

# Municipal Fallout

**U.S. state bond markets are not insulated from each other but are from the federal bond market**

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**T**HE market for municipal bonds has often been viewed as a safe haven by individual investors (see box). The 45,000 U.S. bond issuers include state and local governments, school districts, and water authorities that sell their debt securities in the so-called muni market. They are all reliable payers. Only 54 of them defaulted during 1970–2009 (Moody's, 2010). The most recent U.S. state to default was Arkansas in 1933, during the Great Depression. Throughout history there have been but a handful of state defaults—10 in the aftermath of the U.S. Civil War and eight plus the then-territory of Florida during the 1830s and 1840s (Ang and Longstaff, 2011).

But recently the safety of the muni market has been questioned, especially for its largest issuers: individual U.S. states, Puerto Rico, and New York City. The housing bust, financial crisis, and recession devastated state and local tax revenues. As a result, the U.S. municipal bond market has experienced worrisome signs of instability: volatility has increased, as has the spread between the average rates

on municipal bonds and the rates on U.S. Treasury securities (see chart). In normal times, rates on municipal securities are lower than on U.S. government offerings because of the tax benefits munis receive. The now-higher borrowing costs for individual U.S. states reflect concerns about their future revenues and pension obligations, among other things. But what perhaps makes matters more worrisome for investors is that, unlike Chapter 9 for municipalities, there is no bankruptcy mechanism governing state defaults. In other words, U.S. states can repudiate their debt. Under the 11th Amendment to the U.S. Constitution, individual states have the same sovereign immunity as countries, and states can be sued only with their consent.

For more than three years, states have responded to investor fears with a series of measures to address both short- and long-run fiscal issues—including cutting spending, raising taxes, borrowing, and turning to the federal government for help in keeping their budgets balanced. However, there is increasing concern that if a state defaults—and many face severe budget issues—the effects would spill over to other municipal securities and even affect the market for U.S. government securities. Also, with few places left to find savings, states are rolling back funds for cities, counties, and school districts.

State Capitol building, Olympia, Washington.

The resulting layoffs could become a drag on the national economy at a time when the recovery from the financial crisis still appears to be fragile.

The recent Standard & Poor's downgrade of the U.S. credit rating from AAA to AA+ is a further concern. Although so far it has had little, if any, effect on U.S. Treasury securities, the one-notch downgrade has increased investor worries that U.S. state bond markets might face consequences were there financial disruptions in federal markets. Moreover, the prospect of more federal budget tightening could further erode already precarious state finances.

In a recent study (Arezki, Candelon, and Sy, 2011), we looked at two issues with a focus on the largest borrowers in the muni market. We examined the spillover effects within the muni markets—in particular, whether a shock to the market for bonds of one U.S. state can affect the markets for bonds from other states (a situation called spillover). We also studied spillover effects between the bond markets for individual U.S. states and the market for U.S. Treasury securities, and which way shocks between the two markets are transmitted.

### The U.S. municipal bond market

Municipal bonds are debt securities issued by states, cities, counties, and other government entities to finance capital projects—such as building schools, highways, or sewer systems—and to fund day-to-day activities. Short-term bonds mature in one to three years; long-term bonds generally will not come due for more than a decade. Individual investors hold about two-thirds of the roughly \$2.8 trillion in U.S. municipal bonds outstanding, either directly or indirectly through mutual funds and other investments ([www.sec.gov](http://www.sec.gov)).

Investors in municipal bonds get a number of benefits, including interest payments that are generally exempt from federal income tax and may also be exempt from state and local taxes for residents in the state where the bond is issued. Because of the tax benefits, interest on municipal bonds is usually lower than on taxable fixed-income securities such as corporate bonds. The two most common types of municipal bonds are general obligation bonds (bonds backed by the “full faith and credit” of the issuer) and revenue bonds (bonds backed by income from a specific project or source). In addition, municipal borrowers sometimes issue bonds on behalf of private entities such as nonprofit colleges or hospitals. These “conduit” borrowers typically agree to repay the municipal issuer, which pays the interest and principal on the bonds.

Debt service is a relatively small portion of most governments' budgets, except for a handful of state governments that issue long-term debt to fund current operations. Reliance on deficit financing is one of the reasons California, Illinois, and Arizona are the three lowest-rated states according to Moody's.

We found that between most markets for individual U.S. state bonds there are what we would call negative spillovers that result in a “flight to quality.” That is, a negative shock to one state's securities typically results in lower borrowing costs for other U.S. states. Overall, we find no substantial spillover effects between shocks originating from state securities and from federal markets, except for a few large issuers.

### Spillover effects

The literature on spillover effects in financial markets is abundant, but has so far focused mainly on spillover effects between countries. We studied the spillover effects within and between bond markets pertaining to different levels of government in a given country—the United States.

To study spillover effects in the markets for bonds of U.S. states and federal (that is, U.S. Treasury) securities, we empirically tested whether a shock specific to one market is transmitted to other markets. Our tests correct for the higher volatility observed during the financial crisis, starting in 2008 (Forbes and Rigobon, 2002).

There are obvious linkages between U.S. states, as well as between states and the federal government (transfer payments being a good example). Those linkages could be invoked to explain spillover effects between various bond securities. In contrast, other factors such as investor psychology make spillover effects more difficult to explain. As a result, we focused on describing the nature of the spillover effects rather than trying to find a specific explanation for them.

The results indicate that during a period of volatility, investors seek safer municipal investments—the same sort of flight to quality that occurs during financial crises when investors (domestic and international) become less concerned about yield and more concerned about the safety of their funds and buy U.S. Treasury securities, long considered one of the world's safest investments. In other words, an increase in borrowing costs in one U.S. state results in better borrowing conditions for states considered less risky. We found that a few of the largest municipal issuers—such

### Volatile times

The 2008 global financial crisis increased volatility in the U.S. municipal bond market. Despite their tax benefits, 10-year municipal bond yields at times exceeded U.S. Treasury yields. (yield, percent)



as the states of California (the largest of all), Georgia, and Maryland and the City of New York—benefit when other states experience problems (in other words, the spillover is negative). But there are a handful of states, such as Connecticut and Florida, where the correlation is positive—that is, their securities suffer when another state is having problems. We cannot determine why the situation is different with those few states—this is fertile ground for future research. On balance, though, market participants so far have not penalized most U.S. states when there is heightened stress in another state's bond market.

### Feeling the pain?

But when it comes to the relationship between the markets for municipal securities and U.S. Treasury securities things are a bit different. Overall, we found no substantial spillover effects between shocks originating from state securities and federal markets, except for a few large issuers. Indeed, for a few states that are among the largest borrowers, we found that problems in their market can lead to troubles in the federal market. We found evidence of positive spillover—albeit below the conventional level of significance—between the U.S. Treasury market and the markets for New Jersey, Texas, Washington state, and New York City—with the strongest result for New York City. But when it comes to the largest municipal bond issuer in the United States, California, we found a negative spillover with the market for U.S. Treasury securities. Our results indicate that the yields on bonds issued by the state of California and those on federal government securities move significantly in opposite directions following a shock to both bond markets. Overall, our analysis suggests that in only a few key states are bond markets linked with the Treasury bond market. A shock to the bond market in one of these states may lead to heightened instability in the Treasury bond market. To evaluate the robustness of our results, we controlled for the possibility that other factors were affecting the relationships. We concluded that our findings were robust.

One remaining question was whether the spillover between the municipal bond market and the Treasury bond market is short run, long run, or both. We also needed to sort out the direction of the shocks—whether they went primarily from the Treasury market to the muni markets or vice versa. The implications for policy can be quite different.

The empirical tests we used to determine spillovers do not say much about the direction of the transmission of shocks. The approach is also silent on whether the evidence is of a short-term or long-term nature. To explore this avenue, we used a causality test that allowed us to sort out which way shocks are transmitted and whether they have a short- or long-term effect (Breitung and Candelon, 2006).

### One way or the other

Using that test, we found that the Treasury bond market directly causes changes in the markets for municipal bonds in both the short and long run. There is also some evidence of causality from the municipal to the Treasury bond market, but it is only of a long-run nature.

Depending on whether the spillover effects between states and between state securities and federal markets are positive or negative, those results suggest that structural reforms that have a positive impact on the federal budget in the long run will also benefit or worsen the borrowing condition of U.S. states. Similarly, reforms at the state level should help either reduce or increase the cost of borrowing for the federal government.

There are potentially important policy lessons to be drawn from that evidence of spillover from and within the muni market—and they are not limited to the United States. Countries with developed bond markets for securities issued by states or provinces should not simply worry about the potential spillover from neighboring countries but also investigate thoroughly the nature of the spillover across their sub-federal bond markets and between those markets and their federal bond market. The design of risk management policies must be informed by the nature of those linkages and adapted to their evolving nature.

In Europe, a debate is raging over whether there should be more fiscal federalism and whether the issuance of a common euro bond would aid ailing euro area economies. But it is important to reflect on the impact that such fiscal federalism would have on linkages between bond markets in euro area economies. This study suggests that the markets for individual U.S. state bonds are prone not to contagion but rather to flight to quality, which implies that the problems in one state did not make matters worse for other states and thus did not increase systemic risk. Would this be a byproduct of more fiscal federalism? Perhaps, but the higher degree of fiscal federalism in the United States has not yet completely insulated the municipal bond market from the Treasury market. ■

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