



RECENT CHALLENGES IN SUBNATIONAL FINANCIAL DISTRESS: Is the Process Optimal from a Public Policy Perspective?

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Abstract

DevTech Systems explores recent restructuring experiences at the subnational level and the incentives of stakeholders. The study identifies structural impediments to a first-best restructuring outcome stemming from varying legal, regulatory and political frameworks currently governing restructuring.

TABLE OF CONTENTS

Abstract.....	2
INTRODUCTION.....	4
Lack of Transparency about Municipal Fundamentals.....	4
A Corporate-Centered Bankruptcy Process that is Fundamentally Flawed.....	5
Is US Municipal Default a Risk? The International Experience.....	7
A Simple Framework for Default and Recovery	7
Identification Strategy.....	8
Figure 1. Corporate, Municipal and Federal Bond Yields.....	9
Table 1. VAR Results: Corporate Aaa Yield – 10-Year Treasury Yield	10
Table 2. VAR Results: Muni Bond Yield – 10-Year Treasury Yield.....	10
POLICY DISCUSSION	11
Detroit as an Example.....	11
Policy Recommendation	11
REFERENCES.....	13
Appendix 1	15
Figure A1.1. State Fiscal Year Map.....	15
Appendix 2.....	16
Alternative Specification of the Model Considering December as the Omitted Variable.....	16
Table A2.1. VAR Results Corporate Aaa Yield – 10-Year Treasury Yield	16
Table A2.2. VAR Results Muni Bond yield – 10-Year Treasury Yield.....	16

INTRODUCTION

While sovereign default has been studied extensively, very little attention has been paid to U.S. municipal default (with the exception of some work regarding capital structure). There are significant similarities between sovereign and U.S. municipal default: certain subnational governments resemble sovereigns in their size and other characteristics, and the restructuring regimes are often similar.

Studies of sovereign default have focused on the absence of a bankruptcy framework. To this end, a debate arose in the early 2000s as to whether collective action clauses or unanimous action clauses are sufficient and whether “bailouts” from the International Monetary Fund promote moral hazard on the part of creditors (Jeanne and Zettelmeyer 2001; Dell’Ariccia et al. 2002). This debate remains without resolution. More recently, an energetic policy debate has proposed that the lack of bankruptcy regimes is the cause of many of the sovereign bankruptcy issues, and because of sovereign immunity in the international space, issues such as those arising in the restructuring of Argentina could be avoided or significantly minimized with a proper bankruptcy regime. This, of course, begs the question of cases like Detroit, Jefferson County, Alabama, and other long and costly municipal restructurings that failed in the United States, despite being undertaken in the context of an “organized” bankruptcy regime that has existed for over a century.

LACK OF TRANSPARENCY ABOUT MUNICIPAL FUNDAMENTALS

In the United States, it is recognized that investor protections are lacking in the municipal securities market (see Report of the Senate Committee on Banking, Housing, and Urban Affairs regarding The Restoring American Financial Stability Act of 2010, S. Rep. No. 111-176 (2010)). The municipal securities market, worth \$3.8 trillion (MSRB 2019), is subject to less supervision than its corporate securities counterpart (Aguilar 2013), both from the official sector and from market participants themselves, as there is no equity complement to the debt financing. Market participants are at a disadvantage because they generally have less information upon which to base investment decisions, there is no standard of reporting, diligence is at best spotty, and the sophistication on both sides of the debt trades is low relative to other securities markets. In addition to this, the market exhibits increased investor vulnerability due to the scarcity of reliable information. The financial crisis revealed numerous examples of municipal advisors engaging in egregious conduct, including pay to play practices, undisclosed conflicts of interest, the rendering of advice without adequate training or qualifications, and failing to place their duty of loyalty to their clients above their own interests (Aguilar 2013). Some of these issues persist even to this day - some of the highest profile and largest (by size of the default) debt advisory services have been recently engaged in litigation regarding conflicts of interest (SEC 2016).¹ The 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank”) made some changes to municipal advisory disclosure and certification processes, but these efforts were directed at increasing transparency and fiduciary responsibility of advisors. Policymakers have not addressed the germane issues surrounding municipal default, including outside of agency issues, malfeasance, and others, that concretely affect the probability

¹ For example, in 2016 the SEC charged Central States Capital Markets’ CEO and two employees for breaching their fiduciary duty by failing to disclose a conflict of interest to a municipal client.

of default and the recovery or residual asset value, such as tacking economic outcomes, deciding what policy options would be available in a potential default, and what the probability of such an event is.

Since 2009, the Securities and Exchange Commission (SEC), which is the regulatory body ultimately overseeing the \$3.8 trillion municipal debt market, has called for more oversight. Dodd-Frank attempted to solve issues such as those that arose in the Jefferson County Alabama bankruptcy with JP Morgan through greater disclosure, conflict of interest provisions, and other requirements. The Municipal Securities Rulemaking Board (MSRB) EMMA website provides links to Comprehensive Annual Financial Reports (CAFRs) for municipalities, but these are woefully inadequate in and of themselves, and are not timely. For example, Chicago is clearly a municipality at risk for distress. All that is presently available on the EMMA website as of April 2019 is the December 2017 CAFR, and that was only made available in July of 2018. There is a nascent but largely meaningless credit default market. This could be useful to detect market risk, but it is also a way to bet against municipalities, so it carries its own risk.

Some institutions are working on this issue. For example, Pew and the George Mason Mercatus Center publish data on municipal distress, and the Brookings Institute, Urban Institute, and other think tanks have been advancing efforts to study risks by publishing consolidated data and event-driven consolidated snapshots of the municipal markets. Some states, such as California, have developed dashboards, and the Massachusetts High Technology Council as well as the State Budget Crisis Task Force ("Volcker Alliance") also attempt to address this sector. These are valiant efforts, but seem at best a half-measure against a \$3.8 trillion market that acts essentially as a contingent liability on states, if not the federal government itself.

A CORPORATE-CENTERED BANKRUPTCY PROCESS THAT IS FUNDAMENTALLY FLAWED

Just as for sovereign default, liquidation is not an option in the case of subnational bankruptcy. U.S. municipal bankruptcy law, governed by Chapter 9 of the U.S. Bankruptcy Code, is focused on reorganization, and this has important implications.

Consider the "best interest of creditors" standard of Chapter 9. Bratton and Gulati (2004) analyze the best interest of creditors clause of sovereign debt reform, which also applies to the United States municipal bankruptcy system. The municipal best interest of creditors standard does not require payment in full. Creditors instead may negotiate payment subject to the best interest standard *and the requirement that the plan be feasible*.² Taxpayers enjoy certain protections under Chapter 9: they may appear and object to a Plan of Adjustment, and creditors cannot demand that municipal services be cut. While these taxpayer protections may not seem an asset to creditors, they are a necessary feature of municipal restructuring due to the nature of municipalities: residents of a city are mobile, far more than citizens of a sovereign nation. Raising taxes or cutting municipal services is not sustainable. If the burden becomes excessive, the residents most able to pay the taxes will choose to relocate to avoid the burden (Bratton and Gulati 2004). Indeed, this has been the Achilles heel of municipalities both in and out of reorganization. Excessive tax burdens would destroy the economic competitiveness of jurisdiction, threatening creditors in the long run, like a defaulting sovereign. Due to the infeasibility of liquidation or

² Bratton and Gulati (2004) mention that the standards look to the city's ability to pay: its revenues and expenditures are compared, with the court considering the city's taxing power and the possibility of tax increases.

raising taxes to meet debt obligations, under the Chapter 9 fairness standard, creditors can be expected to accept a reduction in their rights to payment.

There is neither a commonly accepted standard for determining what the sustainable debt or debt service level is for a municipality, nor does there exist a time-consistent commitment device. These two critical functions are the *raison d'être* of IMF structural adjustment programs, which are buttressed at the front-end by annual multilateral surveillance, and at the implementation stage by conditionality and *de facto* preferred creditor status when lending into arrears.

Another problem with Chapter 9 is that there is no definition of aggregation of preferences of creditors nor definition of majority (Bratton and Gulati 2004). Even the results of a vote would not be binding. Here, the judge can draw on legal standards and perhaps bring in expert witness testimony, but there is no standard against which the negotiator's judgment would have rendered a decision.

Even if the legal issues discussed above were brought to heel, there are fundamental problems with the implementation of Chapter 9 from a public policy perspective. At present, the process mimics corporate restructurings, and is driven by a need to "divide the pie" rather than "grow the pie." Attorneys and restructuring advisors generally draw short-term contracts and collect success fees with few instances of multi-year commitment devices around good policies. For example, the payoff to a restructuring advisory team often rests on the success of the restructuring, not on the long-term public economic outcome.

In addition, there seem to be increasing information asymmetries, for example, between investors who seemingly believe that municipal bonds are risk free assets and the reality of 80% haircuts on general obligation (GO) bonds. There is no bridge financing mechanism similar to IMF lending programs except a bailout, which would be questionable both legally and from a moral hazard perspective. Nevertheless, it is unrealistic to think that "essential" services (however those are ultimately defined) or pensions will be cut at the local level. In contrast, these are routinely cut at the international or sovereign default level by the discipline of the international bond markets.

Ultimately, municipal bonds are regulated securities under U.S. law, and the lesson of the past decade is that there are important collateral effects to large securities markets, whether they are recognized *ex ante* or not. The bankruptcy process is fatally flawed. It is designed around restructuring Toys R Us, where the residual value is Geoffrey the Giraffe and empty big-box stores and is inadequate for restructuring municipalities which provide essential services. The endogeneity of the population, a unique risk given the size and deep integration of the United States subnationals, is the Achilles heel of subnational restructuring. Not even Greece shared this issue, although birth rates did slow due to recession (Harlan 2018).

"Constructive ambiguity" now describes the posture of the official sector, and private lenders now proceed at their own risk. Unlike a defaulting corporate borrower, a sub-sovereign cannot be liquidated. Nor can a composition that scales down a sub-sovereign's obligations to a (yet undefined) manageable level be affected at the expense of an equity interest, as occurs in corporate reorganizations (Bulow 1992). The identifying assumption of the default problem here is not sovereign versus sub-sovereign; it is the lack of collateral, the inability to dissolve the entity and liquidate, and the reliance on an unenforceable (and in the case of U.S. sub-sovereigns, grossly unsurveilled and largely misunderstood) set of policy parameters that maximize value residual asset value in the event of a default.

IS U.S. MUNICIPAL DEFAULT AT RISK? THE INTERNATIONAL EXPERIENCE

It is useful to review a number of empirical facts regarding default internationally, as the U.S. states ultimately are not backed by the U.S. federal government, and therefore more closely resemble the default risks of sovereign nations such as members of the European Union than true sub-sovereigns such as the states of Brazil.

- First, default happens with regularity throughout history, as documented by Reinhart and Rogoff (2009), including in major European economies such as England, France, and Germany in the early 20th century. Moreover, countries rarely default just once; serial default is the norm rather than the exception, and defaults happen in waves, with many countries being in default simultaneously (Cruces and Trebesch 2013; Asonuma 2016).
- Second, default often occurs when output is low, and Reinhart and Rogoff (2009) document that default crises frequently coincide with major financial crises. The pressure from bank failures and recession on a government's fiscal situation, combined with the fact that many financial institutions hold government debt on their balance sheets, makes the two types of crises intertwined.
- Third, defaults involve a heterogeneous pattern of "haircuts" (defined as partial reduction in the amount of debt that will be repaid to creditors). Benjamin and Wright (2008) and Cruces and Trebesch (2013) explore a number of restructurings and alternative methodologies and find investor losses of roughly 30 to 40 percent on average, again with considerable heterogeneity across individual default episodes.
- Fourth, default generates a period of lengthy renegotiation. Benjamin and Wright (2008) study seventy-three countries and ninety default episodes lasting eight years on average, with longer negotiations associated with larger losses and longer recessions, and the median country exiting restructuring carrying 5 percent *higher* debt-to-GDP loads than at the time of default.
- Fifth, Broner et al (2013) find that the yield curve "inverts" during periods of very high average spreads, and the maturity of newly issued bonds shorten during crises.
- Sixth, Reinhart et al (2012) document a negative correlation in advanced economies between debt-to-GDP ratios and growth. In sum, the evidence indicates that successful long-term development is not financed through debt, but rather is associated with a government paying down debt and/or accumulating net foreign assets.

A SIMPLE FRAMEWORK FOR DEFAULT AND RECOVERY

We follow the framework proposed by Almeida and Philippon (2007), which they develop to study the risk-adjusted cost of distressed debt in the corporate context. Almeida and Philippon (2007) sought to explain Graham's (2000) finding that corporate entities were under-borrowing given the observed (ex-post) bankruptcy costs, in the context of Merton (1977) and subsequent capital structure models when extended to include distress costs. Our objective is to leverage this simple but cogent framework, which helps to explain the under-borrowing puzzle in the context of ex-ante distress costs and to study public policy around municipal default probabilities and recovery values. For our purposes both corporate and municipalities' debt yields are benchmarked against the U.S. federal ten-year treasury note, which we treat as the risk-free yield.

Following Almeida and Philippon (2007), assume a firm or municipality has issued an annual-coupon bond maturing in exactly one year. The bond's yield is equal to y , and the bond is priced at par. The bond's recovery rate, which is known with certainty today, is equal to ρ . Thus, if the bond defaults, creditors recover $\rho(1 + y)$. The value of the bond equals the present value of expected future cash flows, adjusted for systematic default risk. If we let q be the risk-adjusted (or risk-neutral) one-year probability of default, and r^F is the one-year risk free rate. Then we can express the bond's value as:

$$(1) \quad 1 = \frac{(1 - q)(1 + y) + q\rho(1 + y)}{1 + r^F}$$

In the valuation formula (1), the probability q incorporates the default risk premium that is implicit in the yield spread $y - r^F$. If investors were risk neutral, or if there were no systematic default risk, q would be equal to the expected probability of default. If default risk is priced, then the implied q is higher than ρ . Equation (1) can be solved for the risk premium $\frac{(y - r^F)}{(1 + y)}$.

$$(2) \quad q(1 - \rho) = \frac{(y - r^F)}{(1 + y)}$$

Equation (2) shows the risk premium as a function of the risk-adjusted recovery value of the going concern, whether it be a municipality or a corporate. In the event that there is uncertainty around either the probability of default or the recovery value or residual asset value, we can restate 2 simply as:

$$(3) \quad q(1 - \rho) + e = \frac{(y - r^F)}{(1 + y)}$$

Here, e is an uncertainty shock around the risk-adjusted recovery of the going concern.

Identification Strategy

We follow the identification using the variation of uncertainty at predictable times of the fiscal year as an instrument to identify periods in which corporate and municipal bonds would have different premiums. We identify two periods:

1. At times of the year when the budget process is put to the test, such as the end of the fiscal year, the uncertainty around municipal pricing will be larger relative to corporate bonds due to publication of actuals, future expenditure.³

³ Of the fifty states of the U.S., 46 have fiscal years that end June 30; Source: National Conference of State Legislatures, 2017 (See Appendix 1).

2. Annual reporting across general state and municipal governments by the U.S. federal government.⁴

Consequently, we estimate Equation (3) in a simple Vector Auto Regression, where the yield premium (the difference between the reference rate and the U.S. Treasury 10-year bond) is regressed on lags of the premium and eleven monthly constants. The estimation seeks results around the release months related to the informational releases of either the municipal government themselves or the U.S. federal government surveys of municipal finances. Presumably, the release of this information would clarify the uncertainty around the left-hand-side term of equation (3), $q(1 - \rho) + e$. This would reveal a decline in the risk premium of municipal bonds across all states of the world, which for a long-enough sample should help guard against spurious correlations.

To test this, we use Moody's Aaa Corporate Bond Yield, Moody's Baa Corporate Bond Yield, the Long-Term Government Bond Yields (10-year), and the State and Local Bonds - Bond Buyer Go 20-Bond Municipal Bond Index. These data are available at the monthly frequency from 1953 through 2016. We show the yield time-series in Figure 1. Notice that the yields of municipal bonds are almost always lower than both the corporate and treasury bills. This is the result of favorable tax treatment. The municipal bonds can therefore stay competitive while providing lower yields.

Figure 1. Corporate, Municipal and Federal Bond Yields



⁴ We follow recent years' publication schedules in identifying the end-calendar year period as a point due to various U.S. Census Bureau publications, for example, the Annual Survey of State Government Finances Tables, published on 30 November. In addition, the Annual Survey of State and Local Government Finances, which is the only source of nationwide, comprehensive local government finance information, providing statistics on revenue, expenditure, debt, and assets for the 50 states and D.C., is released in December; e.g. 2018 Survey is due December 18th, 2018. <https://www.census.gov/govs/>

The VAR estimation results are presented in Table 1 and Table 2. We test the first period of interest and select as the omitted category the month of June, since it is the last month of the fiscal year for most states and compare the yield spread against other months. We find that for municipal bonds the risk premium is at its highest during the month of June, and this difference is statistically significant for six of the eleven months included in the model. The difference between June and other months range between 2 and 18 basis points, being the difference with January the largest. This pattern is not observed for corporate bonds, since it is only statistically significant larger compared to the month of May, and even in this case is only 6 basis points.

To test the second period of interest we select as the omitted variable the month of December, when the US Census Bureau releases the Annual Survey of State and Local Government Finances. Indeed, we observe that during December the spreads are the highest only behind June, but only reaches statistical significance when compared against three months: January (16 basis points), February (11 basis points), and May (11 basis points).

This evidence is consistent with a seasonal uncertainty pattern that has held for decades surrounding municipal bonds and is consistent with the seasonal release of data surrounding the fiscal year of municipal governments and the Federal government surveys of municipal finances.

Table 1. VAR Results: Corporate Aaa Yield – 10-Year Treasury Yield

	Estimate	Std. Error	t value	Pr(> t)
CorpAaa - Tbill 10Yr	0.95	0.02	63.51	0.00
MuniBond - Tbill 10Yr	0.01	0.01	1.58	0.12
Constant	0.07	0.03	2.93	0.00
January	-0.05	0.02	-1.89	0.06
February	-0.03	0.02	-1.36	0.17
March	-0.00	0.02	-0.11	0.91
April	-0.04	0.02	-1.63	0.10
May	-0.06	0.02	-2.32	0.02
July	-0.03	0.02	-1.06	0.29
August	-0.03	0.02	-1.36	0.17
September	0.02	0.02	0.71	0.48
October	0.03	0.02	1.34	0.18
November	-0.02	0.02	-0.63	0.53
December	-0.03	0.02	-1.10	0.27
Observations	680			
Adjusted R-Squared	0.9495			

Table 2. VAR Results: Muni Bond Yield – 10-Year Treasury Yield

	Estimate	Std. Error	t value	Pr(> t)
CorpAaa - Tbill 10Yr	0.05	0.02	2.23	0.03
MuniBond - Tbill 10Yr	0.97	0.01	94.39	0.00
Constant	0.01	0.04	0.30	0.76
January	-0.18	0.03	-5.14	0.00
February	-0.13	0.03	-3.75	0.00
March	-0.02	0.03	-0.67	0.51
April	-0.09	0.03	-2.54	0.01
May	-0.13	0.03	-3.66	0.00
July	-0.08	0.03	-2.44	0.01
August	-0.08	0.03	-2.37	0.02
September	-0.02	0.03	-0.71	0.48
October	-0.03	0.03	-0.93	0.35
November	-0.05	0.03	-1.47	0.14
December	-0.02	0.03	-0.58	0.56
Observations	680			
Adjusted R-Squared	0.9764			

POLICY DISCUSSION

Detroit as an Example

Detroit filed for Chapter 9 protection in July 2013, with an estimated \$18-\$20 billion in debt. The filing far surpassed the \$4 billion filing by Jefferson County, Alabama in 2011, the largest previous municipal filing (Saunders, 2016). Detroit's bankruptcy ended November 7th, 2014, when the federal judge Steven W. Rhodes approved the City's Plan of Adjustment, which got rid of \$7 billion in debt and to invest about \$1.7 billion into long-neglected city services (Davey, 2014).

Warfield (2015) compiled a series of lessons learned from the Detroit bankruptcy process. Of those, we consider seven to be generalizable to most restructuring processes: 1. The advantages of Chapter 9 are not available to all municipalities.⁵ 2. Pension obligations can be modified in bankruptcy processes, even when protected by the state constitution. 3. There are mainly three groups involved in the restructuring process (bondholders, pensioners, and residents), and all of them have strong legal and equitable arguments that they claimed should be favored at the expense of others. 4. Political concerns matter for the outcome, in this case retirees fared much better than bondholders for that reason. 5. There is great heterogeneity in the repayment of different bonds. In this case, bonds that were well secured by project revenue received their payment in full, meanwhile other bonds received as little as 15% of their claims. 6. Municipal reorganizations are expensive as the total bill for Detroit's bankruptcy professionals was around \$170 million, or about \$10 million per month. And 7, cities require economic viability, otherwise residents will vote with their feet and move away from the city, exacerbating the problem.

Policy Recommendation

Given the diverse and highly decentralized municipal market, some standardization of information, surveillance, as a public service, seems reasonable. In the international markets, IMF Article IV surveillance reports are the absolute benchmark for international sovereign sustainability. The IMF states its monitoring as essential to identifying stability and growth risks that may require remedial policy adjustments which is critical in a globally integrated economy, in which the problems or policies of one country can affect many others (IMF 2018a). In case of the subnational debt market in the US, it is straightforward to see that the default of a municipality (especially if it is large), can disrupt the market, which could compromise the financial stability of the country. This is not an exaggeration given that the municipal securities market is worth 3.8 Trillion, has approximately 1 million outstanding municipal securities, there are around 40,000 daily trades in municipal securities, and trades approximately \$11.6 billion in par every day (MSRB 2019). Compare this 3.8 Trillion with the estimated general government gross debt of the emerging markets and developing countries (excluding China) of 8.7 Trillion in 2016 (own calculations based on IMF 2018b). It is hard to believe that a domestic market that is comparable to the debt of international sovereigns has no equivalent oversight mechanism.

⁵ Puerto Rico, not a state but an unincorporated territory of the United States, required Congressional action in the form of the Puerto Rico Oversight, Management, and Economic Stability Act to establish a unique framework for bankruptcy. The Puerto Rico restructuring is unique in that it has focused heavily on the economic process, but the process has been characterized as yielding mixed results due, for example, to legal uncertainty over the specific powers that the oversight board has to set policies, review budgets, and influence policy in Puerto Rico.

We recommend the creation of an IMF-style surveillance program for the US-municipal market. We suggest that the current role the US Census Bureau is taking with the Annual Survey of State and Local Government Finances (which is optional to submit) be transferred to the Securities and Exchange Commission, and make it mandatory to submit reports with high frequency (monthly), and be compiled into a searchable database which can allow to identify signs of financial distress as soon as they are reported. This identification can be performed by applying IMF-style models and technology to the collected data, which will automatically raise red-flags, which will need to be further analyzed by experts in public finance, to indicate if this warning can be an indicator of systemic risk, and identify the measures to be taken to mitigate this risk.

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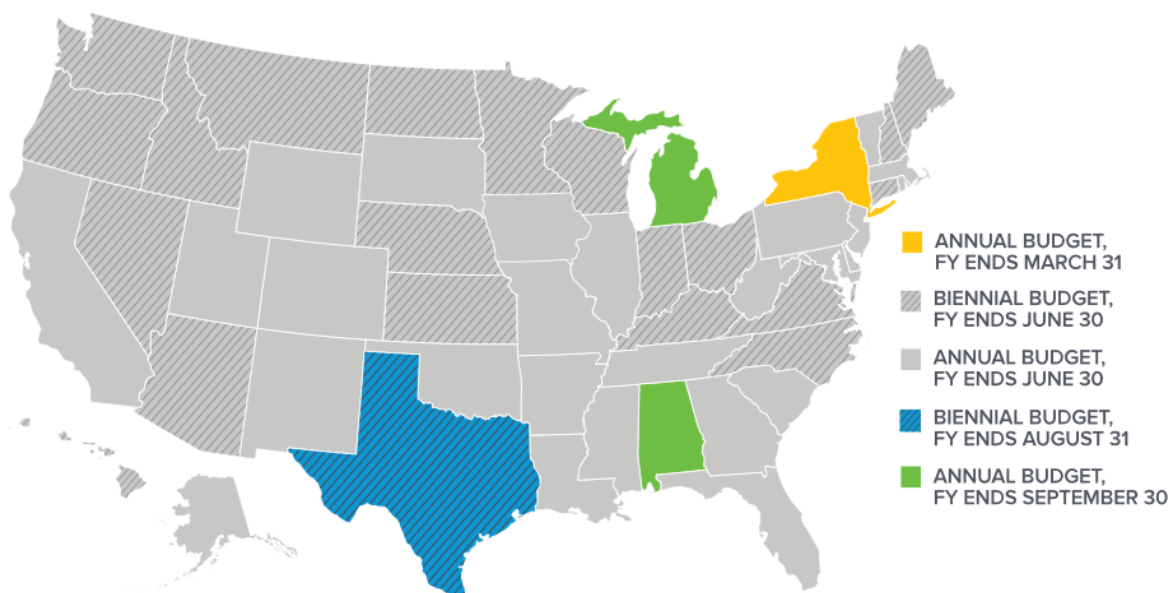
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APPENDIX 1

Figure A1.1. State Fiscal Year Map



Source: GovTech Navigator, with information from National Conference of State Legislatures

APPENDIX 2

Alternative Specification of the Model Considering December as the Omitted Variable

Table A2.1. VAR Results Corporate Aaa Yield – 10-Year Treasury Yield

	Estimate	Std. Error	t value	Pr(> t)
CorpAaa - Tbill 10Yr	0.95	0.02	63.51	0.00
MuniBond - Tbill 10Yr	0.01	0.01	1.58	0.12
Constant	0.05	0.03	1.81	0.07
January	-0.02	0.02	-0.78	0.44
February	-0.01	0.02	-0.25	0.80
March	0.02	0.02	1.00	0.32
April	-0.01	0.02	-0.51	0.61
May	-0.03	0.02	-1.20	0.23
June	0.03	0.02	1.10	0.27
July	0.00	0.02	0.05	0.96
August	-0.01	0.02	-0.25	0.80
September	0.04	0.02	1.81	0.07
October	0.06	0.02	2.44	0.02
November	0.01	0.02	0.48	0.63
Observations	680			
Adjusted R-Squared	0.9495			

Table A2.2. VAR Results Muni Bond yield – 10-Year Treasury Yield

	Estimate	Std. Error	t value	Pr(> t)
CorpAaa - Tbill 10Yr	0.05	0.02	2.23	0.03
MuniBond - Tbill 10Yr	0.97	0.01	94.39	0.00
Constant	-0.01	0.04	-0.26	0.79
January	-0.16	0.03	-4.54	0.00
February	-0.11	0.03	-3.15	0.00
March	-0.00	0.03	-0.08	0.93
April	-0.07	0.03	-1.95	0.05
May	-0.11	0.03	-3.07	0.00
June	0.02	0.03	0.58	0.56
July	-0.06	0.03	-1.85	0.06
August	-0.06	0.03	-1.78	0.08
September	-0.00	0.03	-0.12	0.90
October	-0.01	0.03	-0.35	0.72
November	-0.03	0.03	-0.89	0.37
Observations	680			
Adjusted R-Squared	0.9764			