bank	Interstate/Johnson Lane	Greensboro News & Record	"It comes as banks are becoming more like securities firms, buying brokerages to boost fee income as traditional bank lending becomes less profitable."	Acquiror's intent to diversify its revenue sources
JP Morgan	Chase Bank	The New York Times	"Buying Morgan could catapult Chase into the big leagues of investment banking, the business of raising money for large corporations and advising them on mergers and acquisitions."	Acquiror's intent to gain nationwide dominance
RBC Bank	Dain Bosworth	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."	Acquiror's intent to expand geographically
SunTrust Bank	Equitable Securities	Nashville Post	"The merger originally was heralded as a relatively cheap way for SunTrust to capture some of the lucrative investment fees being paid by their blue-chip corporate clients. SunTrust, with its reputation for reliably serving the debt financing needs of such low-risk customers as Coca-Cola(KO), previously didn't offer equities underwriting services."	Acquiror's intent to diversify its revenue sources

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
SunTrust Bank	Crestar Bank	The Baltimore Sun	"'This is going to create a powerful combination,' said Richard G. Tilghman, Richmond-based Crestar's chairman and chief executive, who will retain his job and become vice chairman of SunTrust's board. 'It creates the premier financial services franchise in the Southeast.'"	Acquiror's intent to gain local/regional dominance
UBS Financial Services	Paine Webber	The New York Times	"In buying PaineWebber, UBS would be copying a model pioneered by Merrill Lynch & Company that combines the process of creating securities for sale, known as investment banking, with the distribution of those products to investors through a network of brokers."	Acquiror's intent to diversify its revenue sources
US Bank	Firstar Bank	The New York Times	"The U.S. Bancorp acquisition allows Firstar to diversify away from its core lending business. U.S. Bancorp owns the regional brokerage firm Piper Jaffray, which it acquired in 1998, as well as a payment-systems business that includes corporate charge and purchasing cards. Thanks largely to these subsidiaries, fee-based activities will account for 43 percent of the combined company's earnings, compared with 35 percent currently for Firstar. (..) U.S. Bancorp also brings Firstar some geographic advantages: 52 percent of its deposits come from metropolitan areas in California and the Pacific Northwest, where household growth is twice as strong as it is in the Midwestern regions served by Firstar's branches."	Acquiror's intent to diversify its revenue sources
Wells Fargo	First Security	The New York Times	"(First Security) operates similar to a savings institution, with a business that is generally weighted toward low-return products like mortgage and car loans. 'The mortgage business has gotten really crushed in this rate environment,' Mr. Ryan (of the research firm Byrne-Ryan) said. 'But Wells Fargo is one of the top operators in the mortgage business and is well positioned to resuscitate First Security.'"	Financial distress of the target (vulnerability to the rate environment)

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Citigroup	European American Bank	Los Angeles Times	"The purchase will give Citigroup a boost in its rivalry with J.P. Morgan Chase & Co., which has the largest market share in New York City. Citigroup said it has 96 branches in the area."	Acquiror's intent to gain local/regional dominance
Fleet Bank	Summit Bank	The New York Times	"The acquisition would catapult Fleet from fourth into first in New Jersey, the third-richest state in household income, and give it 83 branches in Pennsylvania, where it currently has none."	Acquiror's intent to gain local/regional dominance; Acquiror's intent to expand geographically
Regions Bank	Morgan Keegan	Chatta-noogan.com	"Allen Morgan (CEO of Morgan Keegan) said, 'Regions is an ideal partner for Morgan Keegan. Together I will create the full range financial services company my customers need and want. Morgan Keegan significantly enhances Regions' retail and institutional brokerage, fixed income and asset management capabilities and adds equity capital markets, investment banking and mergers and acquisitions to Regions' commercial and retail banking, trust, insurance and mortgage banking businesses.' "	Synergy; Acquiror's intent to diversify its revenue sources
SunTrust Bank	The Robinson Humphrey	The Wall Street Journal	"(SunTrust Bank) acquired Nashville, Tenn., investment firm Equitable Securities Corp. in 1998 and since has operated SunTrust Equitable Securities as its investment-banking arm. The unit, which has focused on health care, textiles and technology, has been hurt by turnover of key executives and competition from New York investment firms that have opened offices in Atlanta. Robinson-Humphrey's bankers would give much-needed heft to the smaller Equitable operation."	Acquiror's intent to gain local/regional dominance
Wachovia Bank	Central Fidelity Bank	The New York Times	"Its purchase, combined with the acquisition of Jefferson Bankshares, will give Wachovia a leading presence in Virginia, with 335 branch offices and nearly $10 billion in deposits."	Acquiror's intent to gain local/regional dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Wachovia Bank	First Union National Bank	CNN Money	"The acquisition will result in annual cost savings of $890 million when complete, the companies said. The combined company is also implementing a hiring freeze and plans to cut 7,000 staff jobs. Half of the cuts will come from attrition, executives on a conference call said. Cost savings would amount to about 8 percent of the banks' combined current expense base."	Synergy from cost management
RBC Bank	Tucker Anthony Sutro	New York Post	"Buying Tucker Anthony Sutro, a full-service firm of 1,000 retail brokers with a strong regional presence on both coasts, would give the bank (RBC) an instant national footprint."	Acquiror's intent to expand geographically
JP Morgan	RRZ Public Markets	Pittsburgh Business Times	"'By integrating RRZ's knowledge of the region with JPMorgan's platform and record of innovation, the combined strengths will enable my firm to enhance and broaden the services I can provide issuing authorities,' Peter Hill, JPMorgan managing director and co-head of its public finance department, said in a statement Wednesday."	Synergy from combining different lines of business
RBC Bank	William R Hough	Housing Finance	"The deal gives the Minneapolis-based RBC Dain Rauscher a high-profile expansion in the Florida marketplace, one of the few top municipal markets where the company lacked a physical public finance presence."	Acquiror's intent to expand geographically
Wachovia Bank	Prudential Securities	The New York Times	"The deal is being driven, in part, by the enormous cost savings the companies think can be obtained by cutting overlapping functions."	Synergy from cost management
Bank of America	Fleet Bank	The New York Times	"Bank of America's chief executive, Kenneth D. Lewis, said yesterday that the addition of Fleet would make Bank of America 'truly a national bank'. (..) Bank of America already has a dominant position in consumer banking in the United States, and will gain specifically in the credit card and wealth management businesses. It will also gain a slight share in corporate banking."	Acquiror's intent to gain nationwide dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Citizens Bank	TGH Securities	GlobeSt	"Stephen D. Steinour, chairman and CEO of the Pennsylvania affiliate of Providence, RI-based Citizens Financial Group, says, 'The acquisition of RMB (the major subsidiary of Thistle Group Holdings Co.) strengthens Citizens' position as Philadelphia's second largest bank and continues my momentum and growth.'"	Acquiror's intent to gain local/regional dominance
JP Morgan	Banc One	The New York Times	"The merger would create a financial behemoth and a true rival to the world's largest banking company, Citigroup , with $1.1 trillion in assets and 2,300 branches in 17 states."	Acquiror's intent to gain nationwide dominance
SunTrust Bank	NBC Capital Markets Group	Atlanta Business Chronicle	"'It was the last chance for SunTrust to get in to North Carolina, so they had to stand up,' said Chris Marinac, a principal and research analyst at Fig Partners LLC, an independent research firm focusing on financial institutions. 'This gets them into North Carolina and South Carolina in a big way.'"	Acquiror's intent to gain nationwide dominance
TD Bank	Cape Cod Bank	SouthCoast Today	"'In one transaction, I have become a significant banking and financial services presence in this important Massachusetts market,' said William J. Ryan, Banknorth (the immediate predecessor of TD Bank) chairman, president and chief executive officer. 'With the pending purchase of FleetBoston Financial by Bank of America, I want to extend my market presence intelligently in Massachusetts to compete for customers.'"	Acquiror's intent to gain local/regional dominance
Wachovia Bank	SouthTrust Securities	Wall Street Journal	"Wachovia Corp., the nation's fourth-largest bank in terms of assets, said today it will buy SouthTrust Corp. in an acquisition that would strengthen Wachovia's southern base and give it a toehold in the increasingly competitive Texas market."	Acquiror's intent to expand geographically

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Janney Montgomery Scott	Parker Hunter	Wealth Management.com	"Observers say the deal, whose terms have not been disclosed, is a sign of things to come, as smaller firms look to acquire economies of scale that will help them compete more effectively in the compliance-intensive brokerage business. (..) TowerGroup estimates compliance costs comprise between 7 percent and 10 percent of an average securities firm's budget, but at smaller firms, the percentage is closer to 12 percent or 13 percent."	Synergy from cost management
Merrill Lynch	Advest	MarketWatch	"With the deal, the world's biggest brokerage, Merrill Lynch, aims to gain additional scale in the retail market. With 1,560 employees, Hartford, Conn.-based Advest has three main businesses: private client group, Boston Advisors and capital markets group."	Acquiror's intent to gain local/regional dominance; Acquiror's intent to gain nationwide dominance
Ferris Baker Watts	Arthurs Lestrange	Pittsburgh Business Times	"(Ferris Baker Watts) has been expanding rapidly into several Eastern and Midwestern states, but had not yet found an opportunity to get public finance bankers on the ground in Pennsylvania. (..) Teel (executive vice president and manager of FBW's municipal capital markets department) said the deal expands 'our municipal finance footprint.'"	Acquiror's intent to expand geographically
Regions Bank	Amsouth Bank	The New York Times	"The merger appeared aimed solely at cutting costs or, perhaps, fending off a hostile takeover of one or both companies, Mr. Gup (a finance professor at the University of Alabama) said."	Synergy from cost management; Acquiror or target's intent to fend off a hostile takeover
Morgan Keegan	Shattuck Hammond Partners	The Bond Buyer	"Morgan Keegan's president and chief executive, G. Douglas Edwards, said in the statement that buying Shattuck Hammond underscores his firm's commitment to health care banking and expanding in the sector."	Acquiror's intent to gain dominance in serving a specific sector

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
RBC Bank	Seasongood & Mayer	Investment Executive	"The merger bolsters RBC Capital Markets' leadership position in the U.S. municipal investment banking market while enhancing its overall presence in Ohio and in K-12 education finance nationally."	Acquiror's intent to gain local/regional dominance; Acquiror's intent to gain nationwide dominance
RBC Bank	J B Hanauer	Family Wealth Report	"Dain Rauscher (a subsidiary of RBC Bank) says the acquisition will expand its presence in Florida's rich retiree market and in the middle part of the lucrative Eastern Seaboard."	Acquiror's intent to expand geographically
TD Bank	Commerce Bank New Jersey	Investment Executive	"'The combination of Commerce with TD Banknorth doubles the scale of my U.S. banking business and accelerates my transformation to a leading North American financial institution,' said Ed Clark, president and CEO, TD Bank Financial Group, in a release."	Acquiror's intent to gain nationwide dominance
UBS Financial Services	McDonald	Investment Executive	"This transaction, coupled with the recent acquisition of the private client branch network of Piper Jaffray, further strengthens UBS Wealth Management's presence in the U.S."	Acquiror's intent to gain nationwide dominance
Wachovia Bank	A G Edwards & Sons	The New York Times	"Bringing together more than $1.1 trillion in client assets and nearly 15,000 advisers, the move aims to expand Wachovia's reach in the securities business as it faces more difficult times in other parts of the banking industry. (..) The deal will make Wachovia Securities the country's second-largest retail broker after Merrill Lynch, allowing it to take advantage of the cost efficiencies that come with size and to sell bank products to a bigger base of affluent clients. It also could enhance the capabilities of its fledgling investment bank, giving clients access to a broader network of retail investors for distributing new securities offerings."	Acquiror's intent to diversify its revenue sources; Synergy from cost management; Synergy from combining different lines of business

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Bank of America	Merrill Lynch	Wikipedia	"Significant losses were attributed to the drop in value of its large and unhedged mortgage portfolio in the form of collateralized debt obligations. Trading partners' loss of confidence in Merrill Lynch's solvency and ability to refinance money market obligations ultimately led to its sale."	Financial distress of the target (exposure to subprime mortgage)
Capital One Financial	North Fork Bank	The New York Times	"'With North Fork, Capital One will be more balanced and more diversified and my growth prospects will be enhanced,' Mr. Fairbank said during a conference call today with investors and analysts. 'That is a very important milestone in a journey that started many years ago.'"	Acquiror's intent to diversify its revenue sources
Huntington National Bank	Sky Bank	insideARM	"'This merger is consistent with my conviction that Huntington can create shareholder value by participating in consolidation in the Midwest and lowering costs and increasing customer convenience,' said Thomas E. Hoaglin, Huntington's chairman, president, and chief executive officer. (..) 'In Ohio, I will be the third largest bank in deposits with more banking offices prior to consolidation than any other bank, on a combined pro-forma basis based on data as of September 30, 2006. I will rank #1 in deposit market share in Columbus, Toledo, Youngstown, and Canton, and my market shares will be strengthened in Cleveland and other Northeast and Northwest Ohio markets.'"	Synergy from cost management; Acquiror's intent to gain local/regional dominance
JP Morgan	Bear Stearns	Wikipedia	"In the years leading up to the failure, Bear Stearns was heavily involved in securitization and issued large amounts of asset-backed securities. (..) As investor losses mounted in those markets in 2006 and 2007, the company actually increased its exposure, especially to the mortgage-backed assets that were central to the subprime mortgage crisis. (..) The company could not be saved, however, and was sold to JPMorgan Chase for $10 per share."	Financial distress of the target (exposure to subprime mortgage)

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
PNC Bank	National City Bank	Wikipedia	"The downfall of National City began in 2007 when the United States housing bubble began to burst, and consumers defaulted on subprime mortgages. Although National City was otherwise healthy on paper, the mortgage business was dragging down profits into losses, with CEO Peter Raskind even fearing that the bank might fail. National City then put itself up for sale in March 2008."	Financial distress of the target (exposure to subprime mortgage)
RBC Bank	Ferris Baker Watts	Investment Executive	"The acquisition enhances the mid-Atlantic presence of RBC as part of its national wealth management network in the U.S., and will establish a new seventh region for RBC Wealth Management comprised of FBW locations."	Acquiror's intent to gain local/regional dominance
Southwest Securities	M L Stern Investments Sec	Wealth Briefing	"Stern's CEO Milford Stern says the tie-in with SWS gives Stern and Tower a chance to 'benefit from the financial strength of a public company that offers a broad product mix and a intent to expand geographically their presence in the retail marketplace.' On the other side of the equation, SWS gets "a strong foothold in the high-net-worth California marketplace" while 'Stern's historic focus on fixed-income products provides [SWS] the opportunity to grow' as baby boomers adopt defensive strategies for their nest eggs in preparation for retirement."	Acquiror's intent to gain local/regional dominance; Synergy from combining different lines of business
Stifel Nicolaus	Butler Wick	St. Louis Business Journal	"'By adding this talented group of professionals, I meet my goal of expanding in the Ohio Valley Region, and further build upon the firm's recent growth achieved through my successful acquisitions and integrations of the Legg Mason Capital Markets Group in 2005, and Ryan Beck last year,' Ronald Kruszewski, chairman and CEO of Stifel Financial Corp. and Stifel, Nicolaus Co. Inc., said in a statement."	Acquiror's intent to expand geographically

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Wells Fargo	Wachovia Bank	Wikipedia	"Exposed to risky loans, such as adjustable rate mortgages acquired during the acquisition of Golden West Financial in 2006, Wachovia began to experience heavy losses in its loan portfolios during the subprime mortgage crisis. (..) The acquisition of Wachovia by Wells Fargo was completed on December 31, 2008, after a government-forced sale to avoid Wachovia's failure."	Financial distress of the target (exposure to subprime mortgage)
US Bank	Park National Bank	The New York Times	"FBOP's big problem, according to Mr. Kelly and his regulators, was that it invested nearly $900 million in what appeared to be sure-thing, blue-chip investments, preferred stock in Fannie Mae and Freddie Mac, the government-sponsored mortgage giants. (..) But as the mortgage industry melted down, so did Fannie and Freddie; the government took them over two years ago. Holders of Fannie's and Freddie's preferred securities were out of luck, and the loss left gaping holes in the capital cushion at some of Mr. Kelly's banks. (..) At the direction of federal regulators, his nine banks were acquired by U.S. Bank, the nation's fifth-largest bank, based in Minneapolis."	Financial distress of the target (exposure to subprime mortgage)
BMO Bank	M & I Bank	Wall Street Journal	"The deal 'came together quickly,' indicating regulators may have forced Marshall & Ilsley's hand, and that could mean M&A among regional banks will pick up in the new year. (..) Marshall & Ilsley's sale suggest Treasury is getting more aggressive in asking for repayment of funds from the Troubled Asset Relief Program. M&I owes Treasury $1.7 billion in perpetual senior preferred stock. As part of the transaction, BMO is repaying M&I's obligations to Treasury."	Financial distress of the target (pressure to repay TARP funds)
Stifel Nicolaus	Stone & Youngberg	San Francisco Business Times	"Stone & Youngberg's institutional group expands Stifel's public finance, institutional sales and trading and bond underwriting, particularly in California and Arizona."	Acquiror's intent to expand geographically

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Raymond James	Morgan Keegan	Investment News	"'The combined firm will provide my financial advisers and capital markets professionals with the benefits of scale and best practices to better support their clients and help us realize my vision of being the premier alternative to Wall Street,' Raymond James chief executive Paul Reilly said in a statement."	Acquiror's intent to gain nationwide dominance
Piper Jaffray	Seattle Northwest Securities	Bring Me The News	"'Joining forces with Piper Jaffray will allow us to build on Seattle-Northwest's strength and reputation in the Pacific Northwest,' added Karl Leaverton, CEO and president of Seattle-Northwest."	Acquiror's intent to gain local/regional dominance
Hilltop Securities	Southwest Securities	Business Wire	"'I are excited to complete the merger of FirstSouthwest and legacy Southwest Securities, marking an important milestone on my path toward building a leading regional broker-dealer with an expanding national presence,' said Jeremy Ford, CEO of Hilltop Holdings. 'HilltopSecurities' cohesive leadership team and experienced employees are well-positioned to carry out the strategic vision for the new firm.'"	Acquiror's intent to gain local/regional dominance
Piper Jaffray	BMO Bank	The Minneapolis/St. Paul Business Journal	"Piper said the latest deal will deepen and broaden its institutional sales, trading and underwriting business. 'The fixed income business has been a longstanding and core focus for Piper Jaffray, and my commitment to sustainable growth led us to GKST (the municipal bond sales, trading and origination subsidiary of BMO Bank),' Piper CEO Andrew Duff said in a news release."	Synergy from combining different lines of business
D A Davidson	Smith Hayes Financial Services	Business Wire	"The merger will broaden D.A. Davidson's strong presence in Nebraska, building on SMITH HAYES' reputation as a trusted advisor in the region for 30 years."	Acquiror's intent to gain local/regional dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Huntington National Bank	First Merit Bank	USA Today	"'I am very pleased to come together with FirstMerit to create a regional bank with added customer convenience, an enhanced portfolio of products for consumers and businesses, as well as strong market share,' Huntington CEO Steve Steinour said in a statement. 'I believe the strength of this deal is that both organizations already understand the needs and goals of my Midwestern customers and communities.'"	Acquiror's intent to gain local/regional dominance
Stifel Nicolaus	City Securities	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 I had in the past. The need for scale today, because of that, is greater than it ever had been.'"	Synergy from cost management
StoneX Group	Sterne Agee & Leach	StoneX	"Charles Lyon, Executive Vice President at INTL FCStone Financial Inc. commented on today's news, 'I believe the combination of my institutional expertise and international reach with the clearing and custody platform acquired from Sterne Agee cements INTL FCStone Financial Inc.'s standing as a premier provider of brokerage services for the middle-market. The Company has enhanced its capabilities to accept international customers from its correspondents, and has expanded its offering to provide access to securities markets outside the United States for all customers.'"	Synergy from combining different lines of business
NBH Bank	People's National Bank	Housing Wire	"'The transaction with Peoples bolsters my presence in my home markets of the Colorado Front Range and the greater Kansas City region. More specifically, the acquisition provides a strong market position in the attractive Colorado Springs and Overland Park markets and expands my franchise into northern New Mexico,' NBH CEO Tim Laney said."	Acquiror's intent to gain local/regional dominance

Table B1: Rationales for M&As According to News Reports (Continued)

Acquiror	Target	Source	Reason	Summary
Robert W Baird	JJB Hilliard WL Lyons	PR Newswire	"'Hilliard Lyons and its well-respected advisors are known for providing high-quality financial advice and service to clients,' said Mike Schroeder, President of Baird Private Wealth Management. 'Their trust capabilities matched with my robust wealth solutions make for a powerful combination that will benefit clients.'"	Synergy from combining different lines of business
Stifel Nicolaus	George K Baum	Yahoo Finance	"'This transaction brings GKB's nationally recognized municipal securities business to Stifel and further strengthens Stifel's ability to provide top tier service to municipal issuer clients and non-profit borrowers.' said Ronald J. Kruszewski, Chairman and CEO of Stifel."	Acquiror's intent to gain nationwide dominance
Eastern Bank	Century Bank	Business Wire	"The merger is expected to solidify Eastern's leading position in Boston and Eastern Massachusetts."	Acquiror's intent to gain local/regional dominance
PNC Bank	BBVA Compass	PR Newswire	"'My acquisition of BBVA USA accelerates my national expansion and positions us to increase shareholder value over time by bringing my industry-leading technology and innovative products and services to new markets and clients,' said William S. Demchak, PNC's chairman, president and chief executive officer."	Acquiror's intent to expand geographically
M&T Securities	People's United Bank	Vermont Biz	"M&T will build on People's United's complementary footprint to reach a broad range of customers and expand into new regions."	Acquiror's intent to expand geographically
Commerce Bank of Kansas City	LJ Hart	The Bond Buyer	"Commerce will leverage L.J. Hart's broad municipal issuer client base and boost its sales efforts by offering proprietary municipal products, the firm said in a press release. (..) L.J. Hart will become a wholly-owned subsidiary of Commerce, allowing it to expand its offerings and underwriting opportunities throughout Commerce's network of state and local government."	Synergy from combining different lines of business