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## Municipal Finance and Asymmetric Risk

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# MUNICIPAL FINANCE AND ASYMMETRIC RISK

LORI RAINERI & DARIEN SHANSKE\*

INTRODUCTION.....	65
I. BACKGROUND.....	67
II. TWO PRINCIPLES IN TENSION .....	74
A. Preserve Public Dollars .....	75
B. Avoid Asymmetric Risk.....	77
III. TWO KINDS OF SOLUTIONS .....	80
CONCLUSION: THE CAMEL’S NOSE OR TAIL?.....	81

## INTRODUCTION

In 2016, both major presidential candidates supported a big increase in federal spending for infrastructure improvements.<sup>1</sup> This is a good thing in light of the state of America’s infrastructure.<sup>2</sup> Given that much of the nation’s infrastructure is owned and maintained by local governments, such proposals require local governments to access the capital markets even more than they currently do. And, as it is, the municipal market is extremely large. In 2015 alone, there were 6,530 “new money” municipal bond issues, totaling nearly \$153.86 billion.<sup>3</sup>

Looking forward, there is therefore good reason to pause and think about how local governments might access the capital markets more efficiently. Looking backward, however, the Great Recession also provides another reason to think about local governments and the capital markets, as it revealed that local governments had not been issuing debt wisely.

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1. Conor Dougherty, *Candidates in a Rare Accord, On Updating Infrastructure*, N.Y. TIMES (Sept. 16, 2016), at A1.

2. *Id.*

3. THE BOND BUYER, 2015 IN STATISTICS 3A (2015), available at <http://cdn.bondbuyer.com/pdfs/2015-in-statistics.pdf>.

For example, in the years leading up to the financial crisis of 2008, numerous public entities borrowed for infrastructure projects using a borrowing structure known as auction rate securities (“ARS”).<sup>4</sup> By February 2008, the total dollar amount of ARS outstanding was estimated to be about \$267 billion.<sup>5</sup> To give a bit more context, the total municipal market had \$3.653 trillion outstanding in 2008.<sup>6</sup> Thus, ARS represented a substantial part of the market. In many ways, using ARS is analogous to borrowing for a house using an adjustable rate mortgage (“ARM”). The interest rates on ARS were lower than the rates for conventional borrowings and, thus, public entities saved billions of dollars.<sup>7</sup>

Then the crisis of 2008 hit and the entities that used ARS, much like the many individuals who used ARMs, found themselves in trouble, costing governments millions—possibly billions—of dollars.<sup>8</sup> These losses came from governments (1) having to pay higher interest rates than expected within these transactions, (2) having to pay to get out of these (or related) transactions, and (3) having to pay to re-finance the debt using a more conventional structure at a less than opportune time.<sup>9</sup> Since 2008, no ARS have been issued and only a tiny amount of ARS, approximately twenty billion dollars, remain outstanding.<sup>10</sup>

So, the once flourishing ARS market is no more. What should policymakers conclude about this?

One plausible, if Panglossian, analysis is that there is little to learn. Government is obligated to uphold the public trust, and lowering borrowing costs is consistent with this duty. This government duty justifies using ARS. Whether the ARS market had design flaws that always doomed it or only a crisis as severe as the Great Recession could have destroyed it, local

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4. D. ANDREW AUSTIN, CONG. RES. SERV., AUCTION RATE SECURITIES 2 (2012), available at <https://www.fas.org/sgp/crs/misc/RL34672.pdf>.

5. Baixiao Liu et al., *Why Did Auction Rate Bond Auctions Fail during 2008-2009?*, 25 J. FIXED INCOME 1, 5 (Fall 2015), available at <http://www.krannert.purdue.edu/faculty/mcconnell/publications/PublicationsPDFS/Why...2008%20FI%20Fall%202010%20V20%20N2%205-18.pdf>.

6. *US Bond Market Issuance and Outstanding*, SIFMA.ORG, <http://www.sifma.org/research/statistics.aspx> (last visited Sept. 22, 2016).

7. AUSTIN, *supra* note 4, at 1.

8. See, e.g., Michael McDonald, *Auction Supply ‘Tsunami’ Portends Municipal Losses*, BLOOMBERG (Mar. 3, 2008). It should be noted that a certain amount of this money was recovered from the banks that facilitated these transactions. See U.S. SEC. & EXCH. COMM’N., REPORT ON THE MUNICIPAL SECURITIES MARKET 9-10 (July 31, 2012), <https://www.sec.gov/news/studies/2012/munireport073112.pdf>. That the action of the financial intermediaries was so outrageous that it resulted in large financial settlements does not seem comforting to us.

9. McDonald, *supra* note 8, at 2.

10. Liu et al., *supra* note 5, at 4-5; *US Municipal Bond Credit Report, Fourth Quarter and Full Year 2015*, SIFMA.ORG, <http://www.sifma.org/research/item.aspx?id=8589958953> (follow the hyperlink under “US Municipal Bond Credit Report Fourth Quarter and Full Year 2015”).

governments are supposed to be laboratories of innovation, and sometimes experiments fail.

We think the dominant analysis is more circumspect. The financial crisis of 2008 made clear that government officials did not always understand the implications of the financial instruments that they used.<sup>11</sup> There will be other fiscal shocks, especially throughout the long terms over which much borrowing occurs. Accordingly, government officials' current level of knowledge is inadequate and should be corrected, especially as to more complex financial instruments. Indeed, in the aftermath of the Great Recession, federal law has changed, largely through the Dodd-Frank Act, to compel financial intermediaries to provide more information to government issuers and to take the best interests of the government issuers into account.<sup>12</sup>

In this Article, we will argue for yet a third analysis. Not every problem is amenable to resolution through additional education or disclosure. We will explain why the ARS debacle illustrates that there are certain kinds of borrowing structures that should be categorically prohibited.

## I. BACKGROUND

Interest rates are the price a borrower pays for the use of someone else's money. When we talk about the movements of interest rates, we often use U.S. Treasuries, the rate at which the United States borrows, as a benchmark.<sup>13</sup> As the Great Recession began, there was not only a general and steep decline in short term interest rates, but also great volatility.<sup>14</sup> It will be useful to keep this in mind as our story unfolds.

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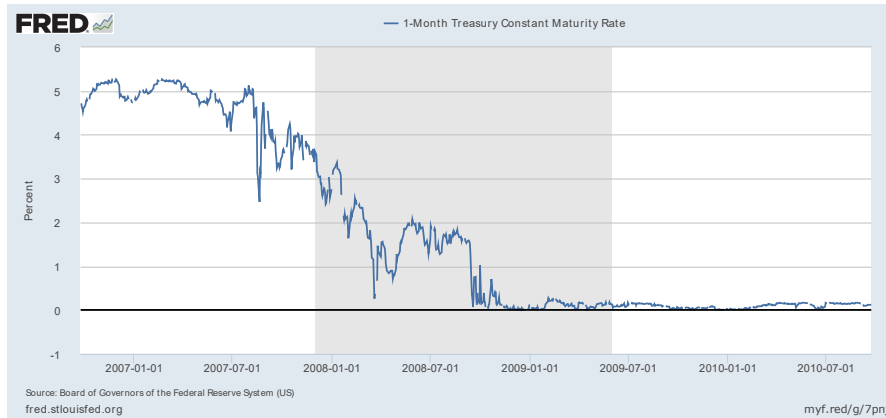
11. See, e.g., Charles Duhigg & Carter Dougherty, *From Midwest to M.T.A., Pain From Global Gamble*, N.Y. TIMES, Nov. 2, 2008, at A1.

12. For the consensus on knowledge, see U.S. SEC. & EXCH. COMM'N, *supra* note 8, at 91-95; see *id.* at 96-98 (summary of some changes in federal law).

13. Michael J. Flemming, *The Benchmark U.S. Treasury Market: Recent Performance and Possible Alternatives*, 6 FED. RES. BANK OF N.Y. ECON. POL'Y REV. 1, 1 (2000), available at <https://www.newyorkfed.org/medialibrary/media/research/epr/00v06n1/0004flem.pdf>.

14. See *1-Month Treasury Constant Maturity Rate*, FEDERAL RESERVE ECONOMIC DATA, <https://fred.stlouisfed.org/series/DGS1MO> (last visited Nov. 7, 2016).

**CHART 1: Interest Rates and the Great Recession (Grey shading indicates recession)<sup>15</sup>**



Typically, the longer the term over which someone wants to borrow money, the higher the interest rate. This is an observed “normal” economic condition, generally thought to reflect considerations of the yield on Treasury securities plus adjustments for risks related to inflation, default, liquidity, and maturity for the specific borrowing.<sup>16</sup> A yield curve shows the yield of bonds by maturity and thereby reflects the term structure of interest rates. No person or institution dictates the yield curve. Rather, the yield curve results from supply and demand in the capital markets. When the interest rates go up as maturity terms are longer, the yield curve is normal, and when interest rates are higher for shorter terms than longer terms, the yield curve is described as inverted by economists and market participants. Thus, it is normal for short-term interest rates to be lower than long-term rates, and the slope of the yield curve tells us by how much.

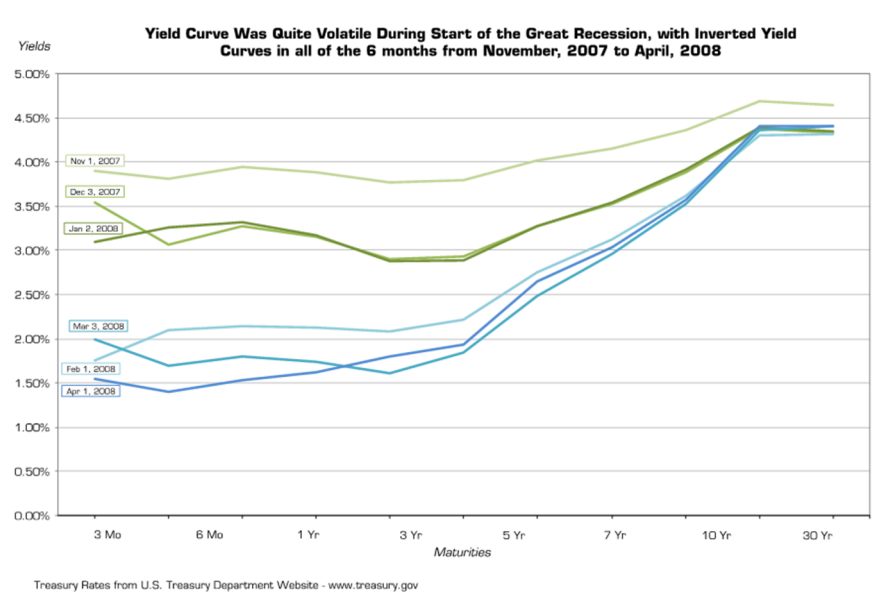
As shown below, the yield curve was frequently inverted during the crisis of 2008.<sup>17</sup> Thus, for instance, in January of 2008, it was cheaper to borrow for three years than it was for three months.

15. *Id.*

16. The five specific components of the yield curve are: (1) Risk-Free Rate, (2) Inflation Premium, (3) Default Risk Premium, (4) Liquidity Premium, and (5) Maturity Risk Premium. These components work together as a formula:  $r_{rf} + IP + DRP + LP + MRP = \text{Interest Rate}$ . See generally EUGENE F. BRIGHAM & MICHAEL C. EHRHARDT, FINANCIAL MANAGEMENT: THEORY AND PRACTICE 177 (2008).

17. See *Treasury Yield Curve*, U.S. DEP’T OF TREAS., <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/Historic-Yield-Data-Visualization.aspx> (last visited Nov. 7, 2016) (in order to generate the data).

## CHART 2: Yield Curves<sup>18</sup>



Now, let's begin a running example of a municipality wishing to undertake a large capital project, say, building a new tunnel to ease downtown congestion. Another rule of financial management is that the financing of an asset should roughly align with the useful life of the asset.<sup>19</sup> This is both fair and sensible. Let's say the new tunnel will cost \$100 million. The alignment is fair because there is no reason why that entire cost should be borne by current residents of the city. The alignment is also sensible because if debt payments are not spread out, then big projects like this could hardly ever be built. It is likely that a major capital project is as large as the city's entire operating budget. It would take a long time for a municipality to save that much money.<sup>20</sup> Accordingly, pay-as-you-use (pay-use or debt) financing has dominated pay-as-you-go (pay-go or cash) infrastructure financing for a very long time.<sup>21</sup>

We will stipulate that the useful life of the tunnel is thirty years and that that is the period over which the borrowing for this tunnel should be repaid. The city is likely to get a good deal on its borrowing for several

18. *Id.*

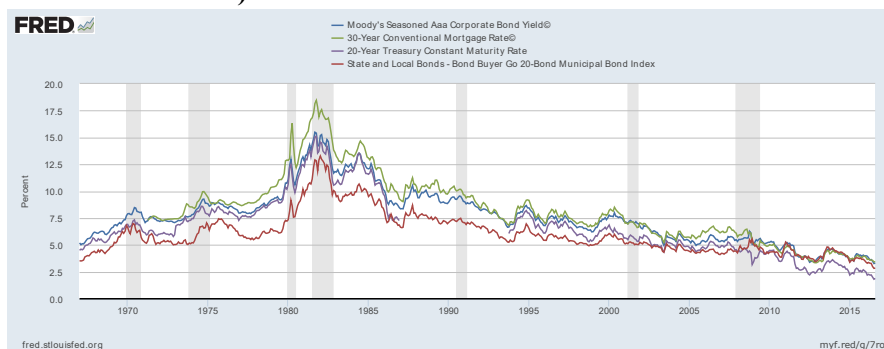
19. See generally *Role of the Finance Director in Capital Asset Management*, GOV. FIN. OFFICERS ASS'N, <http://www.gfoa.org/role-finance-director-capital-asset-management> (last visited Nov. 7, 2016).

20. Dwight Denison & Zihé Guo, *Local Debt Management and Budget Stabilization in LOCAL GOVERNMENT BUDGET STABILIZATION: EXPLORATIONS AND EVIDENCE* 122 (Yilin Hou ed.).

21. See, e.g., Wen Wang & Yilin Hou, *Pay-as-You-Go Financing and Capital Outlay Volatility: Evidence from the States over Two Recent Economic Cycles*, 29 PUB. BUDGETING & FIN. 1, 92-96 (Winter 2009).

reasons. First, relative to most individuals and businesses, cities are usually fairly diverse economically. Second, definitely unlike individuals and businesses, cities generally have the power to raise taxes in order to raise revenue. Third, because of the governmental nature of cities, the interest on the bonds they will issue is likely exempt from federal and state income taxes. Thus, the resulting interest rate is likely lower than the borrowing rate for corporate issuers or even the U.S. government.

**CHART 3: Comparison of Long-Term Interest Rates (Grey shading indicates recession)<sup>22</sup>**



As this chart indicates, the borrowing rate for many localities has generally been competitive with the borrowing rates paid by the highest-rated corporations and the United States itself.<sup>23</sup> Still, this chart only compares long-term bond issues; that is, borrowings for over twenty years. Wouldn't it be better to travel "down" the yield curve and borrow at the rate of borrowing for one year rather than thirty? Of course!

There are two basic approaches. The first is to use a variable rate structure. This is much like using an ARM for financing one's home. The basic idea is that the borrower is only locking in a rate for a short amount of time, say a year, but that rate is equal to the lower interest rate available for short-term borrowing. After the year is up, the borrower must borrow again<sup>24</sup> and then again at the lower end of the yield curve. However, the key is that these interest rates are not fixed when the debt is issued but are readjusted at fixed dates. In several years, it is possible that short-term

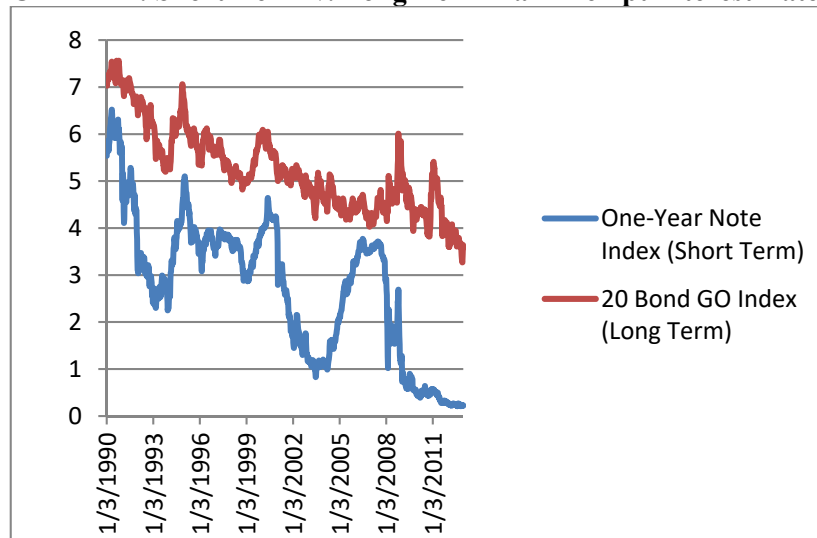
22. *Moody's Seasoned AAA Corporate Bond Yield*, FEDERAL RESERVE ECONOMIC DATA, <https://fred.stlouisfed.org/series/AAA> (last visited Mar. 19 2017).

23. *Id.*

24. This is a little bit of an oversimplification. Technically, the bond-holders can force the issuer to take back the bonds (a put option, i.e., an option to sell). CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION ("CDIAC"), *ISSUE BRIEF: AUCTION RATE SECURITIES 2* (Aug. 2004). In order to make sure that there is money to repurchase the bonds, the issuers of variable rate bonds must also purchase a line of credit from a bank. This is expensive and is not a requirement for ARS. *Id.*

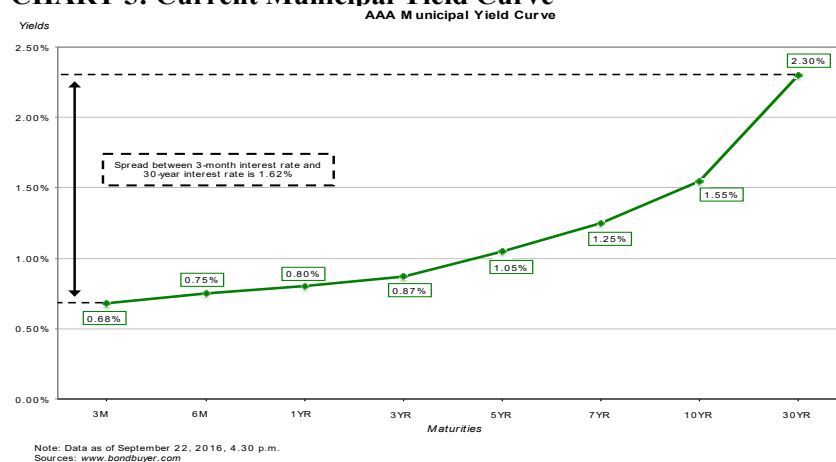
interest rates are higher than the current long-term interest rates. So, for instance, consider the following chart:

**CHART 4: Short-Term v. Long-Term Tax Exempt Interest Rates<sup>25</sup>**



The short-term index does stay consistently below the long-term index, but not always by very much. Consider the yield curve at the present moment, i.e., at the time of writing.

**CHART 5: Current Municipal Yield Curve<sup>26</sup>**



25. See *Bond Buyer Indexes*, THE BOND BUYER, [http://www.bondbuyer.com/apps/custom/msa\\_search.php?product=bbi\\_history&coll=1&start\\_date=01%2F03%2F1990&end\\_date=01%2F03%2F2012&submit=GO](http://www.bondbuyer.com/apps/custom/msa_search.php?product=bbi_history&coll=1&start_date=01%2F03%2F1990&end_date=01%2F03%2F2012&submit=GO) (last visited Mar. 19, 2017).

26. See *Standard & Poor's Intraday Municipal Bond Yield Curves*, THE BOND BUYER, <http://www.bondbuyer.com/marketstatistics/dailycurve/#dataTable> (last visited Sept. 22, 2016).



The current yield curve is normal, which indicates that borrowing for a shorter time is cheaper than borrowing over a longer period. However, the difference in this borrowing rate is not significant by historical standards (see Chart 4).<sup>27</sup> Still, the difference is real and substantial. ARS were financial innovations that took this insight about yields usually being lower on shorter-term borrowings one step further.<sup>28</sup> The rate for a one-year borrowing is still not as good as, say, a twenty-eight day borrowing. Of course, borrowing every month would seem to be a big hassle.

Rather than organize a full-blown borrowing, the banker for the issuer would organize a “Dutch” auction. Different lenders would state what interest rate they would charge for a twenty-eight-day borrowing and how much they would be willing to lend. The bank then awards the borrowing to the various bidders based on the “clearing rate.” The clearing rate is the rate at which all potential lenders will get their bid rates or better with all the debt being purchased.<sup>29</sup>

**TABLE 1: Simplified ARS Dutch Auction**<sup>30</sup>

\$1,000,000 ARS Issue		
200 Shares available (\$5,000/share)		
Bidder	Shares Ordered	Minimum Rate
1	100	2%
2	50	2.25%
3	50	2.50%
4	100	3%
5	50	3.50%

In this simplified example, the clearing rate is 2.5% because, at that rate, all available (200) shares are sold to three bidders who all had their minimum price met or exceeded.

One key idea behind ARS is that there were many institutions and individuals with lots of money that would be happy to park that money in a very short-term municipal security for a little while. Furthermore, this system also assumed that the banks that arranged these auctions had plenty of cash and could and would step in and invest their own money for a short time rather than allow an auction to fail—i.e., have insufficient bidders.<sup>31</sup>

27. *See id.*

28. Song Han & Dan Li, *Liquidity, Runs, and Security Design* (February 15, 2009), <http://ssrn.com/abstract=1344136> or <http://dx.doi.org/10.2139/ssrn.1344136>; *see generally* CDIAC *supra* note 24, at 2.

29. Han & Li, *supra* note 28, at 7.

30. For a more involved example, *see* CDIAC *supra* note 24. This example omits, among other things, what happens when there are current holders of ARS shares who want to keep them.

31. Han & Li, *supra* note 28, at 11.

The ARS market collapsed in early 2008 when banks stopped supporting their auctions, that is, stopped stepping in to provide liquidity when no one else would.<sup>32</sup>

When the auctions failed, there were several consequences. For the investors, the failed auctions meant they could not get their money out.<sup>33</sup> For the issuers, failed auctions triggered their having to pay high maximum rates.<sup>34</sup> Given the number of deals and their complexities, one cannot say that there was one maximum rate or even be sure what the average rate was. The most thorough study we are aware of reports that the maximum rate on bonds with a fixed maximum rate “mostly concentrate on twelve and fifteen percent.”<sup>35</sup> Many bonds had floating fixed rates that were lower, while some fixed rates were even higher: the Port Authority of New York was apparently saddled with a twenty percent maximum rate.<sup>36</sup> We should pause for a moment to observe how high these rates were relative both to short-term and long-term rates during the years leading up to the crash. The jump in relative short-term rates indicates the budgeting problem that these issuers faced. They had budgeted to pay under one percent and now had to pay twelve percent.<sup>37</sup> The jump in relative long-term rates indicates how preferable it would have been just to issue at a long-term rate to begin with.

The following chart is a further illustration of the problem that issuers faced.

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32. *Id.* at 7. Whether the banks had made a legal commitment to step in is of course a matter of dispute, but there have been large settlements. *See also* U.S. SEC. & EXCH. COMM’N, *supra* note 8, at 17; Liu et al., *supra* note 5, at 6.

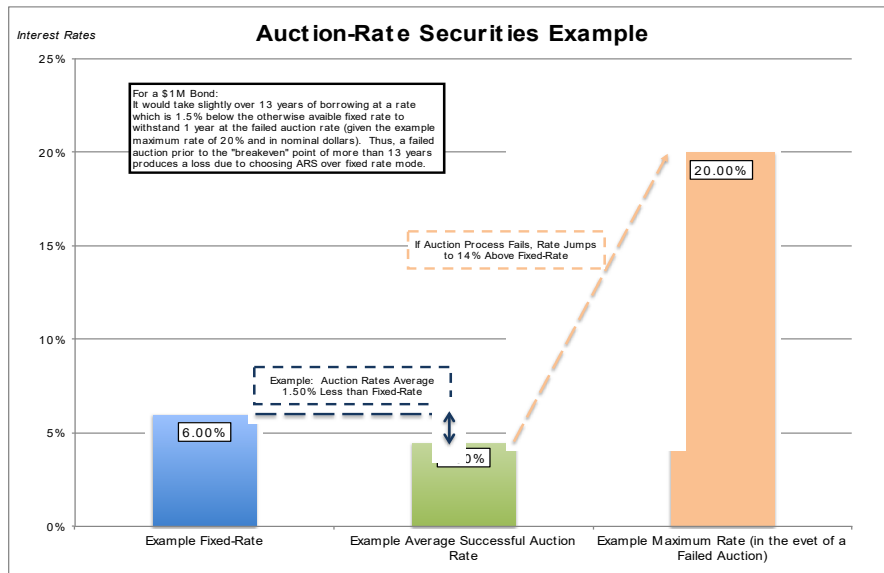
33. *See* Han & Li, *supra* note 28, at 7.

34. *Id.*

35. *Id.* at 9-12.

36. *Id.* at 6 n.3; *see also* Dwight V. Denison & J. Bryan Gibson, *A Tale Of Market Risk, False Hope, And Corruption: The Impact of Adjustable Rate Debt on the Jefferson County, Alabama Sewer Authority*, 25 J. OF PUB. BUDGETING, ACCT. & FIN. MGMT. 311 (2013) (reporting that Jefferson County’s rate rose to ten percent).

37. *See* Han & Li, *supra* note 28, at 9-12.

**CHART 6: The Surprising Cost of Auction Rate Securities<sup>38</sup>**

The chart above shows how thirteen years of savings could easily be wiped out by one year of failed auctions. Furthermore, because the savings accumulate with each successful auction, the amount of risk from a failed auction is a moving target. The risk management that would be required to hedge and perhaps re-hedge this risk is significant. And, because the ARS were supposed to operate like money market instruments, the idea of hedging ARS risk was antithetical to what it was perceived to be and, therefore, generally not done.

Faced with failed auctions and high maximum rates, issuers paid termination payments and refinanced their ARS using traditional fixed and variable rate structures.<sup>39</sup>

## II. TWO PRINCIPLES IN TENSION

We have now told the story of ARS, albeit briefly. We now consider the story from a broader perspective. It is too easy to dismiss the issuing of ARS as simply a bad idea. Using the ARS structure was sensible on many grounds, which we will explain below. Of course, the stronger the case we make for the use of ARS, the more one might wonder whether it was ever a mistake to use them. From our perspective, the question of the propriety of ARS represents a clash of principles. The principle inclining to the issuance of ARS, *preserve public dollars*, was applied too aggressively

38. See *Bond Buyer Indexes*, *supra* note 25.

39. The full story is, of course, more complicated. See CRAIG L. JOHNSON ET AL., STATE AND LOCAL FINANCIAL INSTRUMENTS 162-64 (2014).

relative to an equally important, but under-appreciated, principle: *avoid asymmetric risk*.

#### A. Preserve Public Dollars

Clearly, what happened to the ARS market was unfortunate, but a plausible argument can be made that government officials were only doing what they were supposed to be doing—namely, trying to save tax dollars. It is a deep principle of government financial management that tax dollars are a trust and are to be treated with care. This principle is found throughout the law.

For instance, state constitutions generally include a blanket prohibition on the gift of public funds.<sup>40</sup> Government officials generally must submit public projects to bidding.<sup>41</sup> Those same officials are also barred from having a financial interest in any decision they might make.<sup>42</sup> Various open government laws are, of course, also justified as a means of ensuring that the public is able to keep tabs on how its money is spent.<sup>43</sup>

There is a more specific application of this principle to sound debt management. Advocates of sound municipal debt management have long argued—often in vain—that municipalities should be constrained to sell their debts competitively.<sup>44</sup> It is only by means of a competitive sale that governments and taxpayers can be certain that they are getting the best possible deal, and this theoretical point about the benefit of competition is supported by the majority of research.<sup>45</sup> If, therefore, it is best for localities to put their debts up for auction at the moment of initial sale, then why was

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40. See CAL. CONST. art. XVI, § 6 (“The Legislature shall have no power . . . to make any gift . . . of any public money or thing of value to any individual, municipal or other corporation . . .”); see Richard Briffault, *Foreword: The Disfavored Constitution: State Fiscal Limits and State Constitutional Law*, 34 RUTGERS L.J. 907, 909-10 (2003) (for a general discussion of these provisions).

41. See CAL. PUB. CONT. CODE § 20162 (2016) (“When the expenditure required for a public project exceeds five thousand dollars (\$5,000), it shall be contracted for and let to the lowest responsible bidder after notice.”) (this provision regards cities but similar provisions govern other entities).

42. See CAL. GOV’T CODE § 1090(a) (2015) (“Members of the Legislature, state, county, district, judicial district, and city officers or employees shall not be financially interested in any contract made by them in their official capacity, or by any body or board of which they are members. Nor shall state, county, district, judicial district, and city officers or employees be purchasers at any sale or vendors at any purchase made by them in their official capacity.”).

43. See, e.g., CAL. GOV’T CODE § 54950-63 (2015).

44. Bill Simonsen, *Competition and Selection in Municipal Bond Sales: Evidence from Missouri*, 27 PUB. BUDGETING & FIN. 88 (2007); see also Mark Robbins & Bill Simonsen, *Missouri Municipal Bonds: The Cost of No Reforms*, 36 MUN. FIN. J. 27 (2015).

45. U.S. SEC. & EXCH. COMM’N, *supra* note 8, at 17. (“Negotiated offerings appear to be more expensive for issuers than competitive offerings both in terms of bond yields and underwriter gross spreads.”).

it unreasonable to suppose that regular competitive auctions would continue to ensure that localities were getting the best deal possible?

There were even more fine-grained reasons to use ARS. A large entity like New York City was, by necessity, already heavily exposed to short-term interest rates.<sup>46</sup> This is because New York had large financial reserves that were invested in very short-term liquid securities. These investments did not, of course, yield high interest rates. Why should New York not benefit from lower short-term rates by also borrowing at these rates? If short-term rates were to increase, then that would be a cost for New York as a borrower, but it would be a boon for New York as an investor. If the investments and borrowings in short-term securities are appropriately balanced, then New York has made its overall financial picture more balanced and less risky through the use of ARS.

Finally, and also weighing in favor of the use of ARS, there is the theory of fiscal federalism. This theory has many moving parts, but the key part for our purposes is that a federal system will only enjoy the benefits of federalism if the component jurisdictions work under hard budget constraints.<sup>47</sup> To translate: a federal system, by definition, has many lower-level jurisdictions. In the U.S. context, there are the states and, within states, various kinds of localities. These different subnational jurisdictions can, among other things, compete with each other to provide better services to their citizens at a better cost.<sup>48</sup> Amidst this jurisdictional competition, one jurisdiction might hit upon the following strategy if the central government is known to bail out improvident subnational governments: impose low taxes and provide high services, while borrowing to cover the difference. If the strategy works, then perhaps all the new economic activity the jurisdiction attracts might allow it to pay off its debt but, if not, the central government can be counted on to step in. In order to prevent this moral hazard, subnational governments cannot be allowed to overspend and just wait for a bailout from the central government. This is what it means for lower level governments to be subject to a “hard budget constraint.”

Hard budget constraints take various typical forms within the United States. States and localities often are constrained to balance their budgets,<sup>49</sup> to go through additional procedures to issue debt,<sup>50</sup> and are often

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46. Darcy Bradbury & Frank Oh, *Issuers' Risk Management Using Derivatives and Variable-Rate Debt*, in THE HANDBOOK OF MUNICIPAL BONDS 37, 37-48 (S. Heide, R. Klein, and J. Lederman Eds., 1994).

47. See, e.g., Jonathan Rodden, *Market Discipline and U.S. Federalism*, in WHEN STATES GO BROKE 123 (Peter Conti-Brown & David A. Skeel, Jr. ed., 2012); Teresa Ter-Minassian, *Borrowing by Subnational Governments-Issues and Selected International Experiences*, in INTERNATIONAL MONETARY FUND, PPAA 96/4 (1996); see also Clayton P. Gillette, *Fiscal Federalism, Political Will, and Strategic Use of Municipal Bankruptcy*, 79 U. CHI. L. REV. 281, 289-90, 316-18 (2012).

48. They can also offer different packages of amenities.

49. See, e.g., CAL. CONST. art. XVI, § 18; see also Briffault, *supra* note 40.

50. See Briffault, *supra* note 40.

subject to a debt cap.<sup>51</sup> Perhaps most importantly, lower level governments need to *believe* that they will not be bailed out by the central government. For the American federation, the key moment in this regard came in the 1840s, when the federal government refused to bail out financially-strapped states.<sup>52</sup> Indeed, formal rules in state and local law trying to control state and local budgets *ex ante* have followed from the experience of having not been bailed out by the central government.<sup>53</sup>

What does the theory of fiscal federalism have to do with ARS? The answer is that since localities will suffer for their own poor choices, they already have an incentive to issue debt wisely. Thus, there is a way in which the ARS story is a happy one from the fiscal federalist perspective. Some localities experimented with a financial instrument in order to better serve their constituents. The instrument did not work as intended and the localities had to pay the price. Lesson learned.

## B. Avoid Asymmetric Risk

Despite the sensible considerations in favor of localities having the power to issue ARS, the consensus—we think—is that the widespread use of these securities was not appropriate. Conserving public dollars is not the only factor or principle at play here; several other factors are relevant. Primarily, there is the matter of risk. After all, a small bet placed in a casino could also yield big returns for a government, but outright gambling is clearly a violation of the public trust. In short, we think that local governments should abide by a principle of avoiding asymmetric risk. This principle is less known, but it should not be.

To illustrate the principle of avoiding asymmetric risk, let's return to the ARS story. Remember that in the midst of the 2008 financial crisis, the failure of auctions resulted in some issuers paying interest rates many times what they had expected. This clearly imposed a big burden on sound budgeting, even assuming that a local government has the funds on hand to make the additional payment. And this is before the issuer of a failed ARS had to amass even more money to get out of the auction rate security and reissue conventional debt.

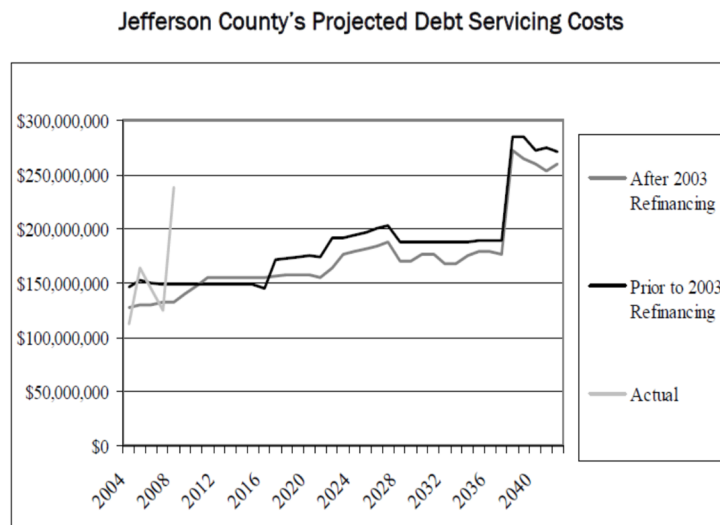
In our background discussion, we indicated that, in many cases, ARS provides relatively little benefit compared to the assumed risk. This was the case in the spectacular failure of Jefferson County, Alabama, which used ARS extensively.

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51. *Id.*

52. Robert P. Inman, *Transfers and Bailouts: Enforcing Local Fiscal Discipline with Lessons from U.S. Federalism*, in INTRODUCTION AND OVERVIEW IN FISCAL DECENTRALIZATION AND THE CHALLENGE OF HARD BUDGET CONSTRAINTS 56-61 (Jonathan Rodden et al. ed. 2003).

53. Isabel Rodriguez-Tejedo & John Joseph Wallis, *Fiscal Institutions and Fiscal Crises*, in WHEN STATES GO BROKE 31-32 (Peter Conti-Brown & David A. Skeel, Jr. ed. 2012).

**CHART 7: Auction Rate Securities and Jefferson County**<sup>54</sup>

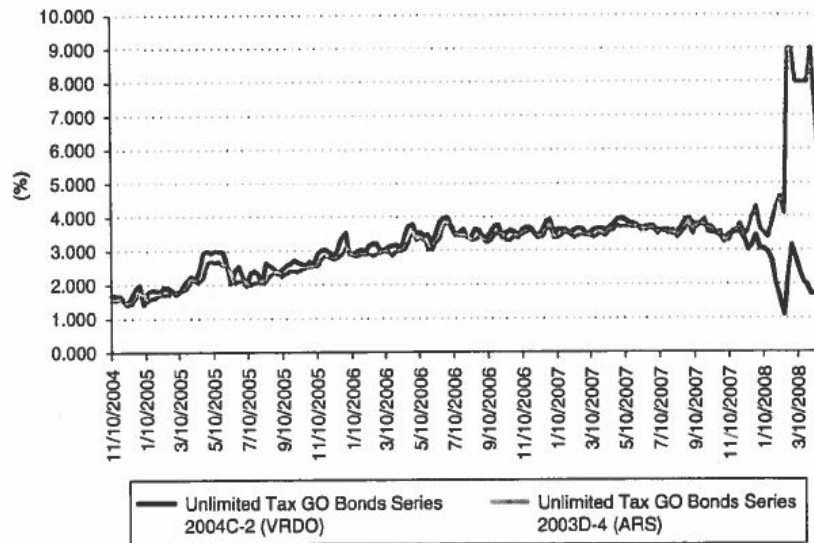
Source: Data from *Sewer Revenue Warrants Official Statements*, 2003C and 2002D.

In order to save a small amount of money on debt service, Jefferson County took on the risk that its debt service payments would skyrocket, which indeed happened. To be sure, this is an extreme case in some ways because of the extent to which Jefferson County had restructured its total debt to use ARS.<sup>55</sup> However, as we have already seen, the possible jump in debt service is not wholly atypical.

Here is an example from the Chicago Public Schools, which is an entity that did not go bankrupt. This chart compares the performance of one of Chicago Public Schools' ARS in comparison to a more traditional, but still short-term, variable rate financing.

54. Denison & Gibson, *supra* note 36, at 334.

55. *Id.* at 325-28.

**CHART 8: Auction Rate Financings and the Chicago Public Schools<sup>56</sup>**

Source: Bloomberg.

*Figure 11.4 Chicago Public Schools floating rate securities comparison  
(VRDO weekly interest rates versus ARS weekly interest rates)*

In this case, we see just how much risk the school system took on by issuing an ARS, even relative to a variable rate financing, and how little the schools gained during the “good” times.

We are not the only ones who have observed this skewed risk versus reward tradeoff. As the Congressional Research Service put it,

In effect, ARSs bundled small, albeit not insignificant, benefits during normal economic times with serious costs in the event of unusual financial turmoil. Thus, the basic structure of ARSs incorporated important asymmetric risks.<sup>57</sup>

An asymmetric risk bundles a large risk with a small reward. This bundling does not explain why localities in particular should shun such risks even when the risks are likely to save them money. There are at least six reasons for local governments in particular not to take on such risks.

First, local governments are almost always going to be more vulnerable to economic shocks outside of their control relative to larger

56. JOHNSON ET AL., *supra* note 39, at 161.

57. AUSTIN, *supra* note 4, at 24.



governmental units.<sup>58</sup> Thus, the local governments are bearing a great deal of risk already. Amplifying the risk is not wise, especially since there could well be correlations between locational risk and the risks incorporated into these financings.<sup>59</sup>

Second, per the fiscal federalism literature, local governments are (properly) hemmed in by hard budget constraints.<sup>60</sup> They cannot go into the marketplace and borrow for operating expenses to handle an unexpected expense.

Third, by definition, capital borrowings are often large relative to a government's operating budget. This means that big changes in annual debt service will often amount to significant costs for the entity, its taxpayers, or both.<sup>61</sup>

Fourth, though it is proper for governments to maintain reserves to cope with uncertainties, reserves should not and cannot be so great that large amounts of taxpayer dollars are sitting idle.<sup>62</sup> Thus, local governments cannot sock away large reserve funds in case of surprising changes in interest rates. In any event, calculating reserves in case of interest rate shifts adds an entirely new level of complexity to budgeting.

Fifth, asymmetric risks are inherently complicated and thus introduce complexity into the budgets of local government entities that will often be unlikely to have the expertise to manage the risks.<sup>63</sup>

Sixth, governments provide essential services to their constituents—services that cannot and ought not be cut for a few months to make a higher debt payment. In addition, as recently occurred during the Great Recession, it is likely that the demand for government services will increase just when tax revenues are down and when riskier debt instruments go south.

### III. TWO KINDS OF SOLUTIONS

Suppose one is convinced that there is a problem here about the use of complex financial instruments. It seems to us that there are two basic approaches that can be taken. One can argue that the institutional intervention required should be on the *demand-side*. By this, we mean

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58. See, e.g., RICHARD SCHRAGGER, CITY POWER 39-40 (2016).

59. See generally David Gamage, *Preventing State Budget Crises: Redefining "Tax Cuts" and "Tax Hikes"*, 98 CAL. L. REV. 749, 784-87 (2010) (arguing that the poor suffer most from budget cuts during crises).

60. Gillette, *supra* note 47, at 301.

61. *Id.* at 313.

62. See, e.g., Gamage, *supra* note 59, at 766-67; Brian D. Galle & Kirk Stark, *Beyond Bailouts: Federal Supports for State Rainy Day Funds*, 87 IND. L.J. 599, 611-617 (2012) (cataloging some reasons for the failure of states to maintain sufficient reserves).

63. See, e.g., Simonsen et al., *The Influence of Jurisdiction Size and Sale Type on Municipal Bond Interest Rates: An Empirical Analysis*, 61 PUB. ADMIN. REV. 709, 709-10 (2001).

interventions that focus on the decision to issue financial instruments. Such intervention could be in the form of better disclosure to issuers, better education of issuers, or a higher level of responsibility of intermediaries to issuers. We have no objection per se to any of these demand-side approaches. More education is a good thing, as are the various new federal rules that increase the duties of intermediaries to municipal issuers.<sup>64</sup>

However, regulation does not work only through the demand-side. When a product is sufficiently unsafe, the effective response is not to disclose the problem, but to recall the product.<sup>65</sup> We think that ARS should be subject to recall, a *supply* solution, and not just additional demand-side management. There are two reasons for this. The first reason is the primary contribution of this paper, which is to demonstrate that the cost-benefit ratio is too skewed. The second reason is that the case of ARS is likely one where additional disclosure will be of limited use.

As to the first reason, we have already listed the many reasons why local governments cannot bear asymmetric risks. In short, this is because they do not have the expertise, the revenue raising power, or the reserves to absorb great shocks. They also have important work to do.

As for the second reason, supposing that disclosure is going to be a magic bullet in this context flies in the face of the great weight of the evidence regarding decision-making about complex financial matters. Ordinary citizens have a difficult time making complex financial decisions<sup>66</sup> and do not necessarily appreciate the significance of disclosure.<sup>67</sup> Furthermore, as the example of ARS indicates, those same citizens serving on local governments do not do all that much better.

### CONCLUSION: THE CAMEL'S NOSE OR TAIL?

One response to our argument could be that ARS are an exceptional example as this is a financial instrument so flawed that it has disappeared altogether. Therefore, the argument that there should be a categorical rule

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64. See U.S. SEC. & EXCH. COMM'N, *supra* note 8; see also Charles W. Cole, *Lessons From Mars! Were Municipal Auction Rate Securities a Financial Innovation? Conflict of Interest, Lack of Transparency, And Agency Costs in the MARS Market*, 31 MUN. FIN. J. 77, 91-92 (2010).

65. See generally Saule T. Omarova, *License to Deal: Mandatory Approval of Complex Financial Products*, 90 WASH. U. L. REV. 064 (2012). Omarova argues that complex financial products should be subject to pre-approval because of the systemic risk they pose to the financial system. We are making a similar argument as to complex financial products to be used by subnational governments. Rather than aim to limit systemic risk, we are arguing that these products should be limited in the municipal context because of asymmetric risk.

66. See generally Annamaria Lusardi & Peter Tufano, *Debt Literacy, Financial Experiences and Overindebtedness* (Nat'l Bureau of Econ. Research, Working Paper No. 14808, 2009).

67. See, e.g., Daylian M. Cain et al., *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest*, 34 J. LEGAL STUD. 1 (2005).

about them is a little too easy. We concede that ARS are an “easy” example, but there are other examples that we think, if developed, would all be about as “easy.” There are so many financial instruments out there. We have already mentioned VRDOs. Another example is interest rate swaps, which essentially allow an issuer to move from a short-term rate to a long-term rate.<sup>68</sup> Swaps were often packaged with ARS as a means of reducing the interest rate risk resulting from ARS and have also been implicated in many high profile disasters, such as Jefferson County and Detroit.<sup>69</sup>

There are also capital appreciation bonds. In short, these are bonds structured so that payment of the principal is put off, resulting in large payments of principal and interest deferred far off into the future. Needless to say, the ability to get money for projects now but defer payments for later has proven to be very appealing and has saddled many local governments with enormous and unnecessary debt burdens.<sup>70</sup>

The bestiary of financial instruments can be added to. For instance, there are synthetic forward refundings . . .

All of these financial instruments, like ARS, have legitimate uses. The problem is that these uses are limited and require expertise as, in fairness, proponents of these structures warned from the start.<sup>71</sup> The ARS crisis illustrated that many issuers did not have sufficient expertise, which is not surprising. Most municipal issuers are small and infrequent and, hence, unlikely to have a great deal of in-house financial expertise.<sup>72</sup> It is also worth noting that even large issuers that surely did have expertise got burned in the crisis. For instance, as mentioned above, the Port Authority of New York ended up saddled with failed ARS, as did many other large and sophisticated issuers.

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68. See Denison & Gibson, *supra* note 36, at 339-40.

69. See generally *id.* For instance, in Jefferson County. The use of interest rate swaps to hedge the interest rate risk posed by ARS illustrates several important points. First, at least in theory, additional financial engineering could reduce, even eliminate, the risk posed by financial engineering to begin with. Of course, this additional hedging is not costless and further reduces the benefit of financial engineering. In theory, if the market is operating perfectly, perfect hedging should place the issuer in the same place it would have been just issuing a long-term security. Second, it is not likely to be possible for there to be perfect hedging. For instance, the ARS crisis resulted in part because there was insufficient appreciation of counter-party risk. Third, each additional piece of engineering is expensive and yields fees for financial intermediaries, a point we develop in the text.

70. L.A. CNTY. CIVIL GRAND JURY, CAPITAL APPRECIATION BONDS AND OTHER SCHOOL BOND DEBT: CONSEQUENCES OF POOR FINANCIAL PRACTICES 103-04 (2015-2016), available at [http://www.calboc.org/docs/LACGJ\\_CAB\\_Final2015-2016.pdf](http://www.calboc.org/docs/LACGJ_CAB_Final2015-2016.pdf). Note that one of the authors (Raineri) helped in the production of this report.

71. See, e.g., Bradbury & Oh, *supra* note 46, at 45; Joanne S. Feld, *Variable Rate Demand Obligations for Issuers of Water and Sewer Debt: An Analytic Framework*, 22 MUN. FIN. J., 1, 25 (Summer 2001); see also Denison & Gibson, *supra* note 36, at 337, 339 (lessons from Jefferson County).

72. Simonsen et al., *supra* note 63, at 709-10.

The financial intermediaries who are supposed to provide governments with expertise<sup>73</sup> are inherently conflicted when their business models either rely on generating fees from transactions, as they often do, or make the fees contingent on the transaction being done, as is also common. To some extent, this conflict has always been there. However, it is now well-known that the financial sector has grown larger and is in more need of fees from transactions than it was before.<sup>74</sup> Thus, the conflict has only grown.

Therefore, we think that ARS are an easy example of a larger phenomenon, namely intermediaries proposing overly complex and fee-producing funding structures that save issuers—at best—small amounts of money at the expense of taking on asymmetric risk. There is thus a need for a regulatory intervention to level the playing field. This intervention should guide almost all issuers away from asymmetric risks and toward long-term, fixed-rate borrowing. In particular, we think there is a need for a state-level debt management authority modeled on the very successful Local Government Commission in North Carolina.<sup>75</sup> Such a commission should establish sensible default rules, such as only using competitive sales and generally monitoring local debt issuances for asymmetric risk.<sup>76</sup> If the federal government is about to give states and localities large incentives to borrow for more infrastructure, it should consider how it might prod the states to enable their localities to borrow more wisely. Or, if the federal government is about to give localities more incentives to borrow less wisely, as now seems at least as likely, then it is imperative that the *states* act to protect their localities.<sup>77</sup>

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73. We should observe that many of the financial intermediaries in these cases likely themselves did not understand the risks involved in the products they were selling.

74. Kathryn Judge, *Intermediary Influence*, 82 U. CHIC. L. REV. 573, 573-76 (2015).

75. One of us (Shanske) discusses the North Carolina case further here: Darian Shanske, *The (Now Urgent) Case for State-Level Monitoring of Local Government Finances (or one way to protect localities from Trump's "Potemkin Villages of Nothing")*, NYU J. LEGIS. & PUB. POL'Y (forthcoming).

76. See, e.g., N.C. GEN. STAT. §§ 159-151 (1991) ("No bonds may be issued under this Article unless the issue is approved by the Local Government Commission."); Charles K. Coe, *Preventing Local Government Fiscal Crises: The North Carolina Approach*, 27 PUB. BUDGETING & FIN. 39, 41 (2007) ("The LGC sells all GO bonds competitively. . . . In deciding whether a local government can sell a GO bond, the LGC evaluates the adequacy of the bond amount, the bond's effect on the property tax rate, and whether the bond can be marketed at a reasonable interest rate.").

77. See Shanske, *supra* note 75.

