

Lowering Borrowing Costs for States and Municipalities Through CommonMuni

Andrew Ang and Richard C. Green



MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. We believe that today's increasingly competitive global economy requires public policy ideas commensurate with the challenges of the 21st century. Our strategy calls for combining increased public investments in key growth-enhancing areas, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that “prudent aids and encouragements on the part of government” are necessary to enhance and guide market forces.





Lowering Borrowing Costs for States and Municipalities Through CommonMuni

Andrew Ang
Columbia Business School

Richard C. Green
Tepper School of Business at Carnegie Mellon University

FEBRUARY 2011

NOTE: This discussion paper is a proposal from the authors. As emphasized in The Hamilton Project's original strategy paper, the Project was designed in part to provide a forum for leading thinkers across the nation to put forward innovative and potentially important economic policy ideas that share the Project's broad goals of promoting economic growth, broad-based participation in growth, and economic security. The authors are invited to express their own ideas in discussion papers, whether or not the Project's staff or advisory council agrees with the specific proposals. This discussion paper is offered in that spirit.

BROOKINGS

Abstract

States and municipalities throughout the United States depend on the municipal bond market to raise funds for important investments in America's schools, roads and highways, hospitals, utilities, and public buildings. Additionally, many individuals rely on municipal bonds as a dependable investment. Evidence suggests, however, that state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds may pay billions of dollars each year in unnecessary fees, transactions costs, and interest expense due to the lack of both transparency and liquidity in the municipal bond market. The liquidity cost alone represents approximately \$30 billion per year on the current \$2.9 trillion stock of outstanding bonds. This paper proposes the establishment of CommonMuni, a not-for-profit, independent advisory firm that would reduce borrowing costs for municipalities and increase returns for investors by overcoming the difficulty individual municipalities and investors have in coordinating their actions and sharing market knowledge. CommonMuni would provide individualized advice, gather and disseminate information on bond issuers and transaction prices to increase transparency, and coordinate market participants to enhance liquidity in the municipal bond market. Importantly, CommonMuni could be started for roughly \$25 million, just a tiny fraction of the potential benefits.

Table of Contents

ABSTRACT	2
INTRODUCTION	5
CHAPTER 1: THE COSTS OF FUNDING IN THE MUNICIPAL BOND MARKET	7
CHAPTER 2: PROPOSAL FOR COMMONMUNI	13
CHAPTER 3: COMMONMUNI WOULD ESTABLISH BEST PRACTICES AND PROVIDE INDIVIDUALIZED ADVICE	15
CHAPTER 4: COMMONMUNI SEEKS TO IMPROVE INFORMATION AND LIQUIDITY	18
QUESTIONS AND CONCERNS	25
CONCLUSION	28
APPENDIXES	29
AUTHORS AND ACKNOWLEDGMENTS	34
ENDNOTES	35
REFERENCES	36

Introduction

States, cities, counties, and other government entities raise money for schools, roads, utilities, public buildings, hospitals, and other public infrastructure through the municipal bond market. The market is essential for helping governments invest in public assets such as roads and water treatment plants that increase the productivity of government workers and improve the quality of life for all citizens. Moreover, millions of Americans save and invest using these bonds, and rely on them for income in retirement. At a time when government budgets are stretched and American workers are concerned about their financial security, it is essential that this market operate efficiently to minimize borrowing costs for governments (and ultimately taxpayers) and to improve investment returns for ordinary investors. The dollar amounts at stake are enormous: each year, state and local governments issue close to \$0.5 trillion of new bonds; the stock of outstanding bonds totals more than \$2.9 trillion.¹

In a well-functioning, efficient financial market, information is widely available to both buyers and sellers. Many market participants gather together to ensure that buyers and sellers can be readily paired at a mutually acceptable price. Prices paid by buyers and sellers are transparent: prices can easily be compared across other buyers and sellers. When information is widely available and transaction prices are transparent, buyers and sellers can easily and costlessly comparison shop for the right product at the right price, smaller participants can compete on an equal footing with larger investors, and risks are reduced. Gathering many participants together to trade improves what economists call “liquidity.” In a liquid market, investors will be able to buy or sell a stock or bond on short notice or in time of need at a price close to its intrinsic value. Investors value liquidity and are willing to pay a higher price for a more liquid asset. Reducing information-gathering costs helps to level the playing field for all participants, encouraging participation by a broader range of investors. When the market is liquid and transparent, both borrowers and investors incur fewer fees and lower costs. All of these factors contribute to reduced interest expense for issuers.

The municipal bond market can be improved along all of these dimensions. Information in the municipal bond market is limited, decentralized, and nonstandard. There are 50,000 issuers of municipal bonds, ranging from the smallest school districts to the largest states. Although access to information has improved over time, centralized, standardized, user-friendly, and timely financial information on all of those bond issuers is impossible to find.

Price transparency is particularly lacking in the market for municipal bonds. One reason is that municipal bonds, unlike stocks and options, trade primarily on over-the-counter (OTC) dealer networks rather than on centralized exchanges. Thus, if an ordinary “retail” investor wants to buy a municipal bond, he must phone a broker and ask what that particular broker has available for sale, and at what price. To solicit a competitive quote, he would have to phone another brokerage, which would be difficult for him to do unless the customer has multiple brokerage accounts. Such comparison shopping may not even be fruitful: it may well be that the competitive broker would not even have the same bond available for sale. While transaction prices are now regularly posted in a centralized database, most municipal bonds trade infrequently—in fact many never trade in a given year—and investors have little ability to assess the value and prices of their investments.

It is hard for investors, also, to obtain information on the underlying issuers. In equity markets, any investor—large or small—can obtain financial statements going back decades on any listed, and sometimes private, companies at no cost. It is difficult to obtain financial information on municipal issuers; it is especially difficult to obtain statements that are comparable across issuers and for long histories. The lack of financial information and the opacity of the market makes comparison shopping difficult for issuers or small investors. As a result, issuers and individual investors trade through intermediaries with significant advantages in terms of information and sophistication, and must compete with professional and institutional investors on unequal footing.

The wide variety and complexity of bonds and bond issuers and the decentralization of trading results in an illiquid market. Liquidity requires that there be large numbers of buyers and sellers willing to trade in a specific bond or close substitutes to it. But in the municipal bond market the sheer abundance of bonds is overwhelming. More than 1.5 million individual bonds trade. These bonds are from a large variety of issuers and often include features such as embedded derivatives. As a consequence, many bonds never trade at all after a few months. Because investors value and will pay more for securities that are more liquid, the lack of liquidity drives up financing costs for municipal borrowers.

Other features also contribute to inefficiency in the municipal bond market. The market is segmented by state, even though

To address these problems, this paper proposes the creation of a new privately financed institution with national reach to be called “CommonMuni.” The central function of CommonMuni is to establish and disseminate best practices in the design and funding of bond issues, and to aid the implementation of those practices by providing independent advice to municipal issuers. Engagement of CommonMuni by issuers is voluntary: issuers can rely on their current financial intermediaries or investment advisors, or use CommonMuni, or both. CommonMuni would serve a coordinating function for the large number of small issuers that are a unique feature of this market. By coming together, small issuers can benefit from pooled resources and expertise that otherwise would be difficult to obtain.

...the state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds pay billions of dollars each year in unnecessary fees, transaction costs, and interest expense.

modern communication technology makes geographic boundaries irrelevant for executing trades and transferring information. Issuers are therefore governed by different laws, without uniform reporting standards or consistent treatment of creditor rights.

The outcome of this inefficient market structure is that the state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds pay billions of dollars each year in unnecessary fees, transactions costs, and interest expense. The liquidity component of municipal bond yields relative to Treasuries is estimated to be 1.1 percentage points. This cost alone represents approximately \$30 billion per year on the current \$2.9 trillion stock of outstanding bonds. This cost partly reflects the difficulty investors have in finding a buyer at a good price if they need to sell. It also partly reflects the huge transactions costs faced by individual investors in this market. Retail (or small) investors routinely face round-trip transactions costs of 2 to 3 percent, and these costs can be as high as 5 percent, compared to less than 1 percent for corporate bonds and well below 1 percent for equities. In fact, it is twice as expensive to trade New York municipal bonds today as it was in the 1920s when they traded actively on the New York Stock Exchange (NYSE).

In addition, CommonMuni would take a lead role in establishing standards for transparency, and disseminating financial information and transaction prices. To improve liquidity in the secondary market, CommonMuni would help to standardize bond issues, pool small issues into bigger ones, and encourage other efforts to make the municipal market more efficient. These efforts include removing segmentation of markets due to geographic factors, encouraging the formation of

centralized clearinghouses, and expanding the market clientele for municipal bonds. All of these improvements would help lower state and municipal borrowing costs and give investors access to better information.

CommonMuni could be established with \$25 million in start-up money to hire an expert, well-compensated staff. Relieving even a small fraction of the tens of billions of dollars in annual waste would make this modest down payment worth its cost. By unlocking value disproportionate to its size, CommonMuni would follow in the footsteps of the Commonfund (originally the Common Fund for Nonprofit Organizations), an organization established by the Ford Foundation in 1971 to provide investment advice to small endowments. Starting with only sixty-two clients in 1971, the Commonfund has grown to manage more than \$25 billion from more than 1,500 universities, colleges, hospitals, and other nonprofit organizations. Building on this successful model, CommonMuni would reduce costs for municipal issuers and their taxpayer constituents, as well as reducing risks and lowering costs for ordinary investors.

Chapter 1: The Costs of Funding in the Municipal Bond Market

A growing body of evidence suggests that municipal borrowers and retail investors who hold their bonds pay too much to issue new bonds or to buy and sell existing bonds. Appendix A describes these studies in more detail. We summarize the findings in these studies below.

EVIDENCE ON THE COSTS OF FUNDING IN THE MUNICIPAL BOND MARKET

Municipalities pay too much when issuing municipal bonds.

Municipal bonds are issued with the aid of financial intermediaries who function as underwriters. According to one published study, the direct fees charged by underwriters average eighty-nine basis points across all deals in the sample. The estimated gains to underwriters (a cost to investors and issuers) from reselling these bonds to investors averages twenty-eight basis points. In addition to the direct fees paid to underwriters and transaction costs assessed to bond buyers, municipalities also may pay fees for derivatives and other financial products taken out at the same time as, but officially separate from, the bond issue. These costs are not broken out separately on financial reports, but anecdotal evidence suggests that these costs are often higher than the costs of straight debt issues. With roughly \$0.5 trillion in new issues annually, these costs are in the billions of dollars.

Municipal bond markets are illiquid.

Ang, Bhansali, and Xing (in progress) characterize the credit, liquidity, and tax components of municipal bond interest rates relative to Treasury bonds. They estimate that the liquidity components in municipal bond yields are 1.12 percentage points, which is the extra premium required by investors just because these bonds are so difficult and costly to buy and sell—i.e., because the secondary market is so illiquid. If the illiquidity component could be lowered by 50 percent, this would reduce municipal borrowing costs by fifty-five basis points. Even a small 20 percent reduction of the illiquidity portion of municipal bond yields represents a reduction of more than twenty basis points. In a market with \$2.9 trillion outstanding, this represents savings to issuers of approximately \$6 billion a year.

The municipal bond market operates inefficiently, raising costs for borrowers and investors.

- **Municipal bond prices are less sensitive to market-moving information than are other bonds.** Municipal bond prices respond much more slowly to interest rate movements or macroeconomic announcements than do prices in other financial markets. Price adjustment in Treasury markets takes minutes. Adjustment in municipal bond markets takes days.
- **Different buyers pay different prices for the same municipal bond.** Newly issued municipal bonds often trade at prices that vary dramatically across trades at the same point in time. Average prices rise substantially through time.
- **Prices rise faster than they fall.** As in many retail markets for consumer goods, prices rise faster than they fall. Economists have long viewed this behavior, known as “rockets and feathers,” as evidence of market power in which sellers (broker-dealers) opportunistically delay the recognition of movements in fundamentals in the prices they offer retail investors.
- The two latter behaviors described above have long been studied by economists in consumer markets, and are generally understood as evidence of market power for producers (intermediaries in the municipal market) and of high search costs for consumers (investors).

Trading costs to retail investors are high.

Institutional investors rarely trade less than \$50,000 to \$100,000 at a time. The smaller trades are made by individual, or “retail,” investors. A survey of academic research suggests that small retail investors pay, on average, between two and two and a half times more to buy a bond than do institutions or dealers. These costs, however, vary widely across investors. Half of all retail trades involve surrendering from a half year’s to a full year’s yield simply to move the bonds from one investor to another. This 2 percent cost is roughly twice the cost of trading a corporate bond. Round-trip transactions in equity markets are well below 1 percent, and are just a few

basis points for the largest stocks. Indeed, it is roughly twice as expensive to trade municipal bonds today as it was in the 1920s, when municipal bonds were actively traded on the NYSE.

Ordinary investors pay much more for municipal bonds than institutional investors do.

When a new municipal bond is issued, it is “offered” to the public at a prespecified “reoffering price.” Institutional investors buy at prices that, initially, are at or very close to the reoffering price. As time passes, the prices institutional investors pay vary randomly around this initial price. Individual investors, however, often pay more than the reoffering price—sometimes as much as 5 percent more. Moreover, unlike the prices negotiated by institutional investors, these prices tend to rise over time.

WHAT DETERMINES THE COSTS OF FUNDING FOR MUNICIPALITIES?

Some factors that influence borrowing costs are outside the control of the municipalities issuing the bonds. First, there are the fundamental factors set by marketwide forces and macroeconomic outcomes such as the pace of economic growth, inflation, monetary policy actions, and associated risk premiums (see Ang and Piazzesi 2003). Next, there is the tax treatment of the bonds, which works to the advantage of issuers. The tax-exempt status of the bonds allows issuers in the municipal sector to benefit from the lower taxes investors pay on interest when competing for funding with other borrowers.

Other factors are easier for the issuer to influence or control. These are features specific to individual financial markets, to the securities sold, and to individual borrowers. For example, investors will pay more for securities that are more liquid. In a liquid financial market, investors can feel confident that they can buy and sell their bonds on short notice and that the price paid will be relatively insensitive to the amount they wish to trade. In an illiquid market, however, investors bear the risk that an unexpected need to sell off their holdings will result in losses beyond those due to the intrinsic uncertainty of changing interest rates or credit conditions. Investors concerned about their ability to sell in the future will naturally pay less for a bond today—a cost that is ultimately borne by the issuer.

Finally, investors will pay more for investments that carry risks that are not well understood and transparently presented. Of course, investors always require compensation for the risk that a borrower may not pay back a loan. The absence of timely and

transparent financial information about a borrower, however, adds additional risk known by economists as “adverse selection.” In such a case, investors must be concerned not just about the risk of the underlying credit, but also that the person selling the bond to them is trying to offload it based on private information. In such a situation, an investor may choose not to trade at all, or will demand more advantageous prices to overcome these risks, further raising costs to the bond issuer. The increased risk of adverse selection is widely cited as a cause of credit freezing up in the recent financial crisis.

Of the factors described above, issuers and regulators can do relatively little to influence the macroeconomic conditions that determine marketwide interest rates and risk premiums. Issuers of municipal bonds benefit from differential taxation. However, there are specific reasons why municipal bond markets are unnecessarily illiquid and opaque that issuers and states could improve through coordinated action.

Information Quality and Dissemination Is Poor

Investors seeking information about municipal issuers lack access to uniform, “best practice” standards for what information should be disclosed and how often. As we discuss below, government accounting standards provide less transparency than their corporate counterparts, and requirements to comply with those standards vary by state. Financial reports from municipalities are released with long lags after the close of their fiscal years and are not available in a user-friendly format that can be easily compared across municipalities and across time.

While there have been improvements in information dissemination, particularly through The Bond Buyer and Electronic Municipal Market Access (EMMA), reporting to these databases is voluntary and does not give a comprehensive picture of true financing costs. This is partly because the costs of derivatives, total fees in debt issues, and gross versus net issuing costs are not reported. Thus, treasurers in school districts and small municipalities have difficulty comparing their total net financing costs to other similar government authorities. In contrast, investors and managers seeking financial information on listed companies obtain standardized reports, with long histories, at zero cost. Furthermore, when municipalities negotiate with investment banks and other financial intermediaries to issue debt, municipalities often have less expertise and relatively few resources to guide their decisionmaking. This is detrimental not only to investors, but also to municipalities themselves.

Municipal Markets Are Opaque

Municipal bonds, like most bonds in the United States, are not traded on centralized exchanges where prices are visible to the investor both before and after trading. Instead, municipal securities trade in decentralized, OTC broker-dealer markets where trades are negotiated over the phone or through electronic means between broker-dealers and investors.

Consider a typical retail trade: An investor calls her broker and expresses an interest in buying a long-term highly rated New York bond, for example. The broker then contacts her firm's retail trading desk to see what is available and to get quotes. Typically, these will be recent issues for which the brokerage firm participated in the underwriting syndicate. The broker then returns to the customer with a description of the bond and its yield at the quoted price. Unless the customer has a

Because trading is decentralized, prices are not available in a central location and comparison shopping involves costly search.

sophisticated understanding of current market conditions, she is likely simply to accept the offer. To even solicit another quotation from a competitive broker, she would have to make contact with that broker, something that is unlikely to happen unless the customer has multiple brokerage accounts. Even if she does, it will not follow that the competitive broker will provide quotes in the same bond.

Because trading is decentralized, prices are not available in a central location and comparison shopping involves costly search. Spreads, markups, and transactions costs are high. Recently, the Municipal Securities Rulemaking Board (MSRB) began mandating that broker-dealers record their trades centrally and make these records available to the public. This is an improvement: an investor who knows where to look can now establish if the price he paid is out of line with prices paid by other investors, provided that other recent trades have taken place.

Nevertheless, the opacity of the current OTC market places smaller, retail investors at a disadvantage relative to institutional investors and broker-dealers.² On an exchange, quotations are publicly posted, and all trades are recorded and reported through a central clearinghouse. This reduces the cost of comparison shopping and minimizes search costs. Investors can easily determine the price at which they will be able to trade, known as "pretrade transparency," in the near future. They can quickly verify whether their broker gave them a good price by comparing it with other trades at roughly the same time (this is called "posttrade transparency").

The lack of transparency in OTC markets favors market participants who are full-time, professional shoppers. They build networks of professional contacts and develop expertise in overcoming search costs. In most OTC markets, the fact

that small investors trade at a disadvantage is relatively benign. Retail investors rarely need to trade most types of securities that trade over the counter, such as credit-default swaps, fixed-income derivatives, Treasury bonds, or foreign currency. Corporate bonds, which are traded over the counter, are heavily taxed at the personal

level. Therefore, they are more appropriately held in tax-deferred accounts, as emphasized by Dammon, Spatt, and Zhang (2004). Typically, such accounts employ mutual funds, or similar intermediaries, that trade as institutions.

Municipal Markets Are Illiquid

A primary indicator of a market's liquidity is the frequency of trading. By this measure, municipal markets are extremely illiquid. The MSRB reports that from March 1998 to May 1999, 71 percent of the outstanding issues did not trade at all. For bonds that did trade more than ninety days after issuance, Green, Hollifield, and Schürhoff (2007a) report that the average number of trades for a given bond per day is two. That is, a broker-dealer typically buys and sells the same bond in the same quantity, and these are the only trades that occur for that bond. Municipal bonds trade fairly actively when initially issued as they move from dealer inventories to investors, but

after thirty to sixty days trading drops off dramatically for all but a small number of issues. In Ang, Bhansali, and Xing's (2010a) dataset, the average municipal bond trades only twice per year, with 5 percent of securities trading only once over twelve years; this dataset does not even include the bonds that never trade over the sample period.

A primary reason that individual issues trade so infrequently is that there is an astonishing number and variety of bonds outstanding at any given time. Green, Hollifield, and Schürhoff (2007b) report that their sample contains trades in more than 1.5 million different bonds. Moreover, each of these bonds may be unique and nonstandard or may include complex features.

One contributor to the sheer overabundance of individual municipal bond issues is the fact that they are typically issued "in series." That is, rather than issuing one twenty-year bond, municipalities issue multiple bonds of different maturities in a single underwriting deal. Each of these bonds trades as a separate security. Since 1995, the average municipal bond series has contained thirteen separate bonds, with the top 5 percent of bond series comprising more than twenty-five separate bonds.

...the average municipal bond trades only twice per year, with 5 percent of securities trading only once over twelve years.

The series structure may serve legitimate purposes, such as a desire for flexibility in security design or to match anticipated revenue streams. Liquidity, however, requires many buyers and sellers on both sides of the market wishing to buy or sell the same security. The smaller the number of a given bond outstanding, the less likely a buyer can find a seller, or the reverse.

In addition, municipal bonds can be further segmented by the inclusion of complex features. Municipal bonds can be "callable," "putable," "sinkable," some combination of all three, or bundled with complex derivatives. Such features may serve a purpose by allowing the underwriter to tailor a security to the need of the specific issuer or to match the perceived tastes of a particular investor. The embedded derivatives often are not standard and can vary widely from issue to issue, even for a given issuer. Taking the whole universe of municipal bonds traded in secondary markets between 1995 until 2009, Ang and colleagues (in progress) find that approximately 50

percent have embedded derivatives. Approximately 60 percent of all municipal financing in dollar terms involves the issue of bonds with embedded derivatives.

The downside of making individual bonds unique is that it makes it much more difficult to find buyers and sellers interested in each bespoke product, reducing liquidity. In contrast, all U.S. Treasury bonds issued today are "plain vanilla" par bonds. There are no in-series issues and no embedded derivatives. The simple nature of these instruments and large issue size fosters liquidity.

An additional downside to issuing bonds with complex features is that it makes the bonds difficult for investors to evaluate and compare to other bonds, increasing the potential for adverse selection. Complexity also makes it harder for the issuer and its advisor to compare the valuation suggested by the underwriter to other issues, or to evaluate fees associated with the added features.

Finally, municipal bond issuers are simply a large and diverse group, and this heterogeneity limits information flow because of fixed costs to gathering information. There are approximately 50,000 separate entities issuing municipal bonds, ranging from very small school districts and water authorities to extremely large states. Heterogeneity also inhibits liquidity: the more investors that hold a particular bond, the greater the probability of a coincidence of needs between buyer and seller at any given point in time. In the corporate bond market,

both issuers and issues tend to be large. Private firms rarely issue publicly traded bonds early in their life cycle, relying instead on bank financing or private equity. In contrast, even very small municipal entities must rely on bonds to finance infrastructure investments.

The costs of illiquidity to issuers are of two types. First, there are the direct costs incurred in issuing the bonds. These include not only the explicit fees paid to the underwriter, but also any difference between the reoffering price (the price in the official statement at which the bonds are, at least in principle, "reoffered" to the public by the underwriter) and the price at which the bonds are sold to final investors. Second, there are the indirect costs—the price concessions that must be made to an investor who knows the bond may be costly or difficult to sell in the future should the need arise. Researchers have made attempts to measure the first type of cost: it is huge in municipal bond markets (see "The Costs of Funding in the Municipal Bond Market"). The second is much more difficult

to measure because it requires quantifying the value of forgone options to sell in the future. To cite a common example, a Pennsylvania resident will prefer to hold Pennsylvania bonds because her interest is exempt from state income taxes. Should this person accept a job in California or New York, she may wish to sell her Pennsylvania bonds and buy bonds in her new state of residence. This could be difficult or impossible to accomplish at a cost that does not outweigh the tax savings from holding in-state bonds after the move. How much is this inconvenience worth when the investor buys the bonds initially?

Individuals Dominate in Municipal Markets

A final important feature of municipal bond markets is that they are dominated by individual investors. The interest on most municipal bonds is tax exempt at the federal level, making the bonds particularly attractive to individual household investors. Bondbuyer.com's market statistics section reports that, of a total of \$2.9 trillion outstanding municipal bonds in 2010, \$1.1 trillion was held directly by households and another \$0.9 trillion was held on behalf of households by mutual, money, closed-end, and exchange-traded funds. The lack of a central source of information on either the financial situation of individual issuers or the prices and trading activity occurring in the secondary markets makes it particularly difficult for individual investors to make well-informed investment decisions or to "comparison shop" for the best prices when buying and selling bonds.

OPPORTUNITIES EXIST FOR COORDINATED ACTION TO IMPROVE THE MARKET

The features that make municipal bond markets so opaque and illiquid also present opportunities for coordinated action to improve the efficiency of these markets.

Ordinarily, private markets are able to solve such efficiency problems without external intervention. If issuers benefit from greater liquidity through lower interest rates, why will they not sell their bonds in forms that enhance liquidity, and why will trading venues that facilitate liquidity not emerge to serve investors and issuers? If it is in the interest of issuers to disclose information, why will they not recognize that interest and do so?

The reason that private markets have been unable to solve these efficiency problems is that both access to information in financial markets and liquidity in trading involve significant externalities and other forms of market failure:

- **Standardization and dissemination of financial information are public goods.** Financial information must be standardized in order to make useful comparisons across many different bonds issued by many different entities. It must be centralized to avoid redundancies in the costs of collecting the information. Rather than have each investor approach each issuer with requests for information, it is more efficient to have each issuer report to a central information depository accessible to all investors. This has been recognized in the equity markets since the New Deal legislation, which required publicly traded firms to report using standardized forms to the SEC. Research supports the claim that the efficiencies realized offset the costs imposed on the reporting entities, and lower the costs of funds. Indeed, Greenstone, Oyer, and Vissing-Jorgensen (2006) show empirically that events that increased the coverage of these rules raised stock prices for the affected firms. Grinstein and Chhaochharia (2007) show that certain aspects of the Sarbanes-Oxley Act of 2002 increased the values of firms that were most affected by the rules.
- **Moreover, finding information itself is costly.** Investors face search and information acquisition costs that are increased by added complexity and nonstandardization of securities. These costs can work to the benefit of financial intermediaries whose function is, in part, to search for and acquire information on behalf of investors.
- **Market liquidity is increasing in the number of market participants.** The ease with which an investor can find a counterparty to trade with at mutually beneficial terms depends on how many people are coming to trade at a given time. These benefits represent an externality—any given investor will not capture the benefit he confers on others through profits on his own trade. Traffic at rush hour on freeways is the classic example of a *negative* congestion externality. Each driver fails to account for his impact on the travel times of others when he decides to drive into work in the morning. Liquidity involves *positive* congestion externalities. Investors or issuers fail to account for the benefits their presence confers on others seeking to buy or sell. Thus, *mechanisms* that increase liquidity require public institutions or coordinated action to encourage those who want to trade to appear at the same place and time.
- **Complexity may reduce market competition.** Opacity in the trading venue and complexity in financial instruments makes it more difficult for investors and issuers to evaluate the fees and other forms of compensation being earned by the financial intermediaries they deal with. Recent theoretical papers, such as Carlin (2008), Gabaix and Laibson (2006), and Green (2007) point to different ways in which competition fails to eliminate the market power that intermediaries can sustain through superfluous complexity or opacity.

Simpler and more standard municipal bond types are more liquid. Standardization, simplicity, and large issue sizes make securities amenable to liquid markets. Securities with complex features fragment the market and undermine liquidity and informational transparency. While these may be a rational response to a desire for flexibility in security design, it comes at the cost of liquidity. It is relatively easy for issuers to grasp these benefits and recognize their own need for flexibility. It is much more difficult for them to recognize and internalize the costs, because liquidity by its very nature involves externalities, or effects on others. The first issuer that chooses to issue a plain vanilla bond does not benefit from increased liquidity unless others issue similar bonds.

WHY HAVE MANY OF THESE STEPS NOT BEEN IMPLEMENTED YET?

Given that there are opportunities where intervention to increase transparency and liquidity could improve the functioning of the market, why hasn't it happened?

The first impediment is that the municipal bond market is a market segmented by states. The U.S. Constitution allocates powers between the federal and state levels of government. The Eleventh Amendment, along with a body of court decisions, deals with the sovereign immunity of states and under which circumstances states can be sued. Congress cannot simply mandate better disclosure in municipal bond markets, set up a municipal market regulator, or dictate which types of bonds municipalities can issue—which Congress has done in corporate markets—because these are state matters. Thus, actions require the consent and voluntary participation of all state governments.

The second impediment is that municipal issuers find it hard to act alone. Innovations or experiments that might improve on the status quo are public goods—something everyone can access and utilize—which discourages individual issuers from undertaking them. If they succeed, all issuers potentially benefit. If they fail, the reputational and financial costs are borne by the innovator alone. In a market with tens of thousands of issuers, these costs are intimidating for any one public official or issuing entity. Understandably, then, these public officials appear risk-averse about experimenting

with new ways of doing business. If they issue bonds of the same type as everyone else, using the same channels and institutions as everyone else, and seek advice from the same sources as everyone else, no one can accuse them of failing to exercise due diligence.

In addition, steps that could reduce financing costs of municipal issuers looking forward will appear costly to issuers to adopt after the fact. For example, if an issuer commits to greater disclosure and transparency, this will reduce problems of moral hazard and asymmetric information going forward. Once problems have developed, however, such disclosure, by revealing adverse outcomes, will raise borrowing costs and hurt the reputation of public officials. This is an understandably unattractive outcome for the decisionmakers involved. Thus, steps that facilitate information flow, improving transparency and liquidity, often involve “binding yourself to the mast.”

Finally, market participants do not have strong incentives to change the system themselves. Indeed, to some extent, market and informational nontransparency work to the advantage of financial firms in dealing with their customers and clients. The financial advisors who operate as consultants to issuers serve a useful role. They can give independent advice on any one offering, or to any one issue. They do not act to (nor are they expected to) coordinate issuers, internalize externalities, or advocate for reform. Neither can they bring to bear resources comparable to those at the command of the underwriters or hedge funds that operate in this market.

Nevertheless, there have been some efforts to improve transparency and liquidity over the past two decades. For example, the reporting of secondary market trades by the Municipal Securities Rulemaking Board (MSRB) has improved posttrade transparency. The MSRB's Electronic Municipal Market Access (EMMA) system has recently begun making available financial statements of initial offering documents and continuing required disclosures online for certain issues. Certain state-level municipal bond banks have attempted to coordinate small issuers and pool securities. The fact remains, though, that the municipal bond market is still largely inefficient and illiquid, and that the access to and dissemination of information is poor, especially compared to corporate bond and equity markets.

Chapter 2: Proposal for CommonMuni

We propose the creation of a national not-for-profit institution—CommonMuni—to provide municipalities and state governments with independent advice, to facilitate the provision of high-quality, standardized information, and to encourage steps that improve liquidity.

THE MODEL FOR COMMONMUNI

CommonMuni takes inspiration from the Commonfund (originally the Common Fund for Nonprofit Organizations), which serves colleges, universities, foundations, hospitals, and other philanthropic and tax-exempt organizations. Commonfund’s mission is “to improve investment management practices and to enhance the financial resources of our clients.” This is done in three ways: (1) achieving economies of scale in portfolio management by pooling money across endowments to provide access to the best professional investment management talent, (2) providing educational programs to promote the sharing of best practices among nonprofit endowments, and (3) offering advice to clients that takes advantage of Commonfund’s scale, resources, and the in-depth understanding of nonprofit endowment management.

During the 1960s, the returns on college endowments were persistently below the growth in operating budgets. The study by Cary and Bright published by the Ford Foundation in 1969 noted the decline of the contribution of endowments to the

funding of colleges over the first half of the twentieth century: “In 1900 the earnings of endowment funds paid 25 percent of the costs of higher education; by the late 1950s the relative contribution of endowment earnings was only one-fifth as large, or 5 percent” (Cary and Bright 1969, 1–2). Spurred to improve college endowment management and to provide small colleges with good financial advice, the Ford Foundation set up the Common Fund for Nonprofit Organizations in 1971 with a \$2.8 million grant (approximately \$15.5 million in today’s dollars). The Commonfund allowed small colleges to have access to high-quality investment management, independent advice, and financial sophistication that they otherwise would have had difficulty accessing.

There were sixty-two members of the Commonfund when it started. Today, Commonfund serves more than 1,500 institutions and manages more than \$25 billion. Membership across college endowments ranges from the largest institutions to the smallest. Originally set up to serve private and public colleges and universities, along with independent boarding and day schools, the Commonfund has broadened its original clientele to include nonprofit foundations, healthcare organizations, Canadian educational institutions, and, most recently, pension funds, family foundations, and select other long-term investors. Commonfund has been a resounding success story built on a number of institutions banding together to take advantage of investment opportunities and advice not affordable for a single institution.

THE ROLE OF COMMONMUNI

CommonMuni would provide a similar advisory role for municipal issuers by offering access to independent advice and financial sophistication that would otherwise be hard to obtain. We see three primary functions for CommonMuni: (1) to take advantage of economies of scale in financial expertise to provide individual issuers with advice a single issuer would normally find prohibitively expensive; (2) to promote the sharing

We propose the creation of a national not-for-profit institution – CommonMuni – to provide municipalities and state governments with independent advice, to facilitate the provision of high-quality, standardized information, and to encourage steps that improve liquidity.

of best practices and information among municipalities, states, and other market participants; and (3) to improve liquidity and information quality by publicizing or advocating for the provision of public goods in the municipal market such as shared, accessible information and innovations in trading platforms and practices.

THE STRUCTURE OF COMMONMUNI

The success of Commonfund suggests that CommonMuni can have a similarly large impact if organized, funded, and staffed properly. Indeed, our model for CommonMuni's design closely follows the successful model of Commonfund.

Organizationally, CommonMuni would be established similar to many other 501(c)(3) nonprofit organizations: it would be managed by a board of directors and initially financed by private donations. The quality and experience of the initial board and staff are essential for the success of CommonMuni and should be composed of leaders from government, academia, and the private sector with expertise in municipal finance. It is essential that no private sector board members be affiliated with any existing financial intermediaries to minimize potential conflicts of interests and to ensure that CommonMuni's advice to municipalities be untarnished.

To hire and maintain a highly qualified and well-compensated staff, we suggest that CommonMuni would need \$25 million in seed money. We suggest private financing to avoid reliance on uncertain state or federal finance and to promote independence of control. The initial endowment serves two primary purposes. First, it establishes CommonMuni's independence so that it can act in the issuer's interests only. Second, it allows CommonMuni's services to start small and scale up as it attracts clients. This allows it to focus on quality, not quantity, of advice.

IMPLEMENTATION

At first, CommonMuni's goal would be to attract an initial set of client municipalities—for example, by partnering with state treasurers associations around the United States to solicit interest and partnerships for the initial launch of CommonMuni. Working with these organizations would help CommonMuni get buy-in from municipalities. While the scope of CommonMuni is intended to be national, such an institution also could be a useful resource if implemented at the state level, should this prove to be easier to achieve. For instance, a New York CommonMuni or California CommonMuni could achieve many of a national CommonMuni's goals. At any level, there are economies of scale that can be achieved and externalities that can be internalized through some centralization and consolidation of

information gathering, advocacy, and provision of specialized expertise. Just as Commonfund started with fewer than a hundred members in a universe of thousands of endowments, CommonMuni could start small in a universe of thousands of municipalities. Due to the segmentation of the municipal markets into states, it would be more cost effective to focus on establishing a larger group of municipalities within a given state rather than a scattering across states.

A key part of the proposal is that participation with CommonMuni is entirely voluntary. Issuers can choose to use CommonMuni, use existing advisors or intermediaries, or both. This is similar to Commonfund: the smallest and the largest college endowments have a choice to use Commonfund, other asset managers and investment advisors, or both. In fact, this voluntary nature is essential, given the legal separation of powers between the federal and state governments and the inability of Congress to dictate compulsory disclosure and regulation in many areas of the municipal market. Reputation is important in building CommonMuni: although it would start small, as more issuers see the benefit in turning to CommonMuni, more issuers would join. And as more issuers join, the benefits in accessing pooled resources of financial expertise and advice would grow, and the subsequent improvements in liquidity and information would lower borrowing costs.

As CommonMuni develops, its goal will be to become self-financing. CommonMuni's advice would be provided to municipalities on a fair basis; state and local governments would pay for CommonMuni services, but that advice would come from a truly independent source and the fees charged would be totally transparent.

The role of CommonMuni would not be to compete against independent advisors that already are providing objective advice to municipalities and that play a constructive role for the municipalities they advise.³ However, because of its scale and reach, CommonMuni could be a resource to provide access to information, analytical resources, and databases that could benefit all market participants. By helping to coordinate disparate participants and to advocate issuers, CommonMuni could help expand and enhance the role of private advisors.

Similarly, CommonMuni could work with and aid existing institutions that aggregate and analyze information and help pass that information on to investors. Publicly accessible databases, such as EMMA, provide access to an increasing amount of useful financial data. Far from being a substitute, CommonMuni's efforts in enhancing transparency would complement its advisory role; CommonMuni would concentrate on issues requiring coordination across many issuers.

Chapter 3: CommonMuni Would Establish Best Practices and Provide Individualized Advice

One role of CommonMuni is to establish and disseminate best practices for municipal bond issuers and to provide advice directly to municipalities, drawing, in part, from evidence from financial research. Independent advice works in two ways to benefit municipalities: First, having CommonMuni as an advocate counters the information advantages of financial intermediaries. Total costs of an issue—including all embedded derivatives, issuance and underwriting fees, and indirect costs of poor financial disclosure and security design—can be presented to municipal issuers.

Second, the reputation of CommonMuni works to the advantage of public officials. When making decisions, elected officials can point to the fact that their school district, county, or town is using CommonMuni services or following advice given by CommonMuni as evidence that they are taking all necessary steps to minimize costs for the municipality.

For example, CommonMuni could advise on important and controversial subjects such as the appropriate use of derivatives, advanced refunding, and issuance costs.

USE DERIVATIVES APPROPRIATELY

As noted above, issuers often embed derivatives into bond issues, which can make the bond issues complex, nontransparent, illiquid, and hard to value. More directly, fees on derivative products are often significantly higher than plain vanilla financings, so underwriters may have incentives to emphasize the benefits of bundling exotic instruments into municipal financing, and to downplay costs and potential risks.

Another downside of derivatives is that they can be used to circumvent budget and accounting rules. For example, derivative deals can be structured to produce upfront payments that municipalities use to generate cash today to address short-run deficits at the expense of higher interest rates or other costs down the road.

This is not to suggest that embedded derivatives, or financial engineering in general, serve no useful purpose. Rather, we are arguing that the immediate benefits are often more apparent to issuers, or are made to appear so by the vendors, than are costs that may be distant or costs that may be contingent on unlikely but potentially catastrophic events.⁴

...having CommonMuni as an advocate counters the information advantages of financial intermediaries.

Auction Rate Securities

The recent experience with Auction Rate Securities (ARS) provides a cautionary example of the use of derivatives. In one way, the introduction of ARS was an innovative piece of financial engineering that served an obvious need. The term “premium” (which is the difference between long- and short-term rates) tends to be much larger in the tax-exempt than in the taxable bond market. Municipal issuers can thus achieve much lower costs of funding by issuing short-term debt. Municipalities, however, also have reasons to avoid traditional short-term debt. Any legislative change in the tax laws altering the tax-exempt status of their bonds would presumably grandfather existing debt, so issuing long-term bonds protects issuers and investors from this risk.

ARS allowed municipalities to issue long-term debt where the interest rate was effectively reset in weekly or monthly auctions run by an investment bank. This allowed municipal issuers to achieve the lower short-run interest rates, but exposed them to the risk that their interest rate would reset to a higher rate. The intermediary earns fees by agreeing to provide liquidity to absorb temporary imbalances in supply and demand by buying the bonds themselves.

The benefits of ARS, in terms of lower interest rates, were very clear and immediate to issuers. The risks became apparent only during the financial crisis, when short-term financing became extremely expensive or impossible to obtain. When issuers attempted to refinance their ARS obligations with long-term bonds, many of the intermediaries demanded contingent fees to release them from their contracts, while other intermediaries collected fees to issue the new long-term bonds.

The press was full of quotations from public officials and board members expressing bewilderment over these events and claiming it was unreasonable to have expected them to understand the risks of such complicated products. It is, after all, difficult to understand the concept of “liquidity,” and many very sophisticated players appear to have underestimated liquidity risk prior to the crisis. Nevertheless, it is quite possible that if the decisionmakers had simply been presented with a choice between short-term and long-term debt they would have better understood what they were getting in to.

DISCOURAGE ADVANCED REFUNDING

If a municipality has debt outstanding and interest rates have since fallen, it would like to issue new bonds at the lower rates and pay off the old bonds. It can do that if the bonds are callable. The call provision allows the issuer to redeem the bonds at a fixed price. Municipal bonds are generally issued with call provisions that do not take effect for an extended period after the bonds are issued. Advanced refunding is marketed as a way for issuers to take advantage of the lower interest rates early, before the bonds are callable.

Advanced refunding involves issuing new debt to pay off currently outstanding debt. The old bond is usually, but not always, callable at some future date. Under advanced refunding, the earlier outstanding bond is defeased, or is no longer considered to be a liability of the issuer, because the issuer creates a trust to meet the obligations associated with the earlier bond until the call date (or maturity if the bond is not callable). This trust contains U.S. Treasuries. Advanced refunding is typically done in periods of declining interest rates because the purported benefit to advanced refunding is a lower interest rate payment.

Advanced refunding, in general, offers no value to municipalities.⁵

BOX 2

Why Advanced Refunding Does Not Create Value

Consider a simple example of a bond valued at issued at 5 percent with annual payments of \$5 over the next five years with the return of \$100 principal at the end of five years. The value of this bond today is \$100. Now suppose interest rates fall to 3 percent. The value of this bond has increased to \$109.16 as interest rates fall. Intuitively, we see that the bondholders are receiving \$2 more than current interest rates, and this extra value causes the bond price to be higher than the par value of \$100.

The municipality would like to pay the now lower interest rate of 3 percent rather than 5 percent. It advance refunds the old bond issue. To do this, it issues new debt at 3 percent with the same five-year maturity. To defease the old 5 percent issue, it needs to put into a trust Treasury securities that exactly match the value of the cash flows of the original bond. How much is required? Exactly what the old bond is worth: \$109.16. Economically it is impossible to create value: the amount of the new bond to be issued must be exactly the same as the value of the old bond.

Appendix B analyzes the purported benefits to advanced refunding in the typical setting where the existing bonds are callable at an intermediate date. In those circumstances, the transaction actually destroys value in two ways: (1) the issuer gives up the option not to call the bonds in the future if interest rates have risen in the meantime, and (2) the issuer effectively insures the bonds against credit risk. Options are valuable and insurance is costly, yet the issuer in advanced refunding receives nothing in exchange for surrendering the option and buying the insurance. This analysis illustrates in more detail how the prerefundings work, why they do not create value, and how they transfer value from the issuer to existing bondholders. By precommitting to call the bonds, the issuer surrenders part of the value of the call option. By backing the payments on the existing debt with Treasuries, the issuer turns risky obligations into riskless ones—something that can only benefit the holders of the debt at the expense of the issuer. Then there are the fees that must be paid to the underwriter who manages the transaction: on Wall Street these transactions are mockingly referred to as “de-fees-ance.” Straightforward estimates of these fees are hard to obtain

because these advanced refundings are usually complicated by simultaneous derivatives issues and additional fees in the underwriting and marketing process, but reported total fees of 0.5 percent to 1 percent are not uncommon. Assuming these levels of fees and conservative economic losses of several percentage points of par value, this has cost municipalities tens of billions of dollars over the past decade.

Despite these costs, municipalities often participate in advanced refunding of their debt. In the decade 2000–2009, an average of 17,000 bonds were advanced refunded per year, amounting to \$49 billion per year in par value. This practice, thus, is pervasive, even though it is almost never economically justifiable.

ACT IN ISSUERS’ AND ONLY ISSUERS’ INTERESTS

Many third parties in the municipal market have interests at odds with those of the issuer. In these situations, we would expect issuers to act independently of their advisors. Often, this does not happen because issuers often receive advice from intermediaries with other interests, or from intermediaries not having a fiduciary responsibility. The private funding of CommonMuni plays an important role in allowing it to act only in issuers’ best interests: the initial endowment allows CommonMuni not to turn away the smallest municipalities as clients, to concentrate on the quality of advice rather than pursuing quantity, and to maximize value for its municipal clients.

MINIMIZE ISSUANCE COSTS

Historically, new municipal bonds were usually issued in competitive auctions (indeed, this had often been mandated by state laws). In recent decades, however, bonds are increasingly underwritten through a financial intermediary. Arthur Levitt reports that from 1978 to 2009 the proportion of municipal bonds sold through noncompetitive negotiated sales rose from 54 percent to 90 percent, respectively (Levitt 2009).

In addition to the loss of transparency in the market, the move to negotiated deals has resulted in higher fees, as noted as early as Kessel (1971). Robbins (2002) and McCaskill (2005) estimate the cost of nontendered offerings at approximately twenty to thirty-five basis points per annum. Given that average municipal yields have been in the single digits for many years, the additional cost of these practices represents a large proportion of total financing expenses.

Chapter 4: CommonMuni Seeks to Improve Information and Liquidity

CommonMuni could play an important role to improve access to information and enhance liquidity in the market for municipal bonds through advocacy and coordination. These proposals can be divided into two categories: steps to improve the flow of information and steps to enhance liquidity.

FACILITATE ACCESS TO USER-FRIENDLY, STANDARDIZED INFORMATION

Improved information flow benefits investors and issuers. By committing themselves to better disclosure and reporting, issuers may recover their costs through improved terms of financing. For example, financial disclosure mitigates adverse selection (which is known as the “lemons problem”).

Accessible information does not just aid investors. States have a shared interest in collating information and making it readily accessible, because states often end up inheriting the liabilities of municipalities in distress. Taxpayers also benefit. A taxpayer in a town or city can easily see if her municipality is issuing bonds on the same terms as neighboring municipalities, and if her municipality is providing comparable services for similar financial outlays.

Improved information flow
benefits investors and issuers.
By committing themselves to
better disclosure and reporting,
issuers may recover their costs
through improved terms of
financing.

BOX 3

(Lack of) Information and the Financial Crisis

The financial crisis in 2007–2009 provides a harrowing example of an approximately \$2 trillion market that shut down. This was a market that had little infrastructure for information flow and disclosure. Investors could not obtain information on underlying assets comprising the securities, and could not verify if the securities even met the standards stated in the original issue documents. The market collapse was complete, since without good information there can be no price discovery. New capital did not enter the market because the lack of transparency made it difficult for new investors to accurately value the securities when dealing with counterparties known to have better information. The market that shut down was the subprime mortgage market. Illiquidity and market shutdowns even extended to other parts of the mortgage-backed security (MBS) markets, and without the intervention of the Federal Reserve, the MBS markets might have remained moribund for much longer. It is conceivable that an implosion in the higher credit risk and more opaque areas of the municipal market could have spillover effects to large municipal issuers.

Coordination

CommonMuni can help to coordinate other organizations, such as the Governmental Accounting Standards Board (GASB), the Government Finance Officers Association (GFOA), the Municipal Securities Rulemaking Board (MSRB), Electronic Municipal Market Access (EMMA), and others, to lay a foundation for improved municipal financial disclosure.

Disseminate Financial Reporting in a Timely Manner

Municipal reports are not only opaque, but also are poorly disseminated. An investor seeking financial statements for a publicly listed corporation can obtain this information at no cost. The SEC (through the website EDGAR: sec.gov/edgar.shtml) provides financial reports of all publicly traded companies. These data are collated and widely distributed. Investors can obtain reports on companies at no cost through popular financial websites or subscriptions. This is not true for municipal issuers. Recently, EMMA (emma.msrb.org) began operating as a centralized depository for municipal issuers. Since July 2009, it has provided both initial offering documents and continuing disclosure, but it has only raw reports. It is currently not possible to access for free a given issuer's finances in a format that is standardized, comparable with other issuers, and with long histories. Together with EMMA, CommonMuni can push the municipalities it advises and coordinate publishing their financial reports in a standardized format that can be widely disseminated.

Many municipalities also report financial information very slowly. Corporations are required to file 10-K reports within ninety days after the close of the business year. Merritt reports that municipalities take six months, on average, to file audit reports, but some take even longer.

Standardize and Improve Accounting Rules

Accounting for states and municipalities is influenced by GASB, which was formed to establish and improve standards of financial reporting for state and local government entities. GASB standards are voluntary: states and local municipalities are encouraged, but not required, to model their accounts on GASB standards. In contrast to public corporations, which face penalties levied by the SEC if they fail to meet Financial Accounting Standards Board (FASB) standards, there are no penalties for noncompliance. State and local government entities not complying with GASB, however, are unable to receive a clean GAAP opinion by auditors. GASB standards

are not uniform across municipal issuers—unlike the FASB standards that are policed by the SEC. Currently, thirty-eight states require state and local government entities to use GASB standards. Certain states, including Kansas, New Jersey, and Washington, set their own standards, and some government entities within those states issue both GAAP-compliant and state-compliant accounts.⁶ CommonMuni can help alleviate this lack of consistency by encouraging its members to adopt common standards and help coordinate timely dissemination of financial information.

GASB standards are noticeably weaker than FASB standards and result in opaque, inconsistent reporting, which makes it difficult for the end-users of financial reports to evaluate the financial status of states and municipalities. A major discrepancy between GASB and FASB is in the way each values pensions. FASB regulations require corporations to value pension liabilities by discounting using high-grade yields. In contrast, for government entities, the discount rate to value pension liabilities is the same as the expected long-term return assumption on assets. This practice is economically nonsensical: it is as if a homeowner with a mortgage can restate downwards the value of the mortgage simply because he switches his savings from bonds to equities. This practice produces severe underfunding, estimated at more than \$3 trillion for states. To put this in perspective, this underfunding is currently larger than the entire municipal market (\$2.9 trillion) and the outstanding publicly traded debt issued by states (approximately \$1 trillion). Unfunded state pension liabilities work out to more than \$10,000 for each person in the United States. Appendix C discusses why current public pension fund accounting is economically unrealistic, and describes recent academic studies on the subject.

Improve Transparency of Issuing Costs

A final area that would greatly improve the transparency of the bond issuance process is to clearly report net versus gross costs for issuing debt. When a bond is issued, the issue yield is not the total borrowing cost of a municipality: this only reflects the amount of coupon interest and premium (or discount) that is involved in the bond cash flows. This does not include the total fees paid in the bond issuance process. Reporting net and gross financing costs would clarify the payments made to financial intermediaries and point to irregularities. The former represents the true borrowing costs of the municipality, whereas the latter is a yield available to the investor. These calculations are complicated by the existence of any derivatives, which should be fairly valued. Requiring derivatives transactions that are bundled together with debt

issuance to be clearly reported in issuance documents would ensure a more complete picture of true financing costs. For example, a local government issuing variable-rate debt bundled with a swap has a fixed-rate cost of financing. At the moment, issue documents only report the variable rate issue and do not include any fees associated with the swap or the municipality's liabilities associated with the swap. In some cases, the costs associated with complex derivatives dwarf the direct costs of the bond issue.

Promote More-Uniform Creditor Rights

The lack of uniform creditor rights is an important obstacle to efficient municipal financing. State governments, and by extension local governments, can repudiate debt. State sovereign immunity, conferred through the Eleventh Amendment, prevents bondholders from suing, and prevents courts from handing over state assets to bond holders. The relative uniformity and predictability imposed in the corporate sector by federal bankruptcy laws is not present in the municipal sector. Creditors cannot force a municipality into bankruptcy, nor can they claim municipal assets without the municipality's consent.

The bankruptcy code has a provision to deal with municipal bankruptcy, Chapter 9. Because states are sovereign entities, there is no federal mechanism to deal with state bankruptcy. One major difference between corporate and municipal bankruptcy is that Chapter 9 is voluntary. Even Chapter 9 treatment is not uniform across states. Currently, twenty-six states do not permit Chapter 9 filings. In California, all municipalities have Chapter 9 blanket filing authority. In Connecticut, the governor must personally approve a Chapter 9 filing.

Of course, states are diverse and federalism grants states certain sovereign powers for that reason. Nevertheless, states have a shared interest in establishing best practice and moving to more uniform treatment across states. Indeed, it is difficult to imagine that a state or local public official would not be enthusiastic about a mechanism for enhancing her ability to create value for her constituents.

Municipal liabilities tend ultimately to be borne by states, although the extent of such guarantees and the degree to which distressed municipal debt becomes a state liability varies. Many states, including Michigan, New Jersey, New York, and Pennsylvania, have explicitly taken on local municipal liabilities, or implicitly helped bankrupt municipalities to meet their liabilities. Enlarging the municipal market to as broad a pool of investors as possible with less need for intermediation by financial firms will lower borrowing costs.

Municipal bond insurance formerly helped to standardize bonds across states and issuers by substituting the insurer's credit for that of the issuer. The insurance companies also were able to act in a coordinated fashion in dealing with states and municipalities experiencing problems. Unfortunately, most of the major bond insurance companies withdrew from the market over the course of the recent financial crisis, largely because of exposure in the Credit Default Swap (CDS) market. The remaining AAA municipal bond insurer, Berkshire Hathaway Assurance Corporation, has done relatively little business compared to the old monoline insurance companies. Thus, bond insurance did serve to commoditize heterogeneous

BOX 4

Municipal Defaults

Municipal default is rare. Moody's reports that there have been only four defaults on debt issued by towns, cities, or counties in the period 1970 to 2009: the town of Belfield, North Dakota, in 1987; Baldwin County, Alabama, in 1988; Orange County, California, in 1994; and Jefferson County, Alabama, in 2008. There were only fifty-four total defaults of municipal entities over the same period. The average five-year historical cumulative default rate for investment-grade municipal debt is 0.03 percent, compared to slightly less than 1 percent for investment-grade corporate issuers. Recovery rates for the small sample of defaulted municipal issues are higher than recovery rates on defaulted corporate debt.

Since the Great Depression, no state has defaulted. However, states had defaulted prior to that time. During the 1830s and 1840s, eight states defaulted (Arkansas, Florida [then a territory], Illinois, Indiana, Louisiana, Maryland, Michigan, Mississippi, and Pennsylvania). Some states (Arkansas, Florida, and Mississippi) repudiated completely. Ten states defaulted after the Civil War in the 1870s and 1880s: Alabama, Arkansas, Florida, Georgia, Louisiana, Minnesota, North Carolina, South Carolina, Tennessee, and Virginia. Despite being unaffected by the Civil War, Minnesota repudiated its debt. Arkansas is the only state to default three times; its last default, which was the last default of any state, was in 1933 during the Great Depression.

credits, but these benefits have been eroded by the insurers' abandonment of the business. Below, we discuss other ways of standardization that CommonMuni can help facilitate in connection with improving liquidity.

Advocate for Enhanced Investor Protection

Unlike other financial markets, the municipal market does not have a regulator. The SEC does not have jurisdiction over the municipal market. One limitation to the SEC's jurisdiction is the 1975 Tower Amendment to the 1934 Securities Exchange Act. The SEC can intervene for fraud or criminal malfeasance cases, which it has done in recent cases involving rigged bidding and misstatements for (pension) accounting in New Jersey. This is troubling in light of the types of investors that hold municipal bonds. Regulatory authorities in the financial markets, particularly the SEC, have always operated under a special mandate with greater responsibilities in settings involving individual, small investors.

CommonMuni can play a role by advocating for greater oversight of the municipal market and greater individual investor protection. Although small, retail investors have the most to gain; municipal issuers themselves also benefit because the risk premiums associated with uncertainty are reduced. This benefits all issuers, but no single issuer has a strong incentive to institute changes. Requiring the regular filing of documents much as in corporate markets (which can be standardized and widely disseminated) before municipal securities are sold will improve information and reduce borrowing costs. CommonMuni would advocate for enhanced investor protection, including lobbying for the repeal of the Tower Amendment.

Issuers will be able to raise funds at lower cost by issuing simpler, standardized securities issued in larger quantities, traded in a more transparent venue.

ENHANCE LIQUIDITY IN THE MUNICIPAL BOND MARKET

Part of CommonMuni's mission is to advise municipal issuers on how to structure their bond issues to maximize liquidity. Enhancing liquidity lowers the premium required to bear illiquidity risk, and consequently lowers municipal and state borrowing costs. Issuers will be able to raise funds at a lower cost by issuing simpler, standardized securities issued in larger quantities, traded in a more transparent venue.

Because financial economists are interested generally in the consequences of transparency and market design, this is an area where considerable academic research exists that can inform policymaking.

Policies aimed at increasing transparency and reducing search frictions may erode some of the comparative advantage of intermediaries in the marketplace. By having a nationwide base and contact with many underlying issuers, CommonMuni will serve as a body that will advocate for issuers and investors.

Standardize Issue Characteristics

As we have already discussed at length, municipal bonds are often unnecessarily complex. These practices might seem easy to change, but going against established practice and against the advice of financial intermediaries and consultants seems to be difficult for the issuers, who are extremely risk averse with regard to failure. In this regard, the consortium of issuers advised by CommonMuni would be urged to create simpler municipal securities and benefit from the economies of scale of issuing similar securities.

Pool Small Issues

A powerful way to create homogeneous securities with large sizes from underlying heterogeneous assets with small sizes is pooling. Consolidating financing needs across issuers will produce much larger issue sizes, standardized bonds, and greater liquidity. It also removes idiosyncratic risk.

An even more illiquid, heterogeneous market than municipal bonds is the market for individual home mortgages, which are themselves bond issues between homeowners (who sell the bond) and banks (who buy the bond from homeowners). Mortgages securitized through federally chartered government-sponsored enterprises (GSEs) turned heterogeneous, small debt securities into large, liquid homogeneous debt issues. While the role of these GSEs in the financial crisis is debatable, what is undeniable is that

the creation of MBS markets fostered tremendous liquidity, lowered illiquidity premiums, and consequently lowered borrowing costs for homeowners. Pooling for municipal issuers can have the same effects.

CommonMuni can encourage regional or cooperative financing authorities to facilitate this consolidation. In addition, CommonMuni could also pool itself if it had sufficient capital. There are several impediments to creating pooled municipal bonds from current individual issues. First, the lack of standardization (see above) hinders accurately valuing the underlying assets. Second, creating a pooled vehicle of municipal securities requires a tax-exempt organization, which financial intermediaries and hedge funds are not. The payment of a tax-exempt coupon must be made by a tax-exempt issuer. If an investment bank buys municipal bonds to put into a special purpose vehicle (SPV), the cash flows passed through from the underlying municipal bonds to investors are paid by the SPV, which is a taxable entity.

Seek to Remove the Segmentation of Markets by State

More uniform treatment of in-state and out-of-state tax exemptions would facilitate diversification across states by investors, and thus lower risk premiums and the cost of financing. Most states exempt interest from state income tax only for munis issued within that state. States with no income tax, states taxing both in-state and out-of-state bonds, and U.S. territories (which are exempt from state taxes) participate in a national market. Utah and Indiana exempt from state income tax interest payments on bonds issued by states that do not tax their bonds.

The segmented states include many of the larger states with high state income taxes and large numbers of high-net-worth investors, such as New York, California, and Pennsylvania. Investors in those states' municipal bonds must bear idiosyncratic risk, and the risk of illiquidity should they wish to sell in the future because they move out of the state. Whereas a state with such captive investors may have monopoly power that can be exploited, any higher price that investors will pay for in-state bonds is partially offset by their inability to diversify geographically.

A number of researchers, including Kidwell, Koch, and Stock (1984), have shown that this market segmentation matters for yield spreads. More-recent studies such as Green, Li, and Schürhoff (2010) have shown that measures of illiquidity are more severe in states that are segmented from other markets. This suggests that the states could benefit collectively from reducing this barrier to trade across state boundaries. Indeed, there have been court cases challenging the tax favoring of in-state bonds, claiming that it is at odds with the Interstate Commerce Clause of the U.S. Constitution.

Bond insurance formerly played an important role in reducing the costs of geographical segmentation. Bond insurers operated nationally and provided credit insurance for a fee typically paid by issuers. Since their position was geographically diversified, the variability in their returns would be low compared to someone bearing credit risk from bonds in only one state. Assuming the fees they charged reflects, at least in part, the benefit of this diversification, the reduction in risk would be shared both by investors buying insured bonds and by issuers. Unfortunately, many of the bond insurance firms could not resist expanding their business into the CDS market during the credit boom leading up to the subprime crisis. The subsequent exit of those intermediaries may increase the cost to investors, and hence their willingness to provide funds on attractive terms.

Advocating and coordinating in order to reduce the segmentation of municipal markets by state is a natural task for CommonMuni, and is a good example of a result that benefits all issuers but involves high coordination costs.

Help Establish Clearinghouses

Transparency in the market place promotes liquidity and facilitates price discovery. This particularly benefits small, retail investors who are not trading on a full-time basis and who therefore have a comparative disadvantage at comparison shopping.

The market has seen some moves toward greater transparency. Beginning in 2000, the MSRB began requiring all of its members to record their trades. These records then were released to the public with a time lag, and made available for researchers and mutual fund pricing services. The time lag has gradually decreased to fifteen minutes, so that a customer, if she knows to do so, can now check the price her broker gives her relative to other trades in the bond.⁷ Thus, the steps taken by the MSRB have improved posttrade transparency.

States and municipalities...should cooperatively establish mechanisms to support innovations and experiments by financial entrepreneurs that can develop new trading venues and issuance procedures.

A number of financial entrepreneurs have made attempts to set up online trading venues for trading municipal bonds, or online auction mechanisms for new issues. Such innovations could improve both pretrade and posttrade transparency. The difficulty has been engaging the participation of issuers, who are averse to experiments that might fail and subject them to criticism from political opponents or the public. It is also, of course, inherently difficult for market innovations to build sufficient volume to ensure liquidity, since the first investor to go to the trouble to learn how to use a new system will have no one to trade with unless others join him. CommonMuni can play a role in resolving this coordination problem.

States and municipalities have a shared interest in encouraging efforts at the federal level to centralize trading. They also should cooperatively establish mechanisms to support innovations and experiments by financial entrepreneurs that can develop new trading venues and issuance procedures. These innovations have been particularly late in coming to the municipal market because issuers are averse to the risks inherent in such experimentation, and because the broker-dealers and underwriters who advise them have resisted innovation. Indeed, Biais and Green (2005), in their study of the history of bond trading in the twentieth century, find that it is roughly twice as expensive for retail investors to trade New York municipal bonds today as it was in the 1920s, when the bonds actively traded on the NYSE. The costs of intermediating trades and making markets are largely those of data processing and communication, and these costs have fallen considerably in the course of the last century. There are probably no other financial securities that are twice as expensive to trade now as they were ninety years ago.

Help Expand Market Clientele

Because approximately two-thirds of municipal bonds are held by individual investors, the clientele for municipal bonds is limited. In principle, this means that the market for municipal bonds is limited. In 2009 and 2010, the federal government conducted an interesting experiment to enable states and municipalities to tap additional sources of capital other than individuals. Under the Build America Bond (BAB) program, municipalities issue bonds with taxable coupon payments, but receive a subsidy equal to 35 percent, the current top marginal tax rate, from the federal government to offset their borrowing costs. Importantly, BABs are taxable, and so their issuance theoretically enlarges the municipal market to tax-exempt and tax-deferred investors, such as foreign investors and pension funds. The BAB market is large: the amount of local and state government finance raised from the start of the BAB program in April 2009 to the end of 2009 constituted approximately 15 percent of all municipal issuance. The proportion during the last few months of 2010, as the program neared expiration, was reported to be more than 50 percent.

Ang, Bhansali, and Xing (2010b) analyze BABs issued in 2009. They find that the BAB program was successful in lowering the cost of funding for state and local governments, with BAB issuers obtaining finance more than fifty basis points lower, on average, compared to issuing regular municipal bonds.

Researchers noticed long ago that the term structure of interest rates for tax-exempt bonds in the United States is steeper than the term structure for taxable bonds (see Chalmers 1998, Green 1993). Green (1993) proposes a model of the phenomenon based on the potential for tax arbitrage across taxable bonds, which suggests that longer maturity taxable bonds may actually be taxed less heavily relative to municipals than the traditional “after-tax yield” calculation suggests. If this is the case, then the BAB bonds, for which the Treasury provides a subsidy based on the traditional after-tax yield calculation, are an attractive financing method for issuers.

From the viewpoint of an individual investor, however, Ang and colleagues (2010b) show that BABs are poor investments because the after-tax yields on BABs are much lower than regular municipal yields. Individual investors would have been better off had the BABs been issued as regular municipal bonds if the same clientele who regularly hold municipal bonds purchased the whole BAB issuance. In this light, the BAB program can be interpreted as a transfer of surplus from the natural holders of municipal bonds, who are individual U.S. taxpayers, to some combination of the issuers and the corporations, pension funds, and foreign investors not subject to individual U.S. income taxes who would hold BABs. Part of the lower borrowing costs for issuing BABs may be due to their design, which fosters greater liquidity than regular municipal bonds. Ang and colleagues (2010b) report that municipal bonds tend to be much smaller for BABs issued in 2009, with an average issue size of \$3.5 million, compared to BABs with an average issue size of \$10.2 million. Although BABs are still issued in series, the average number of bonds in a BAB series is lower, six on average, compared to the typical thirteen or more for regular municipal issues. Larger issue sizes and less mincing of the total issue size into separate securities both reduce illiquidity and by themselves would lower yields. An interesting avenue for further research is to sort out these effects from the tax clientele effect.

An extension of the BAB program, or a related future program, needs to address the question of how large any subsidy should be. The subsidy paid on a BAB by the Treasury is a direct cash outflow of the federal government. In contrast, the noncollection of income tax on coupons of municipal debt (and the lack of capital gains tax on original issue discounts or inability to amortize original issue premiums) is an indirect subsidy granted by Congress because there is no direct payment by the Treasury. The difference between municipal bond prices and Treasuries does not just reflect tax effects: any subsidy set based on implied income tax rates between municipal bonds and Treasuries (or the Municipals Over Bonds, “MOB,” trade) also picks up credit and liquidity risk. Ang and colleagues (in progress) show that the liquidity component is in fact the principal determinant of municipal bond yield spreads over Treasuries. Moreover, implied municipal bond rates vary over time and differ widely on different types of municipal bonds. Poterba and Verdugo (2008) estimate an implied tax rate of 25 percent, whereas Longstaff (2008) estimates an implied tax rate of 42 percent using municipal swaps. Ang and colleagues (2010a) show that in some cases the tax rates implied by municipal bond transactions are more than 100 percent. Any subsidy should be informed by estimates of the total amount of taxation the federal government is giving up and not directly on any implied or statutory individual income tax rate.

CommonMuni can solve the coordination problem
by bringing together similar municipal issuers
and achieve economies of scale that a single issuer
would otherwise find prohibitively expensive.

Questions and Concerns

1. WHY HAVE PRIVATE INSTITUTIONS AND MECHANISMS NOT DEVELOPED TO MEET THE NEEDS AND RESOLVE THE PROBLEMS HIGHLIGHTED IN THE PAPER?

Information quality, information dissemination, and liquidity are public goods with positive externalities: they benefit all municipal issuers, but they are difficult for any one issuer to establish or implement. The costs of failure are borne by the issuer alone and, thus, public officials are reluctant to innovate in methods of financing that are outside the status quo. Financial entrepreneurs face difficulties in setting up new vehicles to improve information and reduce illiquidity, for example by setting up clearinghouses, because single issuers are reluctant to invest in unfamiliar technologies without knowing other issuers will join. Some financial intermediaries may have little incentive to promote better information disclosure or liquidity, and advise against changing existing practice. Because many municipal issuers have much less financial expertise and access to resources than the large financial institutions that facilitate transactions in this market, the reluctance of existing financial intermediaries to change practices is a formidable obstacle to innovation. In order to improve information and reduce the costs of illiquidity, agents must act in a coordinated fashion. CommonMuni can resolve the coordination problem by bringing together similar municipal issuers and achieve economies of scale that a single issuer would otherwise find prohibitively expensive.

2. WHY DO ISSUERS DEMAND MUNICIPAL BOND FEATURES SUCH AS ADVANCED REFUNDING, UNNECESSARY COMPLEXITY, EMBEDDED DERIVATIVES, OR SERIAL ISSUES IF THEY INHIBIT LIQUIDITY AND DO NOT SERVE IMPORTANT FUNCTIONS?

Issuers respond to a perceived need for flexibility. Embedded options provide that flexibility. Issuers may not fully appreciate that they pay for this flexibility. Investors who are effectively short the option will require higher yields. Even if issuers fully and rationally anticipate the effect their desire for flexibility has on the yields and fees they pay, they are unlikely to fully internalize the effects the complexity has on liquidity.

There are clear instances of situations where issuers make financial decisions contrary to their interests. Advanced refundings are a stark example of a pervasive practice that cannot be justified as financially sound. Instead, issuers apparently respond to persuasion by financial intermediaries, or to political pressure to justify deferring budget cuts or tax increases through artificial savings. Given the choices we observe in this instance, it would not be surprising to see issuers engaged in overuse of complex derivatives for similar reasons, even if the derivatives, unlike advanced refundings, have some legitimate benefits.

3. ARE THERE ANY EXPLANATIONS FOR THE PROBLEMS IN THE MUNICIPAL MARKET OTHER THAN THE ONES DISCUSSED IN THIS PAPER?

Municipal bonds trade in decentralized, opaque, OTC markets. Municipal bonds also are illiquid and expensive for small investors to trade. Arguments that market reforms, alternative trading systems, or changes in institutional practice will improve liquidity and lower trading costs imply that the OTC trading venue, at least in part, causes higher trading costs. The association may not be causal, however. Perhaps the bonds trade in this institutional setting *because* investors rarely wish to trade them. That is, the bonds may be naturally illiquid, leading to these other outcomes and reversing the presumed causality.

Academic researchers are acutely aware of these ambiguities, and have attempted to address them in a variety of ways. They have considered historical evidence. In the early twentieth century, municipal bonds actively traded on organized exchanges; it was less expensive for retail investors to trade them then than it is today. Researchers have focused on settings where the bonds trade actively for other, exogenous reasons, and find that transactions costs are still very high for many retail investors. They have estimated structural models that explicitly separate dealer costs and dealer market power. They have studied specific behaviors that in other settings economists widely agree can have no other explanation than market frictions and market power for intermediaries. These studies are described in more detail in Appendix A.

4. HAS ANY FINANCIAL ENGINEERING IN THE MUNICIPAL SECTOR BEEN PRODUCTIVE?

Financial engineering can allow better risk sharing, create more-efficient pricing of risk, and tailor and manage risk more efficiently. Thus, most financial engineering, including financial engineering in the mortgage market, can be seen as having some legitimate goals. Financial engineering that involves increasing complexity or reducing transparency, however, has costs that reach beyond a particular issuer who is structuring a deal. This is because liquidity and transparency are public goods (see Question 1), and a reduction in liquidity or an increase in opacity affects all market participants.

ARS benefited municipal issuers until 2008. For issuers, ARS seemed to offer lower financing costs than the traditional floating rate debt. ARS have variable coupon payments regularly reset in an auction market. If the auction fails, then the coupon payment is set to a maximum rate, often upwards of 25 percent. Prior to 2008, auction failures were rare because large financial intermediaries often placed bids if no one else would—they supplied liquidity. During the financial crisis, these financial intermediaries did not participate and the ARS market froze. As of this writing in early 2011, it is still frozen. This has hurt both issuers, who are stuck paying the maximum rate or are forced to pay high fees to refinance, and investors, who cannot sell their securities. The ARS market did provide for lower short-term financing costs to issuers in normal times, at the expense of increasing financing costs in a state of the world where capital is scarce and auctions are not successful. This state of the world happened in 2008.

An example of successful financial engineering is the pooling and tranching of mortgage-backed securities [MBS]. Individual mortgages are debt contracts between a bank, which is long a bond, and the mortgagor, which is short a bond. Mortgages are heterogeneous and highly illiquid. The MBS market turned mortgages into a standardized and highly liquid market. The market also has benefited investors, who can now access the mortgage asset class. This market did not arise on its own: federally chartered GSEs charged with buying mortgages and issuing MBS oversaw the creation of this market. Now, both GSEs and private companies securitize mortgages. The financial crisis showed that there were problems in some segments of this market (such as in subprime mortgages) stemming partly from poor information disclosure and dissemination. The cost of mortgage finance has decreased through the MBS market, however, because it improved liquidity. CommonMuni can encourage regional financing authorities to facilitate pooling of municipal securities, with the subsequent reductions of illiquidity costs. Given capital, CommonMuni itself could pool.

5. WOULD LOWERING FUNDING COSTS BE COUNTERPRODUCTIVE BY ENCOURAGING STATES AND MUNICIPALITIES TO DO EVEN MORE BORROWING?

States and municipalities fund basic infrastructure with long lives, such as schools, roads, utilities, public buildings, hospitals, and so on. These governments could immediately raise large lump-sum taxes to pay for these projects, but it makes more sense to spread the tax burden across time to correspond to how taxpayers reap the benefit of this public infrastructure over time. The United States has an obvious need for continuing public structure investment going forward. Thus, states and municipalities not only need to, but also *should* borrow.

There is always the temptation for public entities to borrow money to fund current operating activities, just as there is a temptation for individuals to raise their consumption by borrowing. Without increases in future income, both cases make defaults more likely. Lowering funding costs by reducing the risk premiums associated with information and illiquidity does not obviate the need for prudent financial planning, just as lowering a credit card interest rate does not mean that a consumer should automatically borrow more. CommonMuni can play an important role in providing independent, high-quality financial advice. Lower funding costs through better information and liquidity means that when a municipality needs to borrow, it will borrow at a better rate.

6. WILL THESE IMPROVEMENTS INCREASE THE CREDITWORTHINESS OF MUNICIPAL BORROWERS OR REDUCE DEFAULTS?

The municipal market is risky; municipal entities do default, but this default is rare. Credit risk in municipal bond markets has historically been an order of magnitude lower than in corporate bond markets. In 2007, Moody's began a "global rating scale" to put municipal bond ratings on the same absolute scale as corporate and sovereign issuers, rather than rating municipal issues relative to other municipal issues. Most municipalities were "upgraded" to the best corporate risks. Research shows that credit risk explains a very small proportion of municipal bond spreads.

The creation of CommonMuni does not directly improve municipal credit risk. However, high-quality independent advice can improve credit risk because some part of the advice must be related to the future municipal revenue meeting the bond liabilities. CommonMuni also seeks to improve information given about the revenues and liabilities. This improvement in information reduces ex ante financing costs.

7. WHAT ABOUT JUST IMPROVING GASB?

GASB plays an important role in the financial reporting standards of municipal entities. Some GASB standards do need improvement, such as public pension accounting rules, which we discuss in detail in Appendix C. Even if GASB standards are raised, GASB compliance is not compulsory: municipalities cannot be forced to adopt GASB. CommonMuni can promote better disclosure and information transmission by helping to solve the coordination problem. Alone, there is little incentive for one issuer to improve reporting standards. Together, a large number of municipalities can improve information and reduce information risk premiums. CommonMuni can facilitate such coordination.

8. WHAT IF COMMONMUNI IS NOT SUCCESSFUL?

Then nothing is lost and the market retains its current problems and inefficiencies. CommonMuni can only improve the status quo.

9. WHO LOSES FROM COMMONMUNI?

Part of the reduction in the costs of illiquidity comes from transferring surplus from financial intermediaries to issuers and investors. That is, part of the rents currently captured by financial intermediaries will be transferred back in the form of lower financing costs to issuers and lower costs of trading to buyers and sellers. Financial intermediaries pushing complex, high-fee products will also lose if they do not benefit issuers. There is, of course, always a role for bespoke, customized financial advice that will involve complex derivative deals. Participation in CommonMuni is voluntary and does not take away these structures for those issuers with specific circumstances requiring these deals.

10. WHO WINS FROM COMMONMUNI?

Both municipal issuers and investors win from CommonMuni. Reducing information and illiquidity risk premiums can be a net benefit to taxpayers, local and state governments, and investors.

11. WHAT WOULD COMMONMUNI'S BIGGEST IMPLEMENTATION DIFFICULTIES BE?

We anticipate that CommonMuni would face many of its toughest implementation hurdles in the beginning. First, CommonMuni would have to hire high-quality staff with significant experience and expertise in the municipal bond market. Importantly, the staff would be required to have no conflicts of interest so that they could offer independent, objective advice.

Second, CommonMuni would have to attract municipalities to be its first clients. This step can be accomplished by having a small committed group of issuers prior to CommonMuni's launch. These founding members would recognize the benefits of banding together and benefiting from economies of scale in accessing expertise and resources that are prohibitively expensive to achieve on their own. Thus, buy-in from a small group of issuers is needed from the start. Participation in CommonMuni is entirely voluntary at all stages.

Over time, as other issuers can see the benefits of CommonMuni's advice and practices, other issuers will join. This creates a "virtuous cycle" as economies of scale increase, liquidity deepens, and more user-friendly information becomes centralized and standardized.

Third, at the beginning, CommonMuni must do its own outreach with dedicated staff to issuers. It should concentrate on the smallest issuers with the fewest resources, with limited access to existing financial intermediaries or advisors. In order to effectively play a role in disseminating information about the municipal bond market, CommonMuni would have to develop a well-known platform for disseminating its information.

Conclusion

Municipal markets are characterized by poor information and illiquidity. This produces unnecessarily high borrowing costs for states and municipalities because investors demand a premium for adverse selection or to avoid “lemons problems” in securities for which information is lacking. Likewise, investors demand an illiquidity premium for the inability to sell at prices close to intrinsic value in secondary markets. This illiquidity is due in part to the unnecessarily complex instruments that are created by municipal issuers, and the extremely high transactions costs incurred by trading through financial intermediaries in opaque markets.

Our proposal of a new institution, CommonMuni, funded by private donations can reduce risk premiums associated with poor information and illiquidity. CommonMuni will provide independent advice to municipal issuers about the design of bond issues: enabling municipal officials to obtain objective information reduces the asymmetries in expertise they face in negotiating with financial intermediaries. CommonMuni can play a role in creating an information infrastructure for municipal issuers that can be as accessible, comparable, and transparent as possible, allowing information to be widely disseminated to voters, issuers, and investors. Finally, CommonMuni can play a valuable role in reducing illiquidity premiums by pushing for simpler securities with lower fee structures, encouraging the development of more-transparent trading venues, and advocating for initiatives that widen the clientele for municipal bonds.

Appendixes

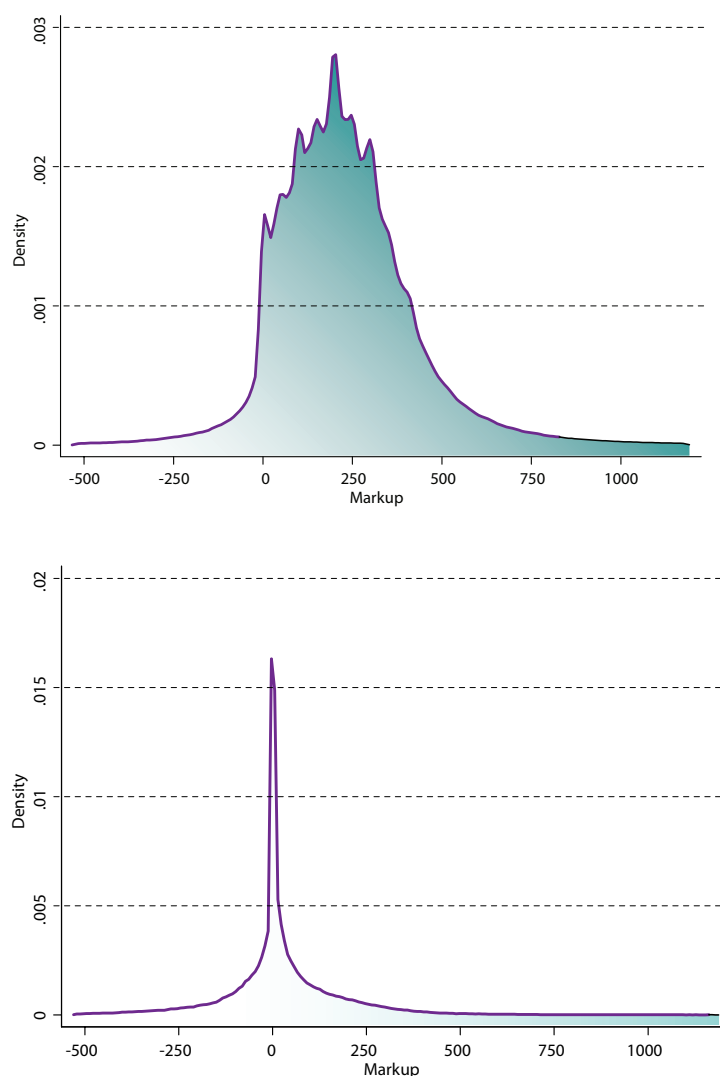
APPENDIX A. LIQUIDITY IN MUNICIPAL BOND MARKETS

In 2000, the Municipal Securities Rule Making Board (MSRB) began requiring that registered broker-dealers record their trades and made the resulting data available to the public, initially with a time lag. The MSRB database now has close to 100 million recorded trades on more than 1.5 million separate bonds, and has been the object of considerable research.

As noted in the text, the costs of trading for retail investors is remarkably large. Green and colleagues (2007a), Harris and Piwowar (2006), and Hong and Warga (2004) all document mean or median implicit spreads on retail-sized trades in excess of 2 percent using different methods. Green and colleagues (2007a) focus on trades in seasoned bonds that have been trading more than ninety days since they were issued. This paper shows the distribution of implicit spreads is skewed upwards, with substantial numbers of trades below \$100 in par value involving profits to dealers of more than 5 percent. Since average annual yields on the bonds in the sample are close to 5 percent, this means that roughly half of the time investors are surrendering a half year's to a full year's return to intermediaries, simply to move bonds from one owner to another.

Figure 1, reproduced from Green and colleagues (2007a), illustrates in stark terms the difference between the terms of trade for retail and institutional investors. It plots the frequency distribution of estimated dealer markups for trades of less than \$100,000, and more than \$500,000 par value, respectively.⁸ The institutionally sized trades are centered very close to zero, and dealers appear to lose money intermediating these trades almost as often as they make money. In contrast, the dealer markups on retail trades are almost always positive, and often more than 2.5 percent.

FIGURE 1
Distribution of Dealer Markups



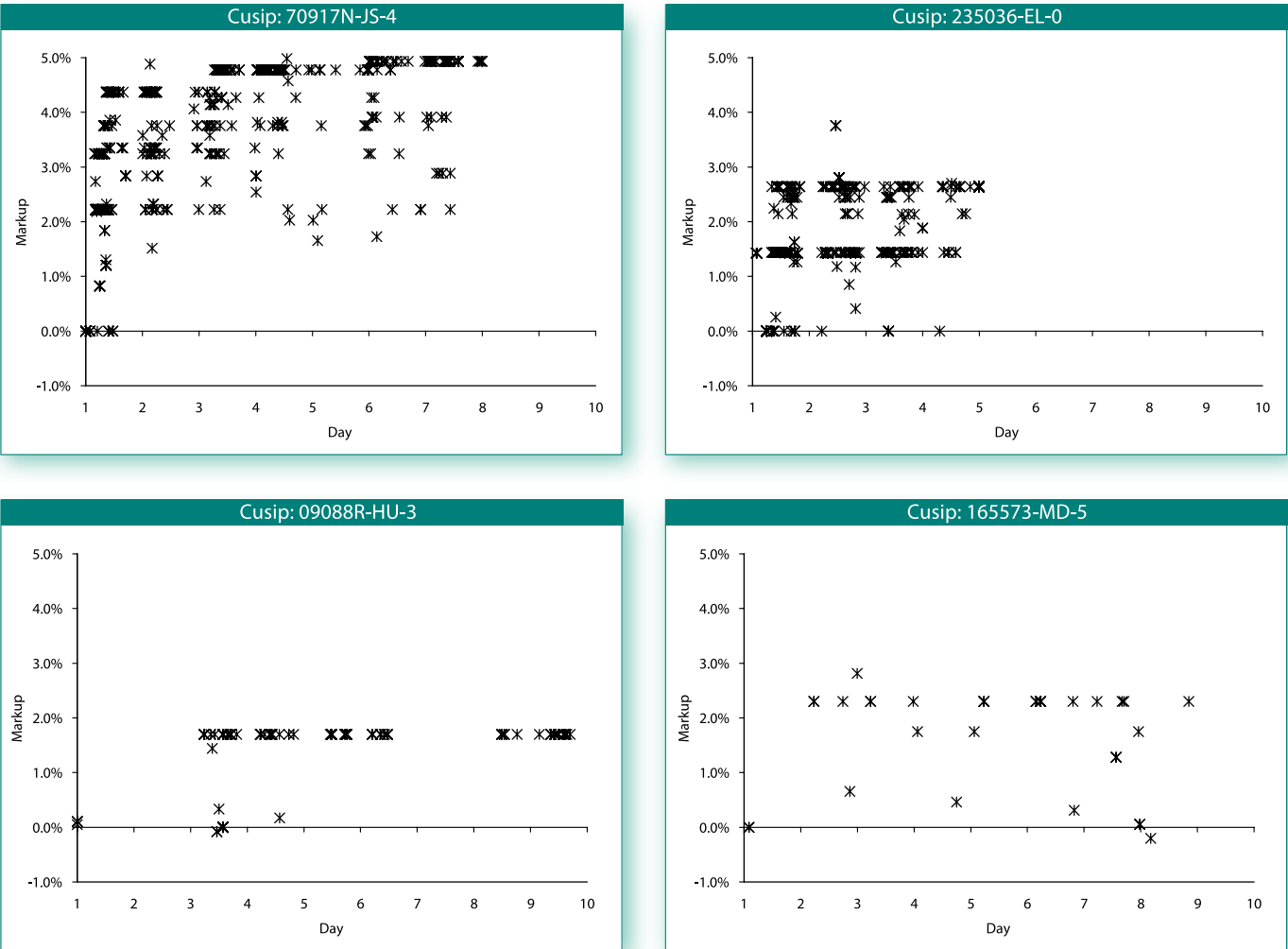
Source: Green et al. (2007a).

Note: The different panels plot the distribution of markups earned by dealers on retail- (less than \$100,000) and institutional-sized trades.

Financial intermediaries in the market for seasoned municipals often provide liquidity by purchasing large blocks of bonds from hedge funds or mutual funds, and then selling them off to smaller investors. They perform a similar function in the primary market for municipal bonds as underwriters, taking the newly issued bonds into inventory and then selling them to investors. As in the market for seasoned bonds, the difference between the prices at which the underwriters buy the bonds from municipal issuers and the prices at which they are eventually sold to smaller investors is remarkably large.

Figure 2, from Green and colleagues (2007b), shows plots of the percentage markup, over the reoffering price reported in the official statement for the bonds, of sales to customers made by dealers for newly issued bonds. The reoffering price is often represented to issuers as the price at which the bonds are being sold to the public. Sales along the horizontal lines at 0 percent markup in the figure are sales made at the reoffering price. The striking point on this figure is the amount of price dispersion on any given day, and the large markups some customers are paying over the reoffering price. Again, in some

FIGURE 2
Price Trajectories on Sales Transactions for Newly Issued Municipal Bonds



Source: Green et al. (2007b).
 Note: The different panels show examples of sales prices to customers from dealers over the reoffering price of newly issued bonds. Transactions along the horizontal are cases where customers purchased bonds at the reoffering price set by the underwriters and agreed to by the issuer.

cases this markup is as high as 5 percent, roughly a year's return on a typical bond. Information about the reoffering price is relatively easy to acquire. Green and colleagues (2007b) show that large, institutional investors get prices close to the reoffering price, as one would expect. They tend to trade immediately after the bond is issued, and are informed about what they are buying. Smaller, retail investors are the source of the price dispersion evident in the figures. Some of these investors obtain the bonds at attractive prices, whereas others obtain them at terrible prices. This seems likely to be a consequence of their sophistication about how the market works, and where they can obtain information about the reoffering price. It is difficult to believe that investors paying such high markups, from 3 to 5 percent above the reoffering price, would do so if they were trading in a more transparent venue, where they would know that the same bonds were being offered to others at much lower prices at virtually the same point in time.

As noted above, it is difficult to measure the indirect costs of illiquidity to issuers, because it requires measuring the discount investors require today to buy a bond they anticipate will be difficult or costly to trade in the future. It is easier to get a quantitative sense of the frictional costs to issuers and investors for newly issued bonds, where the proceeds to issuers and the final prices paid by investors are directly observable. Green and colleagues (2007b) show that the transactions in newly issued municipals appear to be generated by two different distributions: one made up of informed or sophisticated investors and the other made up of uninformed or naive buyers. They use the MSRB data to estimate a mixture of distributions model that separates transactions into those that appear to be made by informed and uninformed investors, and estimate the losses to dealer-underwriters by the uninformed to be, for the average deal, twenty-eight basis points of par value. The direct fees charged by the underwriters are eighty-nine basis points for the average deal, so the "money left on the table" by uninformed buyers amounts to a fourth of the underwriters' combined profits. On roughly \$0.5 trillion in new issues per year, twenty-eight basis points amounts to \$1.4 billion left on the table per year, compared to direct underwriting fees of roughly \$4.45 billion.

For researchers, the central challenge in documenting the problems with the existing regime is that the costs of trade, the amount of trade, and the trading venue are all jointly determined, endogenous outcomes. This renders the causality ambiguous. Perhaps municipal bonds are so expensive to trade, and trade so infrequently, because they trade in OTC markets

where intermediaries exercise market power and extract all the gains to trade. Or, perhaps they trade OTC markets because investors rarely want to trade them. Intermediaries then need to earn high profits on each trade because, with so few investors coming to the market, it is inherently difficult and expensive to match buyers and sellers.

The historical experience sheds light on this question. Biais and Green (2005) point out that until the 1930s, municipal bonds traded actively on the NYSE. They measure spreads for New York City bonds in the late 1920s on the exchange, and compare the trading costs to those investors in New York bonds face today. Then, as now, New York bonds were among the most liquid bonds in the municipal market. Their results show that New York municipals are roughly twice as expensive to trade today as they were when traded on the exchange almost one hundred years ago. This is quite remarkable when one reflects on what else is twice as expensive to trade now as it was one hundred years ago. The costs of matching buyers and sellers in a financial market are almost entirely associated with communication and data processing, and by any measure these costs have fallen dramatically over the past century. This strongly suggests that the high costs of trade must be due to the trading venue, or to the market power of the intermediaries facilitating trade.

Other empirical evidence suggests the compensation earned by broker-dealers is attributable to something other than the obvious fact that their costs are higher servicing retail investors. Green and colleagues (2007a) estimate a structural model of the bargaining process between dealers and customers using the MSRB data. Their model separates the effects of size on bargaining power and on the dealer's costs. The parameter that summarizes the dealer's bargaining power decreases with transaction size.

In many markets for retail consumer goods, prices rise faster than they fall. This behavior has been extensively studied by economists, because it is difficult to imagine anything other than market power on the part of vendors generating such an outcome. Green and colleagues (2010) shows that prices of municipal bonds also exhibit this behavior. Broker-dealers, who tend to supply liquidity by purchasing large blocks of bonds from institutional investors and then by selling them in smaller blocks to other investors, generally hold positive inventories of the bonds, and therefore benefit from delaying the recognition of movements in fundamentals if those movements cause prices to fall.

APPENDIX B. THE ECONOMICS OF ADVANCED REFUNDINGS

Advanced refundings are generally not in the interest of the issuer.

Mortgage Refinancing

A useful comparison that many people are familiar with is the case of mortgage refinancing. Consider Mr. and Mrs. Average who have a thirty-year interest-only mortgage with annual payments at the end of each year. Interest rates are flat at 5 percent. The cash flows of this mortgage are \$5 every year plus the principal of \$100 at the end of thirty years. Ignoring the option of prepaying, the value of this mortgage to the bank, or to the mortgage-backed security [MBS] investor who effectively holds the mortgage, is currently \$100.

Now suppose interest rates suddenly fall to 3 percent. Discounting the thirty annual payments of \$5 each and the final principal of \$100 at year thirty at the new interest rate of 3 percent, the value of this mortgage is now \$139.20. Suppose Mr. and Mrs. Average now prepay the mortgage and refinance at 3 percent. This involves taking out a new loan of \$100 principal with new annual coupons of \$3 each year for thirty years. The old mortgage is extinguished, or is prepaid. They save \$2 per year over the life of the mortgage, which is worth \$39.20.

If Mr. and Mrs. Average can save \$39.20 by refinancing, who is bearing the loss? The bank who issued the mortgage—or, in the case of securitization, the MBS investor—takes the loss. The bank receives \$100, the principal, and gives up the right to receive the cash flows of the original mortgage that are worth \$139.20, not taking into account the prepayment option. Of course, ex ante there may not be a loss because the bank should take into account the possibility of the prepayment by Mr. and Mrs. Average, which occurs at bad times for the bank because the \$100 of capital is returned when interest rates are lower than the initial terms of the mortgage. This is why valuing the prepayment option is critical for MBS pricing. Refinancing benefits Mr. and Mrs. Average and hurts (ex post) the bank or MBS holder.

The Municipal Bond Market

Now contrast refinancing a mortgage with what happens in advanced refundings of municipal bonds. Consider an analogous refunding deal: a thirty-year bond of face value \$100 with \$5 coupons payable at the end of each year is callable in five years. The interest rate curve is flat at 5 percent, so the value of the bond payments is \$100, ignoring the call feature. Now suppose interest rates fall to 3 percent flat. The present value of this debt over thirty years, ignoring the call option,

is now \$139.20. The value of the \$5 coupons over the next five years until the call date is \$109.16.

Suppose the municipality advance refunds the original debt up to the call date. Unlike Mr. and Mrs. Average, the old debt does not disappear. Advanced refunding involves issuing new debt, buying U.S. Treasuries proceeds from the new debt, and depositing the Treasuries into a trust created for the purpose of paying off the old debt.⁹ The cash flows from the U.S. Treasuries perfectly offset the payments required on the original debt, typically the payments up to the call date and the call price.

Ignoring credit risk, how much money does the municipality need to set aside in the trust to fund the \$5 payments each year for the next five years and the \$100 principal payment at year five? Discounting these payments at the new 3 percent interest rate produces a value of \$109.16. That is, the old debt is worth \$109.16. In order to create a trust to meet all its obligation entails putting in securities worth exactly the same amount, \$109.16. So, ignoring the call option, there is no way to generate any cash from this transaction. The present value of the original debt is equal to the value of the funds needed to meet the cash flows of the original debt. Economically, it is impossible to create value: the value of the new fund must be equal to the value of the old debt issue. Note that for Mr. and Mrs. Average, there is a benefit to refinancing and the bank bears the loss. In the municipal bond market, the cash flows to holders of the original debt issue are unchanged (except that, as we show below, they benefit because credit risk improves and with some probability their bonds will be redeemed early even though interest rates are higher).

Yet, municipalities often claim that advanced refunding is “free money.” Ignoring the call option, the value of the original debt issue is \$139.20, which is the value of a thirty-year annuity of \$5 coupons plus the discounted principal payment at 3 percent. On the municipality’s balance sheet, the value of this debt should be \$139.20, ignoring the call option and assuming the debt is marked to market. The municipality is allowed to remove the original debt from its balance sheet as it is defeased. The value of the newly issued debt is \$109.16. The municipality has “saved” \$30.04. This seems to be “cash today” for the municipality.

The apparent savings are due to the municipality bringing forward the savings of \$2 each year from years six to thirty to today, which has present value of \$30.04. It is “free money” for this year’s budget, but in the long term is not so free. These savings could have been achieved in any case by waiting to see if interest rates were still low at the call date and calling the bonds then, should that be the optimal choice at that point.

The analogy with Mr. and Mrs. Average is useful here. Mr. and Mrs. Average's original mortgage disappears when they refinance. Mr. and Mrs. Average benefit and the bank bears the loss. In the municipal bond market, the old debt issue remains outstanding. Defeasing that debt requires putting into a trust exactly what that debt is worth; there is no economic savings from advanced refunding. The apparent money savings to the municipality involve claiming today the interest savings for the later years that do not depend on the refunding.

Advanced refunding hurts the municipality in at least two ways, besides paying fees. First, the issuer backs the original debt with U.S. Treasuries. Thus the credit risk of the original debt issue has improved, which benefits only the holders of the debt. The investors in the original debt are not paying for this reduction in credit risk—the municipality is. This is as if the bank lending to Mr. and Mrs. Average, who can default, suddenly finds Mr. and Mrs. Average are replaced by the U.S. Treasury and Mr. and Mrs. Average themselves pay to substitute the credit risk of Uncle Sam for their credit risk. Second, the issuer has surrendered part of the value of the call option. In fact, the new short-term debt has a higher present value than the original debt issue because the municipality has eliminated the optionality associated with the call.

Advanced refunding generally hurts municipalities.

APPENDIX C. PUBLIC PENSION ACCOUNTING

Public pension plans suffer from a severe funding deficiency stemming from the way their liabilities are valued. Under GASB 25 and Actuarial Standards of Practice (ASOP) 27, the discount rate used to value the liabilities is the same as the expected long-term return assumption on assets.¹⁰ To put into context the problems with this assumption, consider Mr. and Mrs. Average with a \$250,000 mortgage and \$50,000 in net savings all held in Treasury bonds. The couple owes \$200,000 to the bank (the liability) and needs access to an income stream with a present value of \$200,000 to meet the liability. Now suppose the couple switches their savings from bonds to equities. Their net wealth remains the same (\$50,000), and they still owe the bank \$200,000. In a correct accounting treatment, the value of what they owe the bank is not dependent on the asset mix they hold; the asset risk is unrelated to the risk of the liability stream.

This is not what happens in the municipal bond market. If Mr. and Mrs. Average were a municipality, switching their net savings from bonds to equities would decrease the stated amount they owe the bank on a financial statement. Since equities have a higher expected return than bonds (which they must have in equilibrium to compensate for the higher risk of equities versus bonds), a municipal accountant would report that the amount they owe the bank would decrease, say

from \$200,000 to \$150,000. Under GASB 25 and ASOP 27, the expected return of their (net) assets has increased; according to these perverse standards, this reduces the reported liability owed to the bank. Economically, this is incorrect because the risk of equities held by Mr. and Mrs. Average has no relation to the cash flows they owe their bank, despite what their accountant says. Of course, this is just accounting: they still owe the bank \$200,000 and have to pay the full present value of \$200,000 at some stage. In fact, if they paid only what their accountant says they should pay, \$150,000, a bank would eventually foreclose on their house. Thus, relying on their accountant makes Mr. and Mrs. Average severely understate their liabilities.

The misleading accounting just described is the accounting used by municipal pension funds. In a series of papers, Novy-Marx and Rauh (2009, 2010, in press) estimate the underfunding problem of states and municipalities compared to the stated accounting reserves using GASB 25. They estimate that as of June 2009 states have accrued \$5.7 trillion of liabilities to their workers, assuming that states cannot default on their obligations. Assets in state pension plans total less than \$2.0 trillion at the same date and, thus, Novy-Marx and Rauh estimate the underfunding of state pension plans to be approximately \$3.2 trillion. In comparison, the outstanding publicly traded debt issued by states is approximately only \$1 trillion. The problem is as bad, if not worse, for local municipalities in terms of liabilities-to-revenue comparisons. Examining the largest pension plans of major cities and counties, which cover approximately two-thirds of all local government workers, Novy-Marx and Rauh estimate a total unfunded obligation of \$7,000 per municipal households. All of these liabilities are incurred, but not reported on state balance sheets. Some municipal pension plans, such as Prichard Alabama, have already defaulted.

We recommend, as have many other authors, that GASB and ASOP rules be changed to discount public pension plan liabilities at market-related discount rates. Appropriate discount rates would be from (tax-adjusted) municipal yield curves or Treasuries.¹¹ Yields are currently very low and much lower than the discount rate of 8 percent used by most municipalities and states in practice.¹² As Novy-Marx and Rauh point out, under these assumptions, unfunded pension liabilities work out to more than \$10,000 for each person in the United States.

Authors

Andrew Ang

Ann F. Kaplan Professor of Business at Columbia Business School

Andrew Ang is the Ann F. Kaplan Professor of Business at Columbia Business School. He is a financial economist whose work centers on understanding the nature of risk and return in asset prices. His work spans municipal and government bond markets, equities, asset management and portfolio allocation, and alternative investments. Prof Ang graduated in 1999 with a PhD in Finance from Stanford University and joined Columbia University in that year. He is a Research Associate of the National Bureau of Economic Research and is the recipient of several grants from government organizations such as the National Science Foundation and major industry organizations such as the Q-Group, INQUIRE-UK, INQUIRE-Europe, the BSI Gamma Foundation, and Netspar. He currently serves as an associate editor for over half a dozen leading journals. Prof Ang has consulted for investment banks, hedge funds, a variety of investment management firms. He currently serves as advisor to several asset managers, including Martingale Asset Management and the Norwegian sovereign wealth fund.

Richard C. Green

Richard M. and Margaret S. Cyert Professor of Financial Economics at Carnegie Mellon University

Rick Green is the Richard M. and Margaret S. Professor of Financial Economics at Carnegie Mellon University, where he has served on the faculty since 1982. He received his Ph.D. from the University of Wisconsin. Rick's research concerns the effects of risk and taxation on the pricing of financial assets, financial intermediation, and corporate decision making. His articles have won awards from the American Association of Individual Investors, the Chicago Quantitative Alliance, the Q-Group, TIAA-CREF (Samuelson Award), and the American Finance Association (Distinguished Paper, Smith Breeden Award 1999, 2010). He has been a Co-Editor of the *Review of Financial Studies*, Associate Editor of several academic journals in finance, and Editor of the *Journal of Finance*. Rick has served as President of the Western Finance Association, Vice President of the Society for Financial Studies, and President of the American Finance Association. He was awarded the George Leland Bach Teaching Award by the graduating class of 1996, and won the Commerce Graduate Society Teaching Excellence Award during his year as a visitor at British Columbia.

Acknowledgments

Thanks to Karen Anderson, David Bean, Allen Biehler, Vineer Bhansali, Richard Cicarrone, Tracy Gordon, Michael Greenstone, Trevor Harris, Tal Heppenstall, Bob Herz, Ann Kaplan, Adam Looney, and Yuhang Xing.

Endnotes

1. Data from the Securities Industry and Financial Markets Association at www.investinginbonds.com. Formally, the municipal bond market includes issues from universities, foundations, nonprofit healthcare organizations, and other 501(c)(3) corporations, but these are small relative to the state and local government issues and issues from quasi-government or government-sponsored authorities.
2. Biais and Green (2005), in their study of the history of bond trading, provide quotations from textbooks and the popular financial press to this effect.
3. In a few recent cases, independent advisers have not acted in the best interests of their municipal issuers; SEC has accused some of being involved in pay-to-play activities and bid rigging in tender auctions.
4. The problems of derivatives with municipalities is in fact an international problem. See IMF (2010), 33–35.
5. There are certain circumstances in which advance refunding could be in the interest of the issuer. For example, the issue being defeased could involve covenants that are onerous. Such situations, however, are very specific to a particular bond issue. They are rarely the reasons cited by underwriters in selling the transaction, or by municipalities when they undertake it. Neither could they explain the volume of prerefundings over the past decade.
6. From time to time, there are conflicts between state and GASB standards. For example, in May 2007 the Texas legislature passed a bill originally intended to prohibit the state from using GASB 45, on valuation of postemployment benefits such as retiree health benefits and life insurance. The final House Bill 2365 that was passed allowed state entities to use GASB 45 or the Texas standard, which maintained the status quo.
7. The interested reader can visit www.investinbonds.com to see how the prices are reported online.
8. The database identifies trades as purchases from customers, sales to customers, and interdealer trades, but not individual dealers. The measured markups are the difference between the price at which bonds were purchased from customers and the prices at which the bonds were later sold by dealers to customers, as a percentage of the original price.
9. The Treasury issues special bonds to states and municipalities precisely for this purpose. These are called SLGS (pronounced “slugs”) for “state and local government series.”
10. For GASB 25 and ASOP 27, see GASB 1994 and Actuarial Standards Board (ASB) 2007, respectively.
11. FASB 158 requires discounting of corporate pension plans for financial reporting purposes using high-grade yields. Under the Pension Protection Act of 2006, the discount rate for liabilities reported to the IRS must be within a range of 10 percent below and 5 percent above a four-year average of thirty-year Treasury yields.
12. This corresponds roughly to a 60 percent equities and 40 percent bond mix. Pursued to the extreme, states or municipalities would have no unfunded pension liabilities if they held a close to 100 percent equity portfolio and, in fact, would have large pension surpluses if they levered an all-equity portfolio.

References

- Actuarial Standards Board (ASB). 2007. "Actuarial Standard of Practice [ASOP] No. 27: Selection of Economic Assumptions for Measuring Pension Obligations," rev. ed. Developed by the Pension Committee of the Actuarial Standards Board. http://actuarialstandardsboard.org/pdf/asops/asop027_109.pdf
- Ang, Andrew, Vineer Bhansali, and Yuhang Xing. 2010a. "Taxes on tax-exempt bonds." *Journal of Finance* 65: 565–601.
- Ang, Andrew, Vineer Bhansali, and Yuhang Xing. 2010b. "Build America bonds." *Journal of Fixed Income* 20: 67–73.
- Ang, Andrew, Vineer Bhansali, and Yuhang Xing. In progress. "Decomposing municipal bond yields."
- Ang, Andrew, and Monika Piazzesi. 2003. "A no-arbitrage vector autoregression of term structure dynamics with macroeconomic and latent variables." *Journal of Monetary Economics* 50: 745–787.
- Biais, Bruno, and Richard C. Green. 2005. "The micro-structure of the bond market in the 20th century." Working paper, Carnegie Mellon University, Pittsburgh, PA.
- Carlin, Bruce I. 2008. "Strategic price complexity in retail financial markets." *Journal of Financial Economics* 91: 278–287.
- Cary, William L., and Craig B. Bright. 1969. "The law and the lore of endowment funds." Report to the Ford Foundation, New York.
- Chalmers, John. 1998. "Default risk cannot explain the muni puzzle: Evidence from municipal bonds that are secured by U.S. Treasury obligations." *Review of Financial Studies* 11: 281–308.
- Dammon, Robert M., Chester S. Spatt, and Harold H. Zhang. 2004. "Optimal asset location and allocation with taxable and tax-deferred investing." *Journal of Finance* 59: 999–1038.
- Gabaix, Xavier, and David Laibson. 2006. "Shrouded attributes, consumer myopia, and information suppression in competitive markets." *Quarterly Journal of Economics* 121: 505–540.
- Governmental Accounting Standards Board (GASB). 1994. "Summaries / Status: Summary of statement No. 25: Financial reporting for defined benefit pension plans and note disclosures for defined contribution plans." <http://www.gasb.org/st/summary/gstsm25.html>
- Green, Richard C. 1993. "A simple model of the taxable and tax-exempt yield curves." *Review of Financial Studies* 6: 233–264.
- Green, Richard C. 2007. "Issuers, underwriter syndicates, and aftermarket transparency." *Journal of Finance* 62: 1529–1550.
- Green, Richard C., Burton Hollifield, and Norman Schürhoff. 2007a. "Financial intermediation and costs of trading in an opaque market." *Review of Financial Studies* 20: 275–314.
- Green, Richard C., Burton Hollifield, and Norman Schürhoff. 2007b. "Dealer intermediation and price behavior in the aftermarket for new bond issues." *Journal of Financial Economics* 86: 643–682.
- Green, Richard C., Dan Li, and Norman Schürhoff. 2010. "Price discovery in illiquid markets: Do financial asset prices rise faster than they fall?" *Journal of Finance* 65: 1669–1702.
- Greenstone, Michael, Paul Oyer, and Annette Vissing-Jorgensen. 2006. "Mandated Disclosure, Stock Returns, and the 1964 Securities Acts Amendments." *Quarterly Journal of Economics* 121, 2: 399–460.
- Grinstein, Yaniv, and Vidhi Chhaochharia. 2007. "Corporate governance and firm value: The impact of the 2002 governance rules." *Journal of Finance* 62: 1789–1825.
- Harris, Lawrence, and Michael S. Piwowar. 2006. "Secondary trading costs in the municipal bond market." *Journal of Finance* 61: 1361–1397.
- Hong, Gwangheon, and Arthur Warga. 2004. "Municipal marketability." *Financial Analysts Journal* 56: 86–95.
- International Monetary Fund (IMF). 2010 (June). "Report." *Finance and Development*, Washington, DC.
- Kessel, Reuben. 1971. "A study of the effects of competition in the tax-exempt bond market." *Journal of Political Economy* 79: 706–738.
- Kidwell, David S., Timothy W. Koch, and Duane R. Stock. 1984. "The impact of state income taxes on municipal borrowing costs." *National Tax Journal* 37: 551–562.
- Levitt, Arthur. 2009 (October 21). "Taxpayers fleeced when leaders tap Muni market." Bloomberg.
- Longstaff, Francis A. 2008. "Municipal debt and marginal tax rates: Is there a tax premium in asset prices?" Working paper, University of California Los Angeles.
- McCaskill, Claire. 2005. "General obligation bond sales practices follow-up." Report No. 2005-101, Office of the State Auditor of Missouri.
- Novy-Marx, Robert, and Joshua Rauh. 2009. "The liabilities and risks of state-sponsored pension plans." *Journal of Economic Perspectives* 23: 191–210.
- Novy-Marx, Robert, and Joshua Rauh. 2010. "The crisis in local government pensions in the United States." Working paper, Northwestern University.
- Novy-Marx, Robert, and Joshua Rauh. In press. "Public pension promises: How big are they and what are they worth?" *Journal of Finance*.
- Poterba, James, and A. R. Verdugo. 2008. "Portfolio substitution and the revenue cost of exempting state and local government interest payments from federal income tax." Working Paper 14439, National Bureau of Economic Research, Cambridge, MA.
- Robbins, Mark D. 2002. "Testing the effects of sale method restrictions in municipal bond issuance: The case of New Jersey." *Public Budgeting & Finance* 22: 40–56.



ADVISORY COUNCIL

GEORGE A. AKERLOF
Koshland Professor of Economics
University of California at Berkeley

ROGER C. ALTMAN
Founder & Chairman
Evercore Partners

HOWARD P. BERKOWITZ
Managing Director
BlackRock

ALAN S. BLINDER
Gordon S. Rentschler Memorial Professor
of Economics & Public Affairs
Princeton University

TIMOTHY C. COLLINS
Senior Managing Director
& Chief Executive Officer
Ripplewood Holding, LLC

ROBERT CUMBY
Professor of Economics
Georgetown University

JOHN DEUTCH
Institute Professor
Massachusetts Institute of Technology

KAREN DYNAN
Vice President & Co-Director
of Economic Studies
Senior Fellow, The Brookings Institution

CHRISTOPHER EDLEY, JR.
Dean and Professor, Boalt School of Law
University of California, Berkeley

MEEGHAN PRUNTY EDELSTEIN
Senior Advisor
The Hamilton Project

BLAIR W. EFFRON
Founding Partner
Centerview Partners LLC

JUDY FEDER
Professor of Public Policy
Georgetown University
Senior Fellow, Center for American Progress

ROLAND FRYER
Robert M. Beren Professor of Economics
Harvard University and CEO, EdLabs

MARK GALLOGLY
Managing Principal
Centerbridge Partners

TED GAYER
Senior Fellow & Co-Director
of Economic Studies
The Brookings Institution

RICHARD GEPHARDT
President & Chief Executive Officer
Gephardt Government Affairs

MICHAEL D. GRANOFF
Chief Executive Officer
Pomona Capital

ROBERT GREENSTEIN
Executive Director
Center on Budget and Policy Priorities

CHUCK HAGEL
Distinguished Professor
Georgetown University
Former U.S. Senator

GLENN H. HUTCHINS
Co-Founder and Co-Chief Executive
Silver Lake

JIM JOHNSON
Vice Chairman
Perseus LLC

LAWRENCE KATZ
Elisabeth Allison Professor of Economics
Harvard University

MARK MCKINNON
Vice Chairman
Public Strategies, Inc.

ERIC MINDICH
Chief Executive Officer
Eton Park Capital Management

SUZANNE NORA JOHNSON
Former Vice Chairman
Goldman Sachs Group, Inc.

PETER ORSZAG
Vice Chairman of Global Banking
Citigroup, Inc.

RICHARD PERRY
Chief Executive Officer
Perry Capital

PENNY PRITZKER
Chairman of the Board
TransUnion

ROBERT REISCHAUER
President
The Urban Institute

ALICE RIVLIN
Senior Fellow & Director
Greater Washington Research at Brookings
Professor of Public Policy
Georgetown University

ROBERT E. RUBIN
Co-Chair, Council on Foreign Relations
Former U.S. Treasury Secretary

DAVID RUBENSTEIN
Co-Founder & Managing Director
The Carlyle Group

LESLIE B. SAMUELS
Partner
Cleary Gottlieb Steen & Hamilton LLP

RALPH L. SCHLOSSTEIN
President & Chief Executive Officer
Evercore Partners

ERIC SCHMIDT
Chairman & CEO
Google Inc.

ERIC SCHWARTZ
76 West Holdings

THOMAS F. STEYER
Co-Senior Managing Member
Farallon Capital Management

LAWRENCE SUMMERS
Charles W. Eliot University Professor
Harvard University

LAURA D'ANDREA TYSON
S.K. and Angela Chan Professor of
Global Management, Haas School of
Business University of California, Berkeley

MICHAEL GREENSTONE
Director

Fast Facts:

- States and municipalities throughout the United States rely on the municipal bond market to finance investments with up-front costs and long-term benefits. Moreover, millions of Americans save and invest using these bonds, and rely on them for income into retirement. The dollar amounts at stake are enormous: each year, state and local governments issue close to \$0.5 trillion dollars of new bonds; the stock of outstanding bonds totals more than \$2.9 trillion.
- Evidence suggests, however, that the municipal bond market has a number of inefficiencies that impose costs on both issuers and investors. The market for bonds is illiquid, meaning it is hard for bondholders to sell on short notice at a price close to the bond's intrinsic value. Information on borrowers is hard to find and is often not comparable. Compounding this illiquidity and lack of information, some borrowers incur large fees and transaction costs by choosing complex services and financial products that may be unnecessary.
- These inefficiencies have real costs: recent research suggests that state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds pay billions of dollars each year in unnecessary fees, transactions costs, and interest expense. The liquidity cost alone represents approximately \$30 billion per year on the current \$2.9 trillion stock of outstanding bonds.
- The authors propose the creation of a national not-for-profit institution—CommonMuni—to provide municipalities and state governments with independent advice, to facilitate the provision of high-quality, standardized information, and to encourage steps that improve liquidity.
- CommonMuni takes inspiration from the successful example of Commonfund, founded by the Ford Foundation in 1971, which provides investment management services and advice for colleges, universities, foundations, hospitals, and other philanthropic and tax-exempt organizations.

CommonMuni would fulfill three primary functions:

1. Provide individual issuers with advice that a single issuer would normally find prohibitively expensive.
2. Promote the sharing of best practices and information among municipalities, states, and other market participants.
3. Improve liquidity and information quality by publicizing or advocating for the provision of public goods in the municipal market, such as shared, accessible information, including information on bond terms and prices, and innovations in trading platforms and practices.



1775 Massachusetts Ave., NW
Washington, DC 20036

(202) 797-6279

BROOKINGS



Printed on recycled paper.

WWW.HAMILTONPROJECT.ORG