



The Political Economy of Federal Systems in Times of Economic Crisis

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THE POLITICAL ECONOMY OF FEDERAL SYSTEMS
IN TIMES OF ECONOMIC CRISIS

A dissertation presented

by

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to

The Department of Government

in partial fulfilment of the requirements

for the degree of

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THE POLITICAL ECONOMY OF FEDERAL SYSTEMS
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Abstract

This dissertation examines how political institutions, as dynamically affected by voters and legislatures, mediate financial market reactions to severe fiscal shocks. This work uses as its case studies the experience of the U.S. states following the 2008 credit market seizure, and that of the German states following the financial crisis. It is found that following credit market seizures and severe fiscal shocks, political institutions become more important to market participants in assessing the risk characteristics of state bonds. Specifically, while unexpected deficits are correlated with higher state bond yields across all states, this effect is larger for states with left-leaning political systems than for states with right-leaning political systems. These results suggest that during economic crises – when credit markets might expect that political systems can no longer delay stabilizations – the identity of the political institutions and actors “behind the markets” become increasingly important.

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Camillo von Mueller contributed to Chapter 3.

Chapter 1

Will Pensioners or Bondholders Bear the Burden? Developments in U.S. Sub-Sovereign Bankruptcy Jurisprudence and Norms¹

Daniel J. Nadler

One can hardly imagine how much [the] division of sovereignty contributes to the well-being of each of the States which compose the Union. In these small communities . . . all public authority . . . [is] turned towards internal improvements. . . . [T]he ambition of power yields to the less refined and less dangerous desire for well-being.

–ALEXIS DE TOCQUEVILLE²

It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.

–JUSTICE LOUIS BRANDEIS³

The design of the US federal system owes as much or more to historical circumstances as to theoretical intentions.⁴ When writing the Constitution, those gathered in

¹ This first chapter serves as an introduction to the two empirical chapters that follow. Its role is to summarize developments that people who follow these matters closely are already familiar with but which others, who have less contact with the area, require as necessary context so that they can better understand the relevance of the two empirical chapters that follow.

² Alexis de Tocqueville, *Democracy in America* 141 (Barnes & Noble 2003) (Francis Bowen, ed) (Henry Reeve, trans).

³ *New State Ice Co v Liebmann*, 285 US 262, 311 (1932) (Brandeis dissenting).

⁴ This jurisprudence review draws upon the theoretical statements and legal review developed in Peterson and Nadler, “Freedom to Fail: The Keystone of American Federalism,” *University of Chicago Law Review*,

Philadelphia necessarily allowed for autonomous action by state governments for the very practical reason that no other form of government could have won ratification by the supermajority of states required before the founding document could take effect. Unless the national government's powers were limited and states continued to exercise considerable power on their own, the citizenry, more fond of their former colonial governments than the new national entity, would not have agreed to important limits the Constitution did impose upon the states, such as restrictions on their abilities to declare war, coin money, and regulate interstate commerce. The cultural differences between the slaveholding South and an increasingly antislavery North could be contained only if each region was allowed to organize its own domestic affairs. But if the US federal system was initiated to solve a very practical problem, it gradually became an institutional form so appropriate and effective that it persisted into the twenty-first century even after the Civil War had been fought, slaves had been freed, and a much more powerful federal government had been established.

That exceptional federal system, best characterized as competitive federalism, can be sustained only if the lower tiers of government are held accountable to the marketplace—most specifically, to the market for government bonds. Unless lower tiers are subject to independent movements in the interest rates on their bonds, and unless lower tiers remain at risk of default⁵, or something tantamount to default, the central government cannot afford to grant wide discretion to state or local governments (Peterson, 1981; 2012). For more than two centuries, the US federal system has survived multiple economic and political crises, but never has the autonomy of the lower tier of government been circumscribed to such an extent

2011, which itself draws from the theoretical statements developed in Paul E. Peterson, *City Limits* 68–72 (Chicago 1981).

⁵ Though strictly speaking the risk of default is of course strictly borne by the investors in government debt, the argument here is that, by design of the system, issuing government entities should also face a risk associated with default, namely, the near certainty of paying higher near-term premia in the market place when borrowing to meet their funding needs.

that state and municipal bonds do not have their own, independent standing in the marketplace (Peterson, 2012). Following recent stand-offs between bondholders and pension holders over the spoils of fiscally distraught states and municipalities will this unique and perhaps essential financial autonomy face further erosion, or will we reach a tipping point where states' rights will be bolstered after a long and precipitous decline?

1.1 Competitive Federalism

Historically, competitive federalism helped to generate the extraordinary growth of the world's largest economic power.⁶ Over the decades, states and localities designed, funded and maintained canals, railroads, highways, sewage systems, schools, parks, and systems of public safety. As Lord James Bryce wrote nearly a century ago,

[I]t is the business of a local authority to mend the roads, to clean out the village well or provide a new pump, to see that there is a place where straying beasts may be kept till the owner reclaims them, to fix the number of cattle each villager may turn out on the common pasture, to give each his share of timber cut in the common woodland.⁷

As compared to the federal government, state and local governments are more sensitive to political market forces, making them better equipped to design and administer those types of programs (Tiebout, 1956; Peterson, 1981). Unless local government supplies

⁶ This discussion draws upon the theoretical statement developed in Paul E. Peterson, *City Limits* 68–72 (Chicago 1981). See also Charles Tiebout, *A Pure Theory of Local Expenditures*, 64 *J Polit Econ* 416, 422 (1956); Wallace E. Oates, *Fiscal Federalism* 240–41 (Harcourt Brace Jovanovich 1972); Paul E. Peterson, *The Price of Federalism* 18–19 (Brookings 1995). The contributions of local government to rapid economic growth in China are explored in Gabriella Montinola, Yingyi Qian, and Barry R. Weingast, *Federalism, Chinese Style: The Political Basis for Economic Success in China*, 48 *World Politics* 50, 67–78 (1995).

⁷ James Bryce, 1 *Modern Democracies* 132 (Macmillan 1921).

public services to meet the needs of local businesses and residents, citizens may “vote with their feet” and migrate to a locality better attuned to their needs. Since 12 percent or more of the population changes its residence each year,⁸ the effects of policy choices on property values can be quickly felt.

Business and residential choices are influenced by factors other than the quality of local public services, of course. Businesses want to be close to both their sources of supply and the markets for their products. Individual and family residential choices are influenced by family ties, employment opportunities, and the quality of the natural environment. But the quality of publicly provided infrastructure also affects, on the margins, the choices businesses and households make.⁹

Since small changes in supply or demand can have a significant effect on price, residents of a community, eager to protect their property values, can be expected to pressure government officials to employ public resources efficiently in order to meet local expectations and facilitate economic development. Poor policy decisions can have rapid and lasting effects on a municipality’s property values and corresponding tax income.¹⁰ Therefore, it is reasonable to expect most state and local governments to be relatively competent at designing and implementing developmental policies (Tiebout, 1956; Peterson, 1981). Admittedly, lower-tier officials in a system of competitive federalism may exhibit “narrowness of mind and the spirit of parsimony,” as Lord Bryce was the first to admit, but if it were otherwise, “there would be less of that shrewdness which the practice of local government forms.”¹¹

⁸ See US Census Bureau, *Statistical Abstract of the United States: 2012* 37 table 30, online at <http://www.census.gov/prod/2011pubs/12statab/pop.pdf>

⁹ See Peterson, *Price of Federalism* at 18–19 (cited in note 6).

¹⁰ See *id.* at 19.

¹¹ James Bryce, 1 *Modern Democracies* at 132–33 (cited in note 7).

State and local government can also facilitate the gathering of information regarding the most efficient way of organizing public services. Each state or city is a laboratory where experiments are tried and evaluated by discerning consumers. If the experiment is successful, other governments will copy it or risk losing consumers and voters to a competitor who does. If the experiment fails, the idea will soon be abandoned. In addition, “states and localities pay close attention to the wages and salaries paid to employees in adjacent communities” and will feel pressure to bring them into line with those of its neighbours.¹² So valuable is the role played by lower tiers of government within the federal system that, despite the growth in the role of the federal government, more than 35 percent of all government spending for domestic purposes was, as late as 2008, paid for out of revenues raised by state and local governments from their own sources.¹³ The lower tiers are also the predominant public-sector employer. No less than 90 percent of all non-military public-sector employees work for either the state or local government.¹⁴

In a system of competitive federalism, state and local governments resist taking responsibility for large-scale redistributive programs.¹⁵ If states and localities attempt in a serious way to tax the rich and give to the poor, the rich will depart while the poor will be attracted. If the rich leave and the poor migrate into the state, tax revenues will plummet while expenditures escalate. Any debt acquired by state and local governments must be borrowed from investors; if a state borrows too much money, state bond ratings fall and, unless the fiscal situation of the state is corrected, the state will default on its debts.

¹² Peterson, *Price of Federalism* at 19 (cited in note 6). See also Tiebout, *A Pure Theory* at 421–22 (cited in note 6).

¹³ Office of Management and Budget, Historical Tables: Table 14.2 – Total Government Expenditures: 1948–2014, online at (<http://www.whitehouse.gov/omb/budget/Historicals>)

¹⁴ Id.

¹⁵ See Peterson, *Price of Federalism* at 29–30, 70 table 3-3, 71 table 3-4 (cited in note 6).

Unfortunately, this is exactly the situation that many states and municipalities have found themselves in the wake of the 2008 financial crisis.

1.2 The Federal Level: Supreme Court Jurisprudence

If a state defaults, it may not be sued without its consent. That state sovereignty implies immunity from private lawsuits compelling payment of debt was established in the early years of the Republic. When the Supreme Court, in *Chisholm v Georgia*,¹⁶ ruled that the State of Georgia had to pay a citizen of South Carolina a debt it had incurred,¹⁷ Congress passed the Eleventh Amendment to the Constitution, reversing that decision and “ma[king] it very difficult [subsequently] for creditors to force states to repay debts.”¹⁸ Early 20th Century jurisprudence also established that a state’s own citizens could not file a suit in federal court to secure repayment of debt¹⁹ and that a foreign nation could not successfully compel a state to pay its debt.²⁰ A state is not immune from a suit filed by a sister state or by the federal government, but neither entity is likely to be a state bondholder.²¹ Citizens within a state can file a suit within a state’s own courts, but state courts have historically not had much success in compelling other branches of government to honour their debts so that, as a result, citizens have been “unable to collect on the bonds.”²²

One might think that ancient decisions dating back to the earliest days of the Republic are no longer pertinent, but despite the array of recent civil rights litigation against states, the

¹⁶ 2 US (2 Dall) 419 (1793).

¹⁷ Id at 453.

¹⁸ William B. English, *Understanding the Costs of Sovereign Default: American State Debts in the 1840’s*, 86 *Am Econ Rev* 259, 260 (1996).

¹⁹ *Hans v Louisiana*, 134 US 1, 14–15, 21 (1890).

²⁰ See *Monaco v Mississippi*, 292 US 313, 330 (1934).

²¹ Consider English, *Understanding the Costs* at 260–61 (cited in note 18), citing *South Dakota v North Carolina*, 192 US 286 (1904) and *United States v North Carolina*, 136 US 211 (1980).

²² English, *Understanding the Costs* at 261 (cited in note 18).

original conception of the United States as a federal union in which sovereignty is enjoyed by both the federal and state governments has remained altogether relevant for contemporary jurisprudence. In *US Term Limits, Inc v Thornton*,²³ Justice Anthony Kennedy, in a concurring opinion, characterized American federalism in words little different from those James Madison might have used:

*Federalism was our Nation's own discovery. The Framers split the atom of sovereignty. It was the genius of their idea that our citizens would have two political capacities, one state and one federal, each protected from incursion by the other. The resulting Constitution created a legal system unprecedented in form and design, establishing two orders of government, each with its own direct relationship, its own privacy, its own set of mutual rights and obligations to the people who sustain it and are governed by it.*²⁴

Nor can the federal government order a state to compensate its creditors. The Rehnquist Court invalidated federal laws said to violate state autonomy by “commandeering” the states. In *New York v United States*,²⁵ the majority held that Congress may not simply “‘commandeer’ state governments into the service of federal regulatory purposes.”²⁶ *Printz v United States*²⁷ applied this reasoning to executive officers as well, holding invalid provisions of the Brady Handgun Violence Prevention Act²⁸ that required state and local law

²³ 514 US 779 (1995).

²⁴ Id at 838 (Kennedy concurring).

²⁵ 505 US 144 (1992).

²⁶ Id at 175 (holding that Congress does not have the authority to force state governments to take title to waste under the Tenth Amendment).

²⁷ 521 US 898 (1997).

²⁸ Pub L No 103-159, 107 Stat 1536 (1993).

enforcement officers to conduct background checks on prospective handgun purchasers.²⁹ Writing for the majority, Justice Antonin Scalia concluded: “By forcing state governments to absorb the financial burden of implementing a federal regulatory program, Members of Congress can take credit for ‘solving’ problems without having to ask their constituents to pay for the solutions with higher federal taxes.”³⁰

With the passage of the Fourteenth Amendment, and the application of its Due Process and Equal Protection Clauses to the states, state sovereignty was eroded by a wide variety of civil rights lawsuits that were effectively prosecuted in both state and federal courts.³¹ But Fourteenth Amendment suits generally have been viewed as constituting exceptions to state sovereign immunity. In *Alden v Maine*,³² the Court reaffirmed the states’ immunity to lawsuits filed in state courts.³³ Justice Kennedy rooted the decision in “the Constitution’s structure, and its history,” saying that “sovereign immunity derives not from the Eleventh Amendment but from the structure of the original Constitution itself.”³⁴ However, Kennedy also said that state sovereign immunity does not extend to suits brought by the federal government itself and those pursuant to enforcement of the Equal Protection or Due Process Clauses of the Fourteenth Amendment.³⁵

Future attempts to limit state sovereignty can be expected to exploit Fourteenth Amendment exemptions from the doctrine of state sovereignty. Those who seek to compel

²⁹ *Printz*, 521 US at 932–33.

³⁰ *Id* at 930.

³¹ See, for example, *Fitzpatrick v Bitzer*, 427 US 445, 456 (1976). Courts also got around limitations on sovereign immunity by allowing suits to go forward when plaintiffs sued state entities rather than the state itself. For examples of the courts applying this limitation, see *Brown v Board of Education of Topeka*, 347 US 483, 493 (1954); *Ex parte Young*, 209 US 123, 165 (1908).

³² 527 US 706 (1999).

³³ *Id* at 712.

³⁴ *Id* at 713, 728.

³⁵ *Id* at 755–56.

states to honour state pension and health care policies and collective bargaining agreements can be expected to invoke equal protection and due process arguments. Bondholders will argue that defaults deny them property without due process of law. But it is doubtful that such suits could be successfully pursued in the absence of federal legislation requiring states to honour implied contracts with bondholders, pensioners, or public employees.³⁶ Equally unlikely, a law could be passed—as was considered³⁷ by the Senate in January of 2011—permitting states to declare bankruptcy and restructure their debts.³⁸ Both of these possibilities are reasonably remote, not least because they might involve, explicitly or implicitly, altering the Constitution itself. In today’s highly polarized political environment, such reform would be a complete nonstarter.³⁹

As a result of this situation at the federal level, the most likely area for legal innovation and jurisprudential expansion of state and municipal bankruptcy law will be in state courthouses. Though federal bankruptcy statutes are reasonably clear, the paucity of previous filings and the inherent differences in state legal environments ensure that each new filing is highly complex and individual. Novel jurisprudence at the level of state bankruptcy law also presents an opportunity for the types of institutional experimentation (and competition) discussed above, which historically have contributed to the economic and

³⁶ See, for example, *United States v Sherwood*, 312 US 584, 590–92 (1941).

³⁷ Mary Williams Walsh, “A Path is Considered by States to Escape Their Debt Burdens,” *New York Times*, (January 20, 2011). No draft bill was in circulation at the time, and no member of Congress came forward as a sponsor, however Senator John Cornyn, a Texas Republican, asked the Federal Reserve chairman Ben S. Bernanke, about the possibility in a hearing, and the *New York Times* reported that “Policymakers are working behind the scenes to come up with a way to let states declare bankruptcy and get out from under crushing debts...”

³⁸ Mary Williams Walsh, “A Path is Considered by States to Escape Their Debt Burdens,” *New York Times*, (January 20, 2011). States themselves might be opposed to this proposal largely because they might raise greater fears about state finances and permanently damage faith in the state and municipal debt markets.

³⁹ On the origins of the new brand of political literalism see, for example: Theda Skocpol and Vanessa Williamson, *The Tea Party and the Remaking of Republican Conservatism*, (Oxford, 2012) and on political polarization see Michael Mann and Norman J. Ornstein, *Its Even Worse Than It Looks*, (Basic Books, 2012).

political success of the United States.⁴⁰ There is thus the real possibility of new legal precedents being set at the state level as the bounds of what precisely constitutes state pensioner rights are mapped out in greater detail and with finer legal precision than ever before.

However at the Federal level, no recent developments have undermined the vibrancy of state sovereignty. To the contrary, the landmark *Sebelius* decision on the Affordable Care Act in 2012, though not directly touching on the question of State bankruptcy, was one long reaffirmation of State sovereignty. Early in the ruling, the Court reminded “State sovereignty is not just an end in itself: Rather, federalism secures to citizens the liberties that derive from the diffusion of sovereign power” *New York v. United States*, 505 U. S. 144, 181 (1992)” And that specifically, “When Congress threatens to terminate other grants as a means of pressuring the States to accept a Spending Clause program, the legislation runs counter to this Nation’s system of federalism. Cf. *South Dakota v. Dole*, 483 U. S. 203. Pp. 45–51.”⁴¹ The Court thus substantially qualified *South Dakota v. Dole* by clarifying that the Federal government cannot impose burdensome restrictions on states in conjunction with large grants in aid as the combination undermines the sovereignty of the states:

It is easy to see how the Dole Court could conclude that the threatened loss of less than half of one percent of South Dakota’s budget left that State with a “prerogative” to reject Congress’s desired policy, “not merely in theory but in fact.” 483 U. S., at 211–212. The threatened loss of over 10 percent of a State’s overall budget, in contrast, is economic dragooning that leaves the States with no real option but to acquiesce in the Medicaid expansion...Even if one agreed that a change of as little as 7 percentage points carries

⁴⁰ Daron Acemoglu and James Robinson, *Why Nations Fail?*, (Crown Business, 2012), Chapters 1 and 11.

⁴¹ National Federation of Independent Business Vs Sebelius, Secretary of Health and Human Services, 648 F. 3d 1235 (2012)

*constitutional significance, is it not passing strange to suggest that the purported incursion on state sovereignty might have been averted, or at least mitigated, had Congress offered States less money to carry out the same obligations?*⁴²

Though the literal question of State bankruptcy does not come up in *Sebelius*, the extremely important landmark decision unambiguously emphasizes once again the strong support on the Supreme Court for dual (i. e., competitive) Federalism.

Further, no recent developments at the Federal level have undermined the vibrancy of state sovereignty specifically *vis a vis* either pensioners or bondholders. Even while the Federal Contract Clause of the Constitution forbids state laws from impairing the obligations of contracts, the current state of Federal jurisprudence deems that a state opting for bankruptcy is not a law *but* instead a state choice.⁴³ The Federal Contract Clause of the Constitution therefore does not disrupt the ability of a state to opt for bankruptcy, and thereby, does not prevent a state from pursuing the impairment of contractual obligations to both pensioners and bondholders through the official federal bankruptcy process. This elucidation has been the legal norm ever since the Supreme Court decided *United States v Bekins* in 1938 and it remains the standard to this day.⁴⁴ Opting for Chapter 9, therefore, is actually an act that implicitly reinforces the sovereign autonomy of states that was so lauded upon by Tocqueville and others. In other words, the jurisprudence that allows states to claim a sovereign status within the federal system remains as vibrant today as it has ever been and it

⁴² Ibid

⁴³ Joseph Lichtermann and Bernie Woodall, “Detroit Bankruptcy Challenged on Constitutional Grounds,” *Reuters*, (August 20, 2014).

⁴⁴ *United States v Bekins et al*, 304 US 27 (1938)

is, in many ways, that sovereignty is what today permits there to be such uncertainty and differentiation at the state level when it comes to dealing with state pension liabilities. Where sub-sovereign bankruptcy comes into legal contestation with impairing obligations to pensioners or bondholders is at the level of individual state constitutions and statutes.⁴⁵ The jurisprudence that allows states to claim a sovereign status within the federal system seems as vibrant today as it has ever been. While the individual constitutions of many states may be interpreted as granting permission for lawsuits by bondholders, pensioners, or those protected by collective bargaining agreements,⁴⁶ states—as sovereign entities—appear to enjoy today the same legal prerogatives vis-à-vis bondholders and other creditors as states that have defaulted in the past, if they so choose.⁴⁷

But will the federal norm of states having untied hands in dealing with pensioners and bondholders transmit to the state and local level, or will states tie their own hands with jurisprudence and statutes, creating precedents that constrain the behavior of future electorates?

1.3 State Level Jurisprudence: Variance Rules

By 2012, more than a quarter of US states had public pension liabilities that were greater than their total revenues in that fiscal year.⁴⁸ In total, the median ratio of states' adjusted net pension obligations to their revenues grew to 63.9 percent from 45.1 percent the

⁴⁵ For a detailed overview, see Gene Amromin and Anna Paulson, 2011, "Tempestuous municipal debt markets: Oxymoron or new reality?," Chicago Fed Letter, Federal Reserve Bank of Chicago, No. 291, October.

⁴⁶ See, for example, Ill Const Art 13, § 5.

⁴⁷ See notes 82–91 and accompanying text.

⁴⁸ Moody's Investment Service, "US State Pension Medians Increase in Fiscal 2012," (January 30, 2014).

year before, according to a report issued by Moody's Investors Services.⁴⁹ These dire fiscal straits have led to considerable pension reform and ongoing structural efforts to improve the overall fiscal situations in many states, but analyses conducted in 2013 indicate that even after considerable efforts, sizable disparities remain.⁵⁰

Illinois is the most widely cited and understood case. In fiscal year 2014 the public pension liability of that state was equal to over 241 percent of revenues.⁵¹ Better than expected stock market returns in over the last 5 years improved that number from 318 percent but that still left the state with \$111 billion in pension obligations at the end of fiscal 2014, down from \$173 billion in 2012, and stock markets have a long way to fall from all-time highs if they reverse course. According to Moody's, in addition to Illinois, Connecticut, Kentucky, Maryland, Louisiana and Hawaii are all states where the obligations gap remains well over 150 percent of revenues, as of 2014.⁵² These ratios may marginally improve because of rising stock market returns and better tax intake, but even so, it is mathematically

⁴⁹ Id. By comparison in 2012, the most recent year for which data is available, promised pension benefits across the Fortune 500 totaled \$1.61 trillion, or 13.3% of the \$12.06 trillion in aggregate combined Fortune 500 revenue. Of that \$1.61 trillion in promised corporate pension benefits, only \$355 billion were unfunded liabilities. So the ratio of unfunded corporate pension benefits to corporate revenue (across the Fortune 500 in both cases) was roughly 2.95%. Source: *Time Magazine*. "How Bad Is America's Pension Funding Problem?" (<http://business.time.com/2012/09/26/how-bad-is-americas-pension-funding-problem/>). Even adjusting for the variation in the ways these figures can be accounted, it is clear U.S. Corporate pensions are hardly in the dire straights currently being navigated by U.S. states and municipalities. Further, corporate pensions are covered by the PBGC while state and local government pensions are not. PBGC was set up in response to a perceived string of broken corporate pension promises that began with the failure of Studebaker in 1963, and the legislative energy behind it was directed at a series of problems that at the time were perceived to be concentrated in the private sector. In retrospect, the legislation, though necessary, ended up addressing what in the present day is by far the smaller of the two problems; a separate agency, with similar purview, but focused on public sector pensions, might have forced public sector promises to become more deliberate and thoughtful, and less driven by the political moment, since there would have been a higher standard of oversight following those promises to ensure the necessary planning for their fulfillment.

⁵⁰ See report by the Illinois state commission on Commission on Government Forecasting and Accountability, December, 2013.

⁵¹ USA Today, "Moody's: III. Pension debt vs. revenue is worst" (<http://www.usatoday.com/story/money/business/2014/09/06/moodys-state-pension-debt-vs-revenue-is-worst/15204771/>)

⁵² Id. 10.

nearly impossible for the unfunded pension liability situation in these states to be swiftly or easily erased by investment returns alone, especially when funds find themselves at this point at all-time highs in the market.⁵³

1.4 Four Municipal Bankruptcies, Two Paths to Stabilization: Stockton, Jefferson County, Central Falls, and Detroit

While by now virtually everyone has come to understand that Greece has, in some form or another, defaulted on their sovereign debts, (while Portugal and Spain were only technically kept above water by extraordinary measures from the ECB) the U.S. cities of Detroit, Stockton, Vallejo, Jefferson, and Central Falls have attracted far less attention. As seen from the cases discussed in this paper, attempts to punish⁵⁴ municipal bondholders in the United States used to be much more difficult but recently are becoming more common. For decades, municipal bankruptcies were rare, once-a-year occurrences on average in the massive \$3.7 trillion U.S. municipal bond market, and were mostly limited to utilities and over-budget public projects; they were handled in isolation, rarely touched whole cities—let alone states—and posed few deeper questions regarding the political-economic structure of the nation as a whole. But since 2010, more than ten U.S. cities, towns, and counties have filed for bankruptcy, and many others are currently on the brink of insolvency. Prior to that year, no large municipality had failed to fully repay its principal debt since the Great Depression, when about 4,000 municipalities defaulted—including about forty that never

⁵³ By way of example, California's state pension scheme, CALPERS, plans to earn a 7.75 percent return in perpetuity. Moody's currently estimates Illinois' unfunded pension liability to be \$133 billion or 241 percent of total revenue. See: <https://www.moody.com/Pages/atc002.aspx> for further details.

⁵⁴ While risk premia are of course supposed to cover exactly that, the risk of default, such that the premium received is meant to cover the losses incurred by a default, practically, municipal bonds are treated as "safe haven investments" and as counter-weights to what even in common investor parlance are contrasted as "risk assets": equities, commodities, and currencies. It is safe to say that few investors practically view the premia they receive on US. municipal bonds as funds to set aside to offset the possibility of default on the principal.

fully repaid their debt.⁵⁵ But the modern trend of ultimate municipal creditworthiness might be changing, with several cities and counties having recently attempted to pass on losses to either bondholders or higher tiers of government. Alternatively, they may need to alter their contractual commitments to their employees. While each of the U.S. cities, towns, and counties that have filed for bankruptcy since 2010 has approached insolvency in different ways, the overall options available and the choices that each has made in dealing with the spectre of bankruptcy provide a window into some of the broader national themes addressed by that states and municipalities across the country face.

1.5 Stockton, California: Making Bondholders Take a Loss

Stockton's 2012 bankruptcy made it the largest U.S. city in history to declare bankruptcy at the time. At its bankruptcy hearing, the municipal government faced a \$26 million annual deficit and had incurred a debt of as much as \$1 billion—substantial for a city of 290,000. Stockton's choices were emblematic of the broader themes discussed throughout this paper: Either public sector employees or bondholders must take the brunt of the cuts. Which group Stockton would choose would have implications beyond the city itself; the consequences of its choice will reverberate across America's federalist structure as a whole.

In the summer of 2012, Stockton indicated that it would try to impose substantial losses on lenders as well as public employees in order to spread losses across both types of creditors. Since at least 1981 and possibly as far back as the 1930s, no U.S. municipality has used bankruptcy to force bondholders to take less than the full principal due, according to Bloomberg.⁵⁶ But as Stockton city manager Bob Deis told city council members at a June 26, 2012, hearing, "We're trying to spread the pain, unfortunately, to others besides employees."

⁵⁵ Even New York City in the 1970s eventually fully repaid its debt, albeit with the help of New York State.

⁵⁶ Steven Church, "Stockton Threatens to Be First City to Stiff Bondholders," June 30, 2013. (www.bloomberg.com/apps/news?pid=munievents&sid=amojnfWiMwU4).

Punishing bondholders has generally been unsuccessful at the municipal level: of the forty-three municipal bankruptcies filed since 1981, thirty-three were either dismissed by a judge or failed to win a court ruling discharging their debt. Court records for the remaining ten do not list the disposition. According to Bloomberg, those cases ended with a cut in the principal owed to lenders.⁵⁷ Across those pre-financial crisis cases, the municipalities subsequently saw diminished and more costly access to bond markets (i.e., the system worked), and remained isolated cases; limited to sub-state and even sub-city cases of fiscal mismanagement, no loud calls for federal bailouts were heard, and contagion did not follow in any of these pre-financial crisis incidents. Otherwise, prior to the crisis, cities have largely avoided trying to force investors to take a loss in court or outside of it since most market analysts have thought that the bond market would punish any future borrowing with higher interest rates or possibly by locking a defaulting municipality out of credit markets entirely. But the fear of credit market discipline is changing. For example, in 2008, the city of Vallejo, just sixty-five miles west of Stockton, used bankruptcy to cut the interest rate paid to its lender, effectively devaluing the bonds held by its creditors.

A look at the history of sub-sovereign bankruptcy jurisprudence in California reveals that the path of Stockton and Vallejo—forcing bondholders to take a loss in an attempt to ‘spread the pain’ away from pensioners—is not surprising.

The so-called “California Rule,” developed over nearly ninety years of case law, and the current law in California, holds that pensions statutes create a contract between the state and its employees that cannot be infringed upon, and that this ‘contract’ arises on the first day of employment and is of open duration, thereby protecting past as well as future pension accruals⁵⁸ Further, the California Rule holds that the state cannot even infringe upon the *rate*

⁵⁷ Ibid

⁵⁸ See *Legislature v. Eu*, 816 P.2d 1309 (Cal. 1991); *Allen v. City of Long Beach*, 287 P.2d 765 (Cal. 1955)

of a pension ‘contract’ once it has been agreed upon. The California Rule is premised on the argument that pensions are deferred compensation and government employees, Californian or otherwise, take their employment based partially upon the total compensation package. In other words, California courts have held that “upon acceptance of public employment [one] acquire[s] a vested right to a pension based on the system then in effect.”⁵⁹ Arguments such as these have appeared since 1955, beginning in the landmark case, *Allen v Long Beach*, and have been expanded upon by cases such as *Pasadena Police Officers Ass’n v. City of Pasadena*, in 1983.

The so-called California Rule stands in stark contrast to the jurisprudence of courts in Illinois, New Jersey, and—as we will later see in the case of Detroit—Michigan, all of which have ruled in some form or another that no such inviolable obstacles to reforming and restructuring pension liabilities, through bankruptcy or otherwise, exist in those states. The California rule, and the pension system it has entrenched in California, is legally an outlier in terms of U.S. jurisprudence for several reasons. As Monahan (2012) and others have shown, the California Rule

*[R]uns contrary to the well-established legal presumption that statutes do not create contractual rights absent clear and unambiguous evidence that the legislature intended to bind itself...[further] courts interpreting the California Rule have held that the contract protects not only accrued benefits...but also the rate of future accrual. This interpretation is contrary to federal Contract Clause jurisprudence, which holds that prospective changes to a contract should not be considered unconstitutional impairments.*⁶⁰

⁵⁹ 18 Cal. 3d at p. 817; accord, *Carman v. Alvord* (1982) 31 Cal. 3d 318, 325 [182 Cal.Rptr. 506, 644 P.2d 192]

⁶⁰ Monahan, Amy. “Statutes as Contracts? The “California Rule” and Its Impact on Public Pension Reform” *Iowa Law Review* (2012)

Despite the fact that its legal logic is an outlier from the perspective of U.S. jurisprudence, the California Rule is worth dwelling on for a number of reasons. First, California has—on the basis of common law exclusively—established what is perhaps the most protective legal structure for public employee pension benefits of any state in the country—showing the way for other states to do the same, without necessarily needing to consult their legislatures and electorates, or to find support in U.S. federal law. Second, though California might initiate what at the time are complete legal ‘innovations’ from the perspective of U.S. jurisprudence, the states’ legal system is very influential beyond its borders, and many other states look to its rulings. California has been particularly influential in this area of the law, with at least 12 states (as of the time of this writing) opting for at least some form of the pensions-as-contracts jurisprudence of the California Supreme Court as their own.⁶¹ The implications for states that follow California are clear: Pension benefits as compensation earned over time and *guaranteed for the future* in perpetuity; fiscal adjustments to be found elsewhere. It is unsurprising, then, that Stockton, California and Vallejo, California looked to bondholders during their bankruptcies to take the first cuts in the modern era of U.S. municipal finance. The principles imbued in the California Rule, once viewed perhaps as one of the many ‘quirks’ of California politics, now might act—to the extent that other states keep following its precedent— as a potentially overwhelming legal obstacle to the successful resolution of state and municipal debt crises, both inside and outside of California.

⁶¹ Monahan, Amy. “Statutes as Contracts? The “California Rule” and Its Impact on Public Pension Reform” *Iowa Law Review* (2012)

1.6 Jefferson, Alabama: Making Bondholders Take a Loss

While Stockton is the biggest U.S. city to file for bankruptcy to date, the largest municipal bankruptcy by debt was filed by Jefferson County, Alabama, in 2011. Jefferson County owed creditors about \$4.2 billion, according to court records, and like Stockton and Vallejo, it tried to force bondholders to take less in order to minimize cuts to public sector employees. Filing a plan to cut \$1.2 billion in principal payments to investors holding defaulted municipal debt, Jefferson actually succeed in forcing creditors (such as JPMorgan Chase & Co.) into a settlement that had them taking 50% to 70% haircuts.⁶² JPMorgan itself settled with Jefferson County on collecting just 31 percent of the principal it was owed.⁶³ All told, less than \$100 million of the county's \$4.2 billion in debt will be paid with no changes to the terms of the original lending documents.⁶⁴

But while these municipalities are risking the credit market's ire, others are electing to take the more traditional route of repaying bondholders while cutting expenditures, especially public sector compensation. Nowhere is the contrast more striking than in Central Falls, Rhode Island.

1.7 Central Falls, Rhode Island: Restructuring Pension Liabilities

Central Falls may be the municipality that has been most successful in extracting itself from its debt crisis—and it did so without burning its bridges to the bond market. In September 2012, it won court permission to exit bankruptcy status by repaying bondholders in full (including even their legal costs) while cutting municipal workers' pensions (by as much as 55 percent, including an additional requirement that pensioners pay 20 percent of

⁶² "Jefferson County Files to End Bankruptcy, Adjust Debt" *Bloomberg*, July 1, 2013. (<http://www.bloomberg.com/news/articles/2013-06-30/jefferson-county-files-to-end-bankruptcy-adjust-debt>)

⁶³ "Id.

⁶⁴ "Id.

their health-care costs until they turn 65 years of age). The court ruling ended a storm of controversy following the passage of a state law, signed by Governor Lincoln Chafee in 2012, that gave investors a lien on the city's tax and general revenue. Following the court's ruling that Central Falls can protect bondholders while forcing its employees to take cuts, the president of one of the Central Falls public sector unions said: "We've been pilfered and beaten down . . . we didn't have the power, the money, to fight it."⁶⁵

1.8 Detroit, Michigan: Restructuring Pension Liabilities

The recent case of Detroit's bankruptcy is another illustrative example of the alternative path to the 'California Way'. Michigan is one of 24 states that permit their municipalities to seek federal Chapter 9 protection and therefore opt for restructuring of obligations such as pension programs, at least under current law.⁶⁶ Michigan is also relatively unique in the sense that it permits the appointment of an Emergency Manager to take over any financially distressed units of local government.⁶⁷ This unique feature was enhanced when Michigan passed a state law (Public Act 436) that, upon entering into effect on March 28, 2013, expressly permitted the Governor-appointed Emergency Manager to modify or even terminate collective bargaining agreements in the event that a deal with creditors could not be reached, and where bankruptcy was the only option available.⁶⁸

⁶⁵ "Bankruptcy Saves Tiny Rhode Island City, but Leaves Scars," Reuters, September 3, 2012 (www.reuters.com/article/2012/09/04/us-usa-rhodeisland-centralfalls-bankrupt-idUSBRE88300220120904)

⁶⁶ See H. Slayton Dabney, Jr., Patrick Darby, Daniel G. Egan, Marc A. Levinson, and George B. South III, "Municipalities in Peril: The ABI Guide to Chapter 9," American Bankruptcy Institute: Alexandria VA (2011).

⁶⁷ For more on the current Emergency Manager, Republican appointee, Kevyn Orr see: Michael A. Fletcher, "The Man who is Trying to Save Detroit." *The Washington Post*, (July 20, 2013).

⁶⁸ This new legislation (Public Act 436) was enacted only after Michigan voters had repealed the previous version of the law (Public Act 4) in a hotly contested November 2012 referendum. Both of these statutes are subject to several lawsuits challenging their constitutionality.

Despite efforts by the Emergency Manager, Kevyn Orr, to find a compromise with creditors, Detroit could not pay its bills and so on July 18, 2013 it declared bankruptcy under Chapter 9 of the Federal Bankruptcy Code.⁶⁹ Once this choice was made then the Federal Bankruptcy Code was activated, and took precedence over *both* state and local law—even state constitutional law. On the surface, this would seem to be the end of the matter and to permit the restructuring of all liabilities, including pensions. Actually, it may prove to be just the beginning.

There is an argument, now receiving greater publicity and scrutiny in equal measure, that the Michigan state constitution expressly forbids a municipality from opting for bankruptcy because that entity is part of the state government itself, and so cannot be in contravention of Michigan’s Pension Clause (which protects the state’s pension obligations) and so opting for bankruptcy inherently and automatically assumes that some of those contracts will be broken.⁷⁰ This was exactly the position of the plaintiffs in *Webster v Michigan*, a case filed on July 13, 2013.⁷¹ The state court did not hear the case until July 18th, 2013—the day of the bankruptcy itself—but nevertheless the state court ruled that exactly this type of reasoning was possible. Judge Rosemarie Anquilla wrote:

P.A. 436 is unconstitutional and in violation of [the Michigan Constitution’s Pension Clause] to the extent that it permits the Governor to authorize an emergency manager to proceed under Chapter 9 in any manner which threatens to diminish or impair accrued pension benefits; and P.A. 436 is to that extent of no force or effect...In order to rectify his unauthorized and

⁶⁹ Monica Davey and Mary Williams Walsh, *Billions in Debt, Detroit Tumbles into Insolvency*, N Y Times (July 18, 2013)

⁷⁰ The relevant Michigan law is: Michigan Public Act 436 of 2012, the Local Financial Stability and Choice Act, MCL § 141.1541, et seq. (“PA 436”).

⁷¹ *Webster v Michigan*, Case no 13-53846, July 13, 2013

*unconstitutional actions described above, the Governor must (1) direct the Emergency Manager to immediately withdraw the Chapter 9 petition filed on July 18, and (2) not authorize any further Chapter 9 filing which threatens to diminish or impair accrued benefits.*⁷²

The Aquilina ruling was overturned on December 3, 2013 by US bankruptcy judge Steven Rhodes, who filed a long brief throwing out over a dozen different legal arguments, at the state and federal level that were objecting to the planned bankruptcy.⁷³ Overturning virtually every aspect of *Webster*, Judge Rhodes ruled that Detroit could proceed with bankruptcy and the renegotiation of the city's contractual obligations.⁷⁴

There are two interrelated questions that emerge from Rhodes' sweeping judgment. 1) Will Judge Rhodes' ruling stand and 2) does this precedent increase the probability of future such defaults by other municipalities across the country? The idea that a state constitution can prevent a municipality's authority from entering into bankruptcy when public pension obligations could be subsequently impaired might resurface at a future date, and perhaps be sent to a higher court for consideration. This is especially possible if, as discussed, pension obligations continue to grow and state finances continue to struggle to keep up.

The reaffirmation of Detroit's right to restructure obligations to pension holders occurred: Judge Rhodes threw out all arguments opposing Detroit's right to file for Chapter 9, and approved Detroit's bankruptcy plan; the cutting began. Under Judge Rhodes' ruling, the implementation of the bankruptcy plan was at the discretion of the Detroit Emergency

⁷² See Alexander Volokh, *Pension Protection and the Detroit Bankruptcy*, reason.org (April 2, 2014) <http://reason.org/news/printer/volokh-detroit-pension-protection>

⁷³ For Judge Rhodes' full 95 page judgment see here: <http://law.justia.com/cases/federal/district-courts/BR/>

⁷⁴ Revenge of the 99%, *The Economist*, (February 24, 2014)

Manager. The Emergency Manager under Detroit law could have submitted any bankruptcy plan he deemed optimal, including unlimited cuts to pension holders. In the case of the actual proposal by the Emergency Manager, submitted to creditors on July 13, 2013, both bondholders and pension holders faced cuts. In November of 2014, Detroit's bankruptcy exit plan was finally approved by Judge Rhodes; 16 months after the city became the largest ever in the US to declare bankruptcy.⁷⁵ The plan included a 4.5% cut to the pension plans of general retirees⁷⁶—arguably the largest erasure of public sector pension obligations via a bankruptcy mechanism in U.S. history. The emergency manager finished his work, based on that plan, and has now been discharged.

Given that the cuts went ahead according to plan, despite the fact that many unions had staged protests demanding that any deal with the city's creditors spare pensions⁷⁷, makes the case of Detroit a bellwether for municipalities across the country, setting an unambiguous norm (already increasingly accepted in Greece) at the U.S. municipal level that pension promises are not inviolable, and that where General Obligation bondholders face cuts, so too must pensioners.

The charged emotions surrounding both the Central Falls and Detroit municipal bankruptcies, and the cities' and the unions' radically departing views on which party should bear the brunt of the cuts—the workers or the bondholders—are emblematic of every current sovereign and sub-sovereign fiscal solvency crisis, from the streets of Central Falls to the streets of central Athens, from the protests in Vallejo, California, to the protests in Valencia, Spain. The same difficult choices that Stockton and Vallejo, Jefferson County, and Central Falls have faced are confronting governments at the state and even national levels, with major

⁷⁵ “Detroit bankruptcy exit plan approved by US judge,” BBC (7 November 2014)
<<http://www.bbc.com/news/business-29962323>>

⁷⁶ Ibid

⁷⁷ Ibid

consequences for the intergovernmental structure of the two largest and most important federations in the world: the European Union and the United States.

Whether other states—and the federal government—will be more inspired by the recent path most notably represented by California—treating pensions as inviolable and forcing bondholders to take a loss—or the recent path most notably represented by Detroit—treating pension liabilities as ‘fair game’ for restructuring—will do nothing less than define at least the next half-century of U.S. municipal finance, intergovernmental relations, and American competitive federalism.

1.9 Federal Jurisprudence, Legislation and Norms in the Decades Ahead: Potential Changes to Federal Sub-Sovereign Bankruptcy Norms and Their Implications for Competitive Federalism

The strong performance of US financial markets since the financial crisis alleviated some of the stress to municipal pensions caused by it – investment returns make up the majority of retirement revenues for nearly all states – but it is highly doubtful, particularly for certain states, that all of their unfunded liabilities will eventually be ameliorated by soaring stock markets alone. And of course markets themselves can turn back South between now and the time the brunt of public sector employees need to retire, bringing the problem back to square one. Stocks have a long way to fall from all-time highs. These realities have indeed led to considerable pension reform and ongoing structural efforts to improve the overall fiscal situations in many states but reports indicate that even after heroic efforts, sizable disparities remain.⁷⁸

⁷⁸ See report by the Illinois state commission on Commission on Government Forecasting and Accountability, December 2013. There is another question surrounding the very actuarial calculations used to describe these shortfalls. The allegation being that they are kindly weighted towards

The challenges and controversy inherent in the economic reality therefore places the stress on potential *political* solutions. The sovereign state default crisis is for some states— Illinois, Kentucky, and Maryland, for example—serious enough that Washington policymakers are currently debating the policy and constitutional implications of three alternatives: federal loans that would bail out states at risk of default,⁷⁹ bankruptcy procedures,⁸⁰ and simple straight defaults of the kind that occurred during the 1840s.⁸¹ Representative Patrick McHenry, chairman of a subcommittee of the Committee on Oversight and Government Reform says that “already state and municipal governments are coming to Washington, hat-in-hand, expecting a federal bailout.”⁸² Berkeley School of Law Dean Christopher Edley has proposed that the federal government bailout states by lending them federal money at low interest in the expectation that it will be paid in due course.⁸³ The Obama administration’s proposal to loan monies to states to help them cover deficiencies in their state unemployment insurance accounts sets a precedent for larger and more consequential federal actions in the future.

Bankruptcy protection has been proposed by University of Pennsylvania law professor David Skeel. In his view, the country needs a federal bankruptcy law designed specifically for sovereign debts that would “enable a state to restructure [its] obligations.”⁸⁴

⁷⁹ See, for example, Douglas Turner, *Serious Budget Troubles Brewing in Many States*, Buffalo News A8 (Jan 10, 2011).

⁸⁰ See, for example, Jeb Bush and Newt Gingrich, *Let States Declare Bankruptcy: Reorganization Allowing Breaking of Union Contracts May Be the Best Way for Some*, Baltimore Sun A13 (Jan 31, 2011).

⁸¹ See, for example, Jeff Segal, Martin Hutchinson, and Rob Cox, *California’s Only Option*, NY Times B2 (June 10, 2009).

⁸² *State and Municipal Debt: The Coming Crisis? Hearing before the Subcommittee on TARP, Financial Services and Bailouts of Public and Private Programs of the House Committee on Oversight and Government Reform*, 112th Cong, 1st Sess 1 (2011) (“*State and Municipal Debt Hearings*”) (Rep Patrick McHenry).

⁸³ Christopher Edley, *Let Treasury Rescue the States*, NY Times A25 (July 8, 2010).

⁸⁴ David A. Skeel Jr, *States of Bankruptcy*, 79 U Chi L Rev *18 (forthcoming 2012), online at <http://ssrn.com/abstract=1907774>.

Such a law, he argues, would be constitutional as long as state sovereignty were protected by giving states the option to invoke bankruptcy procedures rather than mandating them to enter bankruptcy court if they would otherwise default.⁸⁵ Voluntary participation in bankruptcy procedures would give states the opportunity to restructure their obligations to employees, pensioners, and bondholders, much as bankrupt corporations may continue to operate while under the protection of federal bankruptcy law. Not only would bankruptcy give states the opportunity “to restructure obligations that are [otherwise] extremely difficult to restructure,” but it would “ensure [] that most or all of a state’s constituencies make sacrifices, not just one or two.”⁸⁶ Jeb Bush and Newt Gingrich have proposed a similar plan that would give states the opportunity to seek bankruptcy protection in the event of an irreparable deficit crisis.⁸⁷

Nicole Gelinas of the Manhattan Institute argues that “state bankruptcy would create more problems than it would solve.”⁸⁸ Most states do not owe their debt through a single entity, making it difficult for any single bankruptcy court to handle the extraordinary complexities involved. For example, pension obligations are typically borne by local governments as well as by the state, adding to the number of participants in bankruptcy procedures.⁸⁹

None of the three proposed options are attractive, but if the state fiscal crisis becomes increasingly severe, as could happen if projected deficits in pension and health care accounts materialize, then the federal loan option may prove to be the most politically palatable. Multiple state and municipal defaults would likely provoke a nationwide political crisis and

⁸⁵ Id at *23–25.

⁸⁶ *State and Municipal Debt Hearings* at 5 (Testimony of David A. Skeel Jr). See also Skeel, *States of Bankruptcy* at *19–20 (cited in note 84).

⁸⁷ See Jeb Bush and Newt Gingrich, *Better Off Bankrupt: States Should Have the Option of Bankruptcy Protection to Deal with Their Budget Crises*, LA Times A19 (Jan 27, 2011).

⁸⁸ *State and Municipal Debt Hearings* at 1 (Testimony of Nicole Gelinas).

⁸⁹ See id at 1–2.

could affect the credit of the US government, especially if its debt-to-GDP ratio continues to rise. Passage of bankruptcy legislation could allow for a more managed imposition of costs on the full range of creditors, including bondholders, pensioners, and beneficiaries of collective bargaining agreements, but bankruptcy could also affect US credit in world markets and would create a legal nightmare, given the complexity of state contractual arrangements with its creditors. By comparison, federal loans provide an attractive option to those elected officials aligned with public-sector unions, a constituency at risk in any bankruptcy proceeding. Even if power in Washington is divided between the two political parties, the fear of international consequences could induce compromises that require substantial federal contributions to states along the lines of the stimulus package passed in 2009.

The current contemporary flirtation with default, coupled with demands for a federal rescue, poses a threat to the system of competitive federalism. The threat comes not so much from the accumulation of debt as the obligations that have been incurred as part of the collective bargaining process, many of which may be enforceable in court. So it is probably not surprising that a state's default risk, as judged by the contemporary bond market, is related both to the share of the public-sector workforce that is unionized and to the percentage of the members of the state legislature affiliated with the Democratic Party.⁹⁰ If that party is in control of the federal government, it can be expected to look favourably on requests that it rescue states in need. In the midst of the latest crisis, Warren Buffett, a prominent investor with a large stake in the state and municipal bond market, expressed the hope that such federal action would be forthcoming, conceding that “[t]he bond insurers . . .

⁹⁰ This discussion draws upon the findings and analysis presented in Nadler and Hong (2011). Their analysis is based on data from the twenty states for which daily yield spreads are publicly available. It extends a previous analysis of the economic and legal determinants of state bankruptcy risks by Poterba and Rueben (2001).

have extraordinary liabilities,” but doubting that “the federal government [would] turn away a state that is having extreme financial difficulties when in effect it honoured” the debts of corporate entities, including General Motors⁹¹ Later, in an interview with the congressional Financial Crisis Inquiry Commission, he qualified that assessment, saying, “I don’t know how I would rate [state bond default risks] myself. . . . It’s a bet on how the federal government will act over time.”⁹²

Making a bet on the federal response to the state sovereign debt crisis is beyond the scope of this paper, but as connected research⁹³ will show, it is not beyond the scope of the daily risk management practices of bondholders themselves—who seem to be voting with their feet and their capital by placing higher risk premia on the debt of states inclined by their political institutions and partisan orientation to follow the path of California (‘spreading’ losses to bondholders) as compared to states inclined to follow the path of Detroit (trying to avoid bondholders losses at all costs by placing the brunt of the burden on pension holders), and thereby implying a bet by market participants that the federal government will *not* intervene, and thereby avoid changing the historical federal jurisprudence and normative landscape of competitive federalism discussed herein.

⁹¹ Svea Herbst-Bayliss and Jonathan Stempel, *Buffett: US Can Bail Out States, Insurers Pained*, Reuters (May 1, 2010), online at <http://www.reuters.com/article/2010/05/01/berkshire-buffett-ratings-idUSN0118355720100501>.

⁹² Ianthe Jeanne Dugan, *Investors Looking Past Red Flags in Muni Market*, Wall St J C1 (June 14, 2010).

⁹³ This discussion draws upon the findings and analysis presented in Nadler and Hong (2011). Their analysis is based on data from the twenty states for which daily yield spreads are publicly available. It extends a previous analysis of the economic and legal determinants of state bankruptcy risks by Poterba and Rueben (2001).

Chapter 2

Do Political Institutions Affect U.S. State Bond Yields? Evidence from the 2008 Credit Market Seizure

Daniel Nadler † & Souman Hong ††

Abstract

This paper examines how political institutions mediate the bond market reaction to severe fiscal shocks, based on U.S. states' experience of the 2008 credit market seizure. We find that while unexpected deficits are correlated with higher state bond yields across all states, this effect is larger for states with left-leaning political systems than for states with right-leaning political systems. We also find that, following credit market seizures and severe fiscal shocks, political institutions become more important in assessing the risk characteristics of state bonds. These results suggest that during economic crises – when credit markets might expect that political systems can no longer delay stabilisations and must deliver policy – the identity of the political institutions becomes increasingly important.^{†††}

2.1 Introduction

As early as March 2010, the *Wall Street Journal* asked ‘Who Will Default First: Greece or California?’ and in testimony before the *Congressional Financial Crisis Inquiry Commission* investor Warren Buffett – who owned more than \$4 billion of state and local

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debt – stated that the federal government may ultimately be compelled to bail out states.⁹⁴ Should states require a bailout from the federal government, it would likely rival the 2008 bailout of the U.S. banking system. State and local governments represent more than 12 per cent of the nation’s gross domestic product (GDP) and more than 15 per cent of its employment. The municipal bond market is more than \$3 trillion in size, and state and local governments use it to finance their schools, highways and other projects.

During the global credit market seizure in the fall of 2008, the borrowing costs of all U.S. states increased exponentially. What stands out, however, is that borrowing costs of some states increased relatively more than those of other states and a large part of this gap in borrowing costs cannot be explained by either economic conditions or the differences in fiscal rules of those states, the two most frequently cited factors explaining government credit risk. In Figure 2.1, we show a change in the borrowing costs of selected U.S. states as measured by state bond yield spread (the ‘risk premiums’ that investors demand to hold state debt instead of U.S. Treasury counterparts) which illustrates the substantial, systematic and persistent interstate divergence in U.S. state borrowing costs during and immediately after the 2008 crisis. In September 2008, prior to the global credit market seizure, the difference between the premiums that investors demanded to hold California debt over Texas debt was 15 basis points. But after just four months, in January 2009, California was paying approximately 110 basis points more on its general obligation debt than was Texas, an almost eight-fold increase; although it is reasonable to believe that both the economic conditions and fiscal rules of those states had not changed significantly during the four-month period. Furthermore, while some states, such as Massachusetts, have seen their borrowing costs return to pre-crisis levels, California and other states face borrowing costs that remain near all-time highs.

⁹⁴ <http://www.reuters.com/article/2010/05/01/berkshire-buffett-ratings-idUSN0118355720100501>.



Figure 2.1. Bonds Yield-Spread of Selected U.S. States versus U.S. Treasury Bonds, January 2007-2010

Red lines indicate moment of pre-crisis and post-crisis measurement (30 June 2008 and 30 June 2009).

Source: Reconstructed from Bloomberg Data

In this study, we propose an explanation for this observation. In particular, we identify the factors that explain this interstate divergence in U.S. state borrowing costs as well as the reason why those factors may be viewed as increasingly important during and immediately after the crisis by sub-sovereign credit market participants.

2.2 Hypotheses

The issue of government credit risk has generally been well researched, both on the national and sub-national level, and most of the previous studies attempted to explain government credit risk with the economic conditions of the government (for instance, Edwards 1984; Capecchi 1991, 1994; Bayoumi et al. 1995; Block and Vaaler 2004; Bernotha et al. 2012; Beirne and Fratzscher 2013). An important exception to this line of research constitutes a group of studies that has concentrated on the impact of fiscal institutions, such as balanced budget rules, on state-specific borrowing costs (Bayoumi et al. 1995; Lowry and Alt 2001; Poterba and Rueben 2001; Johnson and Kriz 2005).⁹⁵ For instance, Poterba and Rueben (2001) showed that in the 1990s yield spreads of U.S. state bonds over federal benchmark instruments differed depending on whether a state's fiscal policy was subject to tight balanced budget rules or not. Their work on the role of fiscal institutions in explaining U.S. sub-sovereign borrowing costs has since enabled further research strands focused on the national level, such as the approach by Hallerberg and Wolff (2008) who explain sovereign risk premiums in the European Monetary Union (EMU) as a result of diverging fiscal institutions and policy.

Earlier literature suffers from a central limitation: It does not cover crisis periods and thus, oriented to halcyon times, tends to treat fiscal rules as if they came 'from the sky', largely ignoring the political institutions which create, modify and must adhere to them. This

⁹⁵ Conceptual roots of the institutional approach can be found in the examination by Hibbs (1977) (see also Seitz 2000).

is an important limitation because, as we argue below, during crisis periods – when political systems can no longer delay stabilisations and must deliver policy – credit markets may pay relatively greater attention to the orientation of political institutions than to states’ economic conditions.

In this study, we argue that under crisis conditions, credit markets will perceive the partisan orientation of the state-level political system to be highly determinative of the probability of successful fiscal stabilisation, especially given the incomplete information problem regarding bailouts from the national government, and that during these periods credit markets are likely to pay as much attention to politics as to economic fundamentals in evaluating the default risk of U.S. states. These ‘political’ factors, such as the party affiliation of the state governor and legislature, might signify to credit markets whether a state government has both the *willingness* and *political capacity* to initiate needed fiscal adjustments and austerity measures. They thus may provide some information to market participants about the likelihood that a given state government will choose to default on its debt instead of making politically costly decisions such as tax increases and budget cuts. Similarly, state-level public-sector labour environments, like collective bargaining rights and unionisation levels, might signify to market participants the degree of organised political opposition state lawmakers will have to overcome to implement such austerity measures.

2.3 Data and Methods

2.3.1 Data

To investigate whether political factors can explain interstate variance in borrowing costs and default risk, we obtained Bloomberg’s *State General Obligation Municipal Yield*

*Curve Data*⁹⁶ – the market-based measure of state bond yields widely used by market participants – for every state⁹⁷ for which Bloomberg compiles such data (that is, those economically significant enough to have a highly liquid government bond market). These turn out to be the twenty economically largest states; together they account for approximately 80 per cent of the U.S. real GDP.⁹⁸

Our dependent variable is the market perception of the default risk of a state which we measured using the spread of a synthetic⁹⁹ one-year bond issued by each state¹⁰⁰ as reported by Bloomberg. In order to account for the fact that there might be delays in market response, we also added a six-month lag and used the closing price of 30 June of the following year as a proxy for the state borrowing costs of a given year. For instance, the one-year state bond yield of 30 June 2008 is used as a proxy to represent the state borrowing costs of 2007. However, our results were highly robust and did not depend significantly on the length of the lag incorporated into the calculation of the dependent variable.

The measured effect of political institutions controls for a state's general economic condition with several variables: state real gross domestic product (GDP), state budget deficit to state real GDP, state unemployment rates and ratio of unfunded state pension liability. Those four control variables were selected after preliminary tests, as they were the economic variables with the greatest effects in explaining our dependent variable. The list of economic variables considered and tested includes state population estimate, real GDP, GDP per capita,

⁹⁶ Bloomberg's *State General Obligation Municipal Yield Curves* are constructed with general obligation bonds that are issued by the state as well as municipalities that are within the state, so long as they have the same average rating as the state general obligation bonds.

⁹⁷ California, Connecticut, Florida, Georgia, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington and Wisconsin.

⁹⁸ Seventy seven per cent in 2007.

⁹⁹ Bloomberg's *State General Obligation Yield Curves* are aggregate instruments which represent a hypothetical bond of a given maturity class, as opposed to any actual, particular bond. These synthetic measures are used by market participants because aggregate measures avoid liquidity-based price distortions that can affect particular individual bonds (see Poterba and Rueben 2001¹).

¹⁰⁰ The overall result was consistent even when using a synthetic one-year state bond as the dependent variable.

state debt to GDP (including pension liabilities), and state budget deficit to GDP, unemployment rate, state tax burden and property tax base as a percentage of state revenue.

Our independent variables of interest include cross-state variations in political and public-sector labour characteristics. Among various political factors, we are interested in whether the political party affiliation of a state’s governor and the dominant political orientation of a state’s legislature correlate with a state’s bond yield. Looking at the public-sector labour environment, we examine whether ‘union strength’ in a state correlates with state yields. We find that the two most salient measures of union strength, collective bargaining rights and share of union membership, highly correlate with each other, as was expected. We are interested in whether the proportion of unionised public-sector employees and the strength of collective bargaining in a state correlate with that state’s bond yields. Since both variables essentially measure the same phenomenon, we included only one at a time in any given regression. The full list of public-sector labour variables we tested for includes the existence of right to work laws, collective bargaining rights, state employees’ rights to strike and the proportion of unionised public-sector employees in a state.¹⁰¹ The summary statistics and data sources of all the included variables can be found in Tables 2.1 and 2.2, respectively.

Variables	Num. of Obs.	Mean	Std. Dev.	Minimum	Maximum
Spread (5-year tenure bonds), 30 June 2008 - 30 June 2009	40	7.49	32.36	(40.46)	146.54

¹⁰¹ This data comes from the National Bureau of Economic Research (NBER) *Public Sector Collective Bargaining Law Data Set*. We used information from 1996 or, if data for 1996 was not available, from 1991 or the most recent year available.

Variables	Num. of Obs.	Mean	Std. Dev.	Minimum	Maximum
Unexpected deficit shock	40	-148.9	649.7	-1,547	1,696
Collective bargaining right	40	0.70	0.46	0	1.00
Right to strike	40	0.20	0.41	0	1.00
Right to work	40	0.35	0.48	0	1.00
Union membership	40	39.57	20.84	8.10	70.50
Party identity of the Governor	40	0.65	0.48	0	1.00
Dem. share in Lower State Legislature	40	56.04	12.91	35.00	87.50
Dem. share in Upper State Legislature	40	53.34	13.78	35.00	87.50
Dem. share in State Legislature	40	54.69	12.84	35.00	87.19
Real GDP	40	4.99	3.84	1.47	17.69
Unemployment rate	40	5.27	1.09	2.99	8.34
Deficit to GDP	40	(0.79)	2.20	(4.70)	4.15
Unfunded pension liability ratio	40	14.52	13.80	(7.38)	45.67

Table 2.2. Data Sources

Variables	Details	Data Source
Spread	In basis points (unit = one basis point). Change in level of spread between 30 June 2008 and 30 June 2009	Bloomberg Data Stream, Bloomberg Terminal
Unexpected deficit shock	In billion USD	The National Association of State Budget Officers (NASBO) surveys.
Real GDP	Real Gross Domestic Product in 1000 billion USD	U.S. Bureau of Economic Analysis (BEA), Regional Economic Accounts, Gross Domestic Product (GDP) by State and Metropolitan Area, http://www.bea.gov/regional/index.htm
Unemployment rate	In percentage (unit = one per cent)	Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics, Unemployment Rate by State, http://www.bls.gov/lau/
Deficit to GDP	In percentage (unit = one per cent)	U.S. Census bureau, State & Local Government Finance http://www.census.gov/govs/estimate/
Unfunded pension liability ratio	In percentage (unit = one per cent)	The Pew Centre on the States (2010), The Trillion Dollar Gap, Underfunded State Retirement Systems and the Roads to Reform
Party identity of Governor	Whether the Governor is a Democrat (1 if a Democrat, 0 otherwise)	State government websites
Party identity of state legislatures	The Democratic share of the legislature in percentage (unit = one per cent)	National Conference of State Legislatures (NCSL), Party Composition of State Legislatures http://www.ncsl.org/Default.aspx?TabID=746&tabs=1116,113,776#1116

Table 2.2. **Data Sources**

Variables	Details	Data Source
Union membership	Public union membership as a percentage of all public sector employees (unit = one per cent)	Union Membership and Coverage Database from the Current Population Survey (CPS), II. State: Union Membership, Coverage, Density, and Employment by State and Sector. For further information, see Hirsch and Macpherson (2003).
Collective bargaining	Whether the State has the duty to bargain (1 if yes, 0 otherwise)	National Bureau of Economic Research (NBER) Collective bargaining Dataset http://www.nber.org/publaw/
Right to work	Whether right to work law is applied to public sector (1 if yes, 0 otherwise)	
Right to strike	Whether right to strike is permitted by law (1 if yes, 0 otherwise)	

In addition to states' political and public-sector labour characteristics; we also include the interstate variation in fiscal rules, specifically states' balanced budget rule stringency, as an independent variable. Previous studies have primarily focused on the roles of fiscal rules and paid little attention to the roles of political and public-sector labour institutions in explaining states' fiscal risk. By including interstate variation in fiscal rules, we aim to test whether states' predicted default risk during crisis periods is also explained by those rules.

We collected data on interstate variation in balanced budget rule stringency from two different sources: (1) the 1987 Advisory Commission on Intergovernmental Relations (ACIR), which classified the stringency of balanced budget rules adopted by U.S. states into four groups (Poterba and Rueben 2001), and (2) the General Accounting Office (GAO) classification of balanced budget rule stringency, which previous studies (Krol and Svorny 2007; Hong 2014) proposed as an alternative measure. The ACIR measure entails a scale from 0 to 10, with 10 representing the most stringent requirement, while the GAO measure has only two groups, 0 or 1, with 1 representing the more stringent requirement. The two measures are highly correlated, with a Pearson correlation of 0.5365. In the results section, therefore, we only report results using the ACIR measure as both classifications produce similar results.

2.3.2 Methods

Our empirical study aims to identify the political-institutional circumstances under which an unexpected deficit shock is more easily transmitted into a state's risk of default in the credit markets' perception. Out of various economic variables, we control for the four that turn out to have the most significant effect on the dependent variable: unemployment rate, the overall size of a state's economy measured by real GDP, state budget deficit to GDP and ratio of unfunded pension liability. In particular we rely on the following empirical models: (1) a

standard multiple regression analysis of the determinants of state bond yields; (2) a model with a ‘crisis period’ indicator variable,¹⁰²

$$R_{i,t+1} = \alpha + \beta_1 Z_{it} + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

$$R_{i,t+1} = \alpha + \beta_1 Crisis_t Z_{it} + \beta_2 Crisis_t + \beta_3 X_{it} + \varepsilon_{it} \quad (2)$$

hereafter ‘Model 1’ (we ran Equation 1 separately for the time before and after the 2008 global credit market seizure to find out whether the crisis correlated with a change in the component determinants of state bond yields); (3) an adaptation of the deficit interaction model by Poterba and Rueben (2001),

$$\Delta R_{i,t+1} = \alpha + \beta_1 \Delta Defshock_{it} + \beta_2 \Delta(Defshock_{it} Z_i) + \beta_3 \Delta X_{it} + \Delta \varepsilon_{it} \quad (3)$$

hereafter ‘Model 2’, where in both models R_{it} denotes the difference between the Treasury yield and the yield on bonds issued by each state. X_{it} and Z_i are economic covariates and institutional environments¹⁰³ of state i in fiscal year t respectively, and Δ denotes the time-difference operator. We use a first-difference model in order to control for state-specific characteristics. $Defshock_{it}$ is an unexpected deficit shock in a given fiscal year t in state i , which is defined as follows:

$$Revshock_{it} = Actual\ revenue_{it} - \Delta Tax_{it} - Forecast\ revenue_{it} \quad (4)$$

$$Expshock_{it} = Actual\ outlays_{it} - \Delta Spend_{it} - Forecast\ outlays_{it} \quad (5)$$

$$Defshock_{it} = Expshock_{it} - Revshock_{it} \quad (6)$$

where ΔTax_{it} and $\Delta Spend_{it}$ are the change in tax revenue and spending during fiscal year t that are enacted during that fiscal year. Thus, the unexpected deficit shock equals the difference between unexpected revenue and unexpected expenditure. Each component is defined by the difference between forecast revenues or expenditures at the beginning of the fiscal year and the revenues or expenditures that would have been collected during the fiscal

¹⁰² A ‘crisis period’ is defined as the year 2008.

¹⁰³ For the institutional variables Z_i we use an average level of those variables during the time span of our analysis so that ΔZ_i is cancelled out.

year given actual economic conditions (see Poterba and Rueben 2001¹). As previously described, we match the right-hand side variables of year t with the left-hand side dependent variable in June of year $t+1$, allowing for the fact that there might be some delays in market responses.

Both models test whether and how the economic crisis changed the component determinants of state bond yields: In Model 1, we examine whether the estimated impacts of the institutional environment differed between the ‘normal period’ and the ‘crisis period’ (Equation 1) and test whether this observed difference is statistically significant (Equation 2). Model 2 (Equation 3) further checks the robustness of the findings of Model 1 by measuring how various political-institutional factors *mediated* the bond market reaction to the fiscal shocks that were associated with the crisis. Thus while both models produce highly similar and complementary results, Model 2 aims to more precisely assess the path through which a crisis transmits a risk to sovereign borrowers and in association with which political-institutional factors turn out to have very significant effects.

2.4 Results

2.4.1 Summary of Findings

Our central findings are as follows. First, periods of general economic stress, such as the 2008 economic crisis, tend to widen the interstate gap in the state bond market and increase the spreads of state bonds over U.S. government counterparts. Second, once that happens, the bond market pays greater attention to political factors than before the economic crisis. Third, the two factors the bond market reacts to most strongly are public-sector union strength in a state (as measured by public-sector union membership and strength of collective bargaining rights) and the proportion of Democrats in the state legislature. These two

variables explain a significant amount of the absolute interstate variance in bond yields and make it more likely that an unexpected deficit shock or unemployment shock in a state will affect that state’s borrowing costs. Fourth, the bond market reaction to the stringency of balanced budget rules is not statistically significant.

2.4.2 Tests of Model 1

The results of Equation 1, in which we tested the correlation of nine institutional variables (the partisan orientation of political institutions, the public-sector labour environment and fiscal rule stringency) during normal and crisis periods, are reported in Table 2.4. The results show that, controlling for a range of economic variables, high public-sector union membership, and the absence of right to work laws, strong collective bargaining rights and a strong Democratic orientation in the state legislature correlate with increased yields during crisis periods. We fail to find evidence of a significant correlation between balanced budget rule stringency and states’ increased yields.

State	ACIR	GAO	State	ACIR	GAO
Alabama	10	1	Montana	10	1
Alaska	6	1	Nebraska	10	0
Arizona	10	0	Nevada	4	1
Arkansas	9	1	New Hampshire	2	0
California	10	1	New Jersey	10	1
Colorado	10	1	New Mexico	10	1
Connecticut	5	0	New York	3	0
Delaware	10	0	North Carolina	10	1

State	ACIR	GAO	State	ACIR	GAO
Florida	10	1	North Dakota	8	1
Georgia	10	0	Ohio	10	1
Hawaii	10	1	Oklahoma	10	1
Idaho	10	1	Oregon	8	1
Illinois	4	0	Pennsylvania	6	0
Indiana	10	1	Rhode Island	10	1
Iowa	10	0	South Carolina	10	1
Kansas	10	1	South Dakota	10	1
Kentucky	10	1	Tennessee	10	1
Louisiana	4	0	Texas	8	0
Maine	9	1	Utah	10	0
Maryland	6	0	Vermont	0	0
Massachusetts	3	0	Virginia	8	0
Michigan	6	0	Washington	8	0
Minnesota	8	1	West Virginia	10	1
Mississippi	9	1	Wisconsin	6	0
Missouri	10	1	Wyoming	8	0

Notes:

1. The higher the number, the more stringent the rule is.
2. The ACIR classification comes from the ACIR (1987) and Poterba & Rueben (2001).
3. The GAO classification comes from US GAO (1993)
4. In California, the voters approved constitutional amendments in 2004 that require the Legislature to enact a balanced budget and prohibit borrowing to manage an end-of-year deficit. Those amendments moved California into the “most rigorous” category (NCSL, 2010)

Table 2.4. Determinants of State Bond Yields (Model 1; Equation 1)								
	Normal Periods				Crisis Periods			
	(1)	(2)	(3)	(4)	(9)	(10)	(11)	(12)
Party identity of the Governor	-1.482 (4.322)	-1.846 (5.177)	-2.003 (4.655)		5.817 (5.213)	5.782 (5.473)	5.450 (5.190)	
Democratic share in upper House	0.305** (0.104)				0.408* (0.204)			
Democratic share in lower House		0.241 (0.139)				0.350 (0.252)		
Democratic share in state legislature			0.302** (0.119)				0.421* (0.228)	
Balanced-budget rule stringency				-0.776 (0.614)				-2.170 (1.447)
R^2	0.591	0.503	0.559	0.448	0.893	0.884	0.890	0.876
	(5)	(6)	(7)	(8)	(13)	(14)	(15)	(16)
Collective bargaining right	8.378** (3.466)				18.33*** (5.194)			
Right to work		-4.877 (3.885)				-18.30*** (5.356)		

Table 2.4. Determinants of State Bond Yields (Model 1; Equation 1)								
	Normal Periods				Crisis Periods			
Right to strike			1.946 (5.205)				5.334 (5.914)	
Public sector union membership				0.161** (0.0715)				0.438*** (0.129)
R^2	0.556	0.459	0.408	0.521	0.919	0.921	0.853	0.934

1. Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; 2. Independent variables are for 2007 (normal period) and 2008 (crisis period) for 20 states; 3. Dependent variable has a 6 month lag and thus is for June 2008 and June 2009 respectively. We use a 6 month lag, allowing the fact that there might be some delays in market response. However, our results are highly robust and do not depend on whether we use lagged dependent variables or not; 4. The above model controls for state real gross domestic product (GDP), state budget deficit to state real GDP, state unemployment rates, and unfunded ration of state pension liability. 5. The list of 20 states : California, Connecticut, Florida, Georgia, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, Wisconsin

Figure 2.2 illustrates the results of Table 2.4, visually exemplifying the findings with the correlation between the perceived risk of default and the share of public-sector union membership. The vertical axis displays the spread between federal securities and state bonds with a one-year maturity for the 20 states for which daily yield spreads are publicly available, while the horizontal axis displays the share of the state's public-sector workforce that is unionised. The correlation between the two variables, modest in June 2008, becomes pronounced by June 2009 as bondholders became highly sensitive to a state's perceived political capacity to take necessary actions to control budget deficits. The differences in the steepness of the two graphs visualises the strengthening of the interrelationship between the share of unionisation of the public-sector workforce and the default risk.

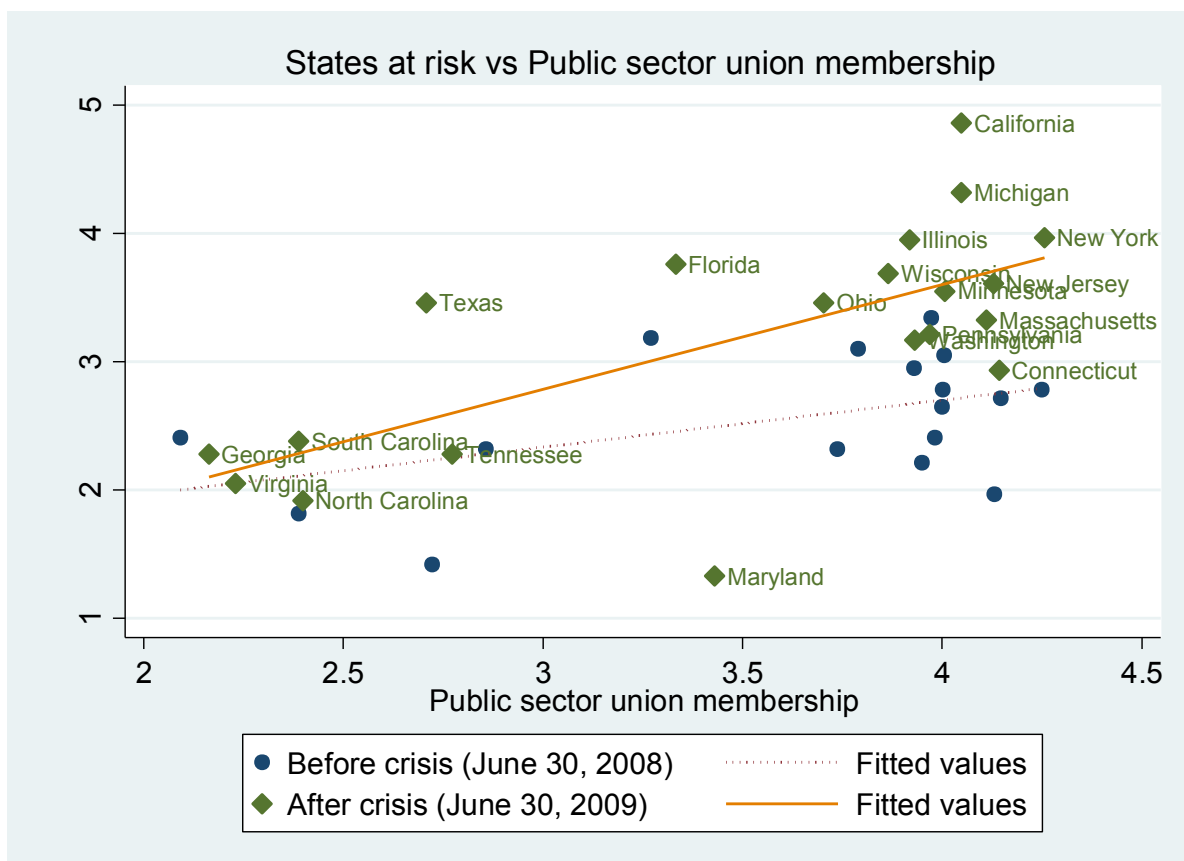


Figure 2.2. Simple Relationship Between Union Share of Public-Sector Workforce and State Bond Yield Spread, June 2008 and June 2009

1. Variables are log transformed to make units of analysis visually comparable.
2. June 2008 spread data are all shifted upward by thirty basis points to make it visually comparable with June 2009 data

Equation 1 and Figure 2.2 show that the correlation between the institutional variables and the perceived risk of default differs between normal and crisis periods. Equation 2 tests whether this difference is statistically significant and is reported in Table 2.5. As can be seen in Table 2.5, the coefficients of interactions between the crisis indicator and three institutional variables (public-sector union membership, collective bargaining rights and the absence of right to work laws) are significant, which is consistent with Equation 1. The exception is the correlation of the Democratic orientation in the state legislature which turns out not significant in this test, although the coefficient has the expected sign. Taken together, the results suggest that the correlation between institutional variables and the perceived risk of default significantly increases during crisis.

Table 2.5. Determinates of State Bond Yields with a Crisis Period Indicator (Model 1; Equation 2)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crisis	37.32* **	42.38* **	52.66* **	43.79* **	46.71* **	28.19	54.41* **
	(7.897)	(8.292)	(6.902)	(6.274)	(9.572)	(22.95)	(13.92)
Crisis x Collective bargaining right	13.97*						
	(7.276)						
Collective bargaining right	8.908						

Table 2.5. Determinates of State Bond Yields with a Crisis Period Indicator (Model 1; Equation 2)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(5.962)						
Crisis x Strike permitted		-3.683					
		(8.403)					
Strike permitted		8.903					
		(6.387)					
Crisis x Right to work applied			- 16.20 [*] *				
			(7.757)				

Table 2.5 (Continued).							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Right to work applied to public sector			-5.508				
			(6.279)				
Crisis x Union membership				0.426 [*] *			
				(0.171)			
Union membership				0.138			
				(0.137)			
Crisis x Party identity of the Governor					-7.162		
					(11.46)		
Party identity of the Governor					9.584		

Table 2.5 (Continued).							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
					(8.503)		
Crisis x Dem. share in State Legislature						0.236	
						(0.343)	
Dem. share in State Legislature						0.202	
						(0.240)	
Crisis x Balanced-budget rules							-1.646
							(1.625)
Balanced-budget rules stringency							-0.460
							(1.210)
R^2	0.915	0.882	0.910	0.920	0.884	0.887	0.885

1. Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
2. Data are for 2007-08 for 20 states.
3. Independent variables are change from 2007 (normal period) to 2008 (crisis period) for 20 states.
4. Dependent variable has a 6-month lag and thus is a change from June 2008 to June 2009. We use a 6-month lag, allowing the fact that there might be some delays in market response. However, our results are highly robust and do not depend on whether we use lagged dependent variables or not.
5. The above model controls for state real gross domestic product (GDP), state budget deficit to state real GDP, state unemployment rates, and unfunded ration of state pension liability.

6. The list of 20 states: California, Connecticut, Florida, Georgia, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, Wisconsin

2.4.3 Tests of Model 2

In Model 1, we created a ‘crisis period’ indicator, which is the year 2008. This approach may be criticised as it is difficult to obtain consensus on when the crisis began and ended. Model 2 tries to address this concern by measuring the magnitude of the unexpected deficit shock directly and examining it with the institutional variables.

The results of Model 2 (Equation 3) are reported in Table 2.6. The results show that high public-sector union membership, the absence of right to work laws in a state and a strong Democratic orientation in the state legislature correlate with an increased likelihood that a state’s unexpected deficit shock will affect credit market perceptions of the state’s risk of default. Once again, states’ balanced budget rule stringency did not produce a statistically significant result. Overall, our results suggest that measures of union strength in a state – the proportion of public-sector employees who are unionised and collective bargaining rights given to public employees – are significantly correlated with interstate variation in bond yields, as is the proportion of Democrats in the state legislature.

Table 2.6. **The Effect of Unexpected Deficit Shocks, Political, and Labour Institutions on Changes in State Bond Yields (Model 2; Equation 3)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ Defshock	-25.96	-27.72	70.26**	14.88	-36.73*	-12.31	-34.75
	(15.37)	(16.96)	(28.53)	(14.05)	(18.32)	(11.40)	(122.1)
Δ Defshock x Collective bargaining right	32.69						
	(26.84)						
Δ Defshock x Strike permitted		126.4*					
		(62.48)					
Δ Defshock x Right to work applied to public sector			-94.19***				
			(29.96)				
Δ Defshock x Union membership				1.841**			
				(0.822)			
Δ Defshock x Party identity of the Governor					27.12		
					(20.60)		
Δ Defshock x Dem. share in State Legislature						2.495**	
						(1.045)	
Δ Defshock x Balanced-budget rule stringency							1.788
							(21.11)
R^2	0.590	0.550	0.796	0.691	0.583	0.732	0.541

1. Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
2. Data are for 2007-08 for 20 states.
3. Independent variables are change from 2007 (normal period) to 2008 (crisis period) for 20 states, which include the 15 largest states.
4. Dependent variable has a 6-month lag and thus there is a change from June 2008 to June 2009. We use a 6-month lag, allowing the fact that there might be some delays in market response. However, our results are highly robust and do not depend on whether we use lagged dependent variables or not.
5. The above model controls for changes in state real gross domestic product (GDP), state budget deficit to state real GDP, state unemployment rates, and unfunded ration of state pension liability.
6. The list of 20 states: California, Connecticut, Florida, Georgia, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, Wisconsin

In Table 2.6, the impact of the interaction between unexpected deficit shock and each of the institutional variables are calculated separately because the variables are highly correlated with one another, making it difficult to identify the independent impact of each within a single model considering the small number of observations available. As column 4 of Table 2.6 shows, a 1 per cent difference in union membership in a state is associated with an additional 1.84 basis point change in state borrowing costs if the state has experienced a \$1 billion change in its unexpected deficit shock. In other words, a 20 percentage point difference in the share of public-sector unionisation (one standard deviation) is associated with an additional increase in the level of state bond spreads of 36.8 basis points if a state has suffered an unexpected deficit shock change of \$1 billion.

Similarly, a 1 percentage point increase in the share of Democrats in the state legislature is associated with an additional 2.50 basis point increase in state borrowing costs if a state has experienced an unexpected deficit shock of \$1 billion (column 6 of Table 2.6). That implies that a 20 percentage point increase of the Democrats' share in the legislature is associated with an increase of 50 basis points (0.5 per cent as 1 basis point is 0.01 per cent) in the yield spread in the context of a \$1 billion deficit shock.

One caveat concerning the interpretation of these variables, however, is that all these political indicators – union strength in the public-sector workforce and partisan representation in the legislature – should not be reified. As previously described, they may be best understood as indicators of a broader set of factors that affect a state's default risk.¹⁰⁴

The two institutional variables emphasised here – union share and Democratic share – should rather be understood as useful proxies for a broader set of collective bargaining and partisan factors that affect bond yields. Each has their own, strong correlation with bond yield

¹⁰⁴ By contrast, we found that variations in state expenditures on Medicaid, a highly redistributive programme that might be considered a default risk factor, were not correlated with yields. It is possible that bondholders think such expenditures can be managed more easily than deficits generated by obligations incurred in the course of collective bargaining agreements.

spreads that occur in the wake of an economic crisis. Additionally, as one might expect from the key role that public-sector unions play within Democratic coalitions, the two variables highly correlate with one another.

2.5 Conclusion

This paper investigates how state political institutions – such as the political composition of state legislatures, the partisan affiliation of governors and the strength of state public-sector unions – influence state bond yields and mediate the bond market reaction to severe state fiscal shocks. We analysed data on the yields of bonds issued by different states, as reported by Bloomberg, along with data on state budget forecasts for the period immediately prior to and following the 2008 economic crisis. We found that political institutions affect state bond yields and that the strength of this correlation increased following the 2008 credit market seizure. In particular, we found that while unexpected deficits are correlated with higher state bond yields across all states, this effect is stronger for states with left-leaning political systems than for states with right-leaning political systems.

These results suggest that bond market participants view political institutions as relevant in assessing the risk characteristics of state bonds and that following credit market seizures and severe fiscal shocks political institutions become even more important. These results place the extensive earlier literature on the relationship between fiscal rules and state bond yields in the context of crisis dynamics and indicate that during such periods – when credit markets might expect that political systems can no longer delay stabilisations and must deliver policy, and thus when fiscal rules are most likely to be loosened, modified or breached – the political institutions that must maintain or break fiscal rules and achieve stabilisations are viewed as increasingly important.

This constitutes some of the first empirical evidence that participants in sovereign credit markets hold sophisticated views of the fiscal prospects for different jurisdictions by discounting the presuppositions of classical rational choice models of political bargaining. Specifically sovereign credit markets seem to be rationally discounting many of the political and institutional factors which the existing literature, such as Alesina et al. (2006), have shown to be predictive of successful stabilisations.

In sum, political-institutional factors – such as the political composition of state legislatures – and interstate variations in public-sector labour environments – like union strength and collective bargaining rights – can explain a significant proportion of interstate variations in U.S. state borrowing costs following the 2008 economic crisis. We find that, controlling for multiple economic variables, states with weaker unions, weaker collective bargaining rights and fewer left-leaning state legislators pay less in absolute borrowing costs and relatively less when comparing states with a similar level of unexpected deficit shock, than do states with stronger unions and a higher proportion of left-leaning legislators.

Political-institutional factors – especially the party-orientation of the state legislature – seem to signify to credit markets whether a state government has both the willingness and political capacity to initiate needed fiscal adjustments and austerity measures. Market participants seem to treat these variables as indicators of the probability that a given state government will choose to default on its debt instead of initiating politically costly austerity measures. Similarly, state-level public-sector labour environments, such as collective bargaining rights and unionisation levels, seem to signify to market participants the degree of organised political opposition state lawmakers will have to overcome to implement needed austerity measures in response to unexpected negative revenue shocks and are thus treated by markets as negative indicators of the probability of successful fiscal stabilisation.

Chapter 3

Do Political Institutions Affect German State Bond Yields? Evidence from 2006-2010

Daniel Nadler † & Souman Hong ††

Abstract

To what extent do bond market reactions to an unexpected deficit shock depend on state-specific politics? To answer this question, we calculate German state bond spreads over government benchmark paper using information from Datastream for the period 2006-2010. We test for a variety of institutional and political factors. We find evidence that investors base risk perceptions on state specific economic and institutional characteristics. Further, in left-leaning Eastern German states, an increase in unexpected deficit shock had a greater negative effect on a state's risk.^{†††105}

3.1 Introduction

As the recent sovereign debt crisis unfolded, German states (Bundesländer) experienced significant changes in their fiscal circumstances, and their borrowing costs increased sharply. Substantial interstate differences in borrowing costs have also recently been seen.

For example, the state of North Rhine Westphalia paid more than 80 basis points more on their state-level bonds than other Western states did in 2009. The relative yields on

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debt issuances by North Rhine Westphalia and Hamburg have diverged by as much as 120 basis points. Such significant disparities in German state-level borrowing costs are relatively unprecedented. Though they certainly reflect divergent state-level economic conditions that were amplified by the European sovereign debt crisis and the global recession, they may also reflect more ‘structural’ factors such as differences in state-level political institutions and regional patterns of public finance.

Poterba & Rueben (2001) show that in the 1990s yield spreads of US state bonds over federal benchmark instruments differed depending on the question of whether a state’s fiscal policy was subject to tight anti-deficit rules or not. Building on the methodological approach of Poterba & Rueben (2001), Nadler & Hong (2011) raise an analogous question with regard to the issue whether yield spreads in US subnational bond markets reflected characteristics of state specific politics in the recent financial crisis.

Federal and state governments are highly intertwined within the context of German fiscal federalism. As a consequence, the allocation of state revenues and expenditures is a highly political issue. We therefore analyse yield spreads in German state bond markets so as to find out in how far investors discount politics when assessing state specific credit risks. Given the dramatic economic disparities that continued to prevail between Eastern and Western Germany after reunification 1990 (Hunt 2000) our investigation also includes observations on regional differences in Germany.

This approach is mainly motivated by Neuberger (1999) who reports that financing practices of German banks differed with regard to East and West German enterprises. Banks were often “too restrictive in their lending” toward East German companies in the decade after the fall of the Berlin Wall. In light of the imbalanced economic and structural conditions that still separate Western and Eastern parts in Germany, we use the crisis of 2008-2010 as a

testing ground for investigating whether state bond markets also discount for regional differences between Eastern and Western Germany.

3.2 Literature

The general issue of government credit risks has been well researched in context of developed and developing economies (e.g. Edwards, 1984; Min, 1998, and Rowland & Torres, 2004) both on national and subnational level (e.g. Capecchi 1991, 1994; Alesina, De Broeck, Prati & Tabellini 1992; and Bayoumi, Goldstein & Woglom 1995). Credit risks have been discussed with respect to differences in states' fiscal performance as well as with regard to varying institutional factors (Baldacci, Gupta & Mati (2011). Conceptual roots of the institutional approach reach back to Hibbs (1977) (Schmidt 1996; cf. also Seitz, 2000).

Studies like Alesina & Sachs (1988) have complemented this approach focusing on informal factors such as differences in party politics to explain risk differences (Seitz 2000). Yet disagreements exist as to which part of the political spectrum delivers fiscal policies that are more sustainable (Roubini and Sachs 1989a, 1989b; Borrelli & Royed 1995; Seitz 2000; Ardagna 2004; Alesina, Ardagna, & Trebbi 2006; Alesina, 2010). Other studies concentrate on correlations of fiscal institutions and state specific borrowing costs (e.g. Johnson & Kriz 2005; Bayoumi, Goldstein & Woglom 1992, 1995; and Lowry & Alt 2001).

In particular, investigations of Poterba & Rueben (1997, 2001) on fiscal institutions and US state bond markets have stipulated further research such as the approach of Hallerberg & Wolff (2008) who discuss sovereign risk premiums in the EMU as result of diverging fiscal institutions and policy. Nadler & Hong (2011) raise analogous questions with

regard to reaction of US state bond markets to state specific policies within the context of the recent financial crisis.

Despite Germany's economic relevance as one of the "pillars of global finance" (Laulajainen 1999, p.502) German state bond markets have received limited attention in the literature (Schulz & Wolff, 2009). Studies on German subnational debt markets include the works of Lemmen (1999), Wolff (2008), Heppke Falk & Wolff (2008), Schulknecht, von Hagen, & Wolswijk (2009), and Schulz & Wolff (2009). Heppke- Falk & Wolff (2008) and Schulz & Wolff (2009) discuss in how far bond markets build their assessments of German state credit risks on the assumption of federal bailout guarantees.

They base their investigations on bond data for the period of 1992 – 2007. Consequently, their analysis does not contain information on how the crisis of 2008- affected investor assumptions, nor can they account for recent institutional changes (c.f. Gröteke & Mause, 2009). We hence regard the timing of Schulz & Wolff 's (2009) study as an invitation for further research.

We pay particular attention to institutional factors as proposed by Alesina (2010), Poterba & Rueben (1997, 2001) and Nadler & Hong (2011). Motivated by existing studies which show that in private capital markets investor sentiments have been influenced by Germany's history and division into two different economic systems after WWII (BDI, 1994, Carlin & Richthofen, 1995, Neuberger, 1999) we also test for investor perceptions with regard to differences between states in the territories of the old FRG and the former GDR.

3.3 Background

Schulz & Wolff (2009) provide a detailed picture of the history, structure and scope of German state bond markets. We aim at complementing their work by discussing in how far differences in institutions and politics impact the behavior of investors in these markets. Our

research is focused on yield spreads of state bonds over government benchmark equivalents (“Bund”) that we assume to represent investors’ opinions with regard to “the subnational government’s capacity and willingness to repay ... debt obligations in full and on time” (Liu & Tan,p.4). In particular, we aim to understand in how far investors perceive formal and informal rules that govern the relations between central and state governments as determinants of state credit risks.

Fox (2002) observes that the German fiscal federal order undermines clear separations between state and central government competencies. As a consequence, market participants differ in their opinions as to how far states bear individual credit risks. For example, Fitch Ratings (1999) rejects the notion that states can default assuming the existence of implied and unlimited bailout guarantees by the central government.

Contrary to Moody’s and S&P (2001) that disagree on this issue, Fitch is hence issuing homogeneous credit ratings for the German federal and state governments (Nord/LB 2010; Rosenbaum 2008; Hildebrandt 2009; Seitz 2000; Laulajainen 1999). In two rulings of 1986 and 1992 the German Constitutional Court indeed decided that “federal . . . transfers can be used to bail out fiscally troubled Länder” (Rodden 2003, p.180). The rulings are often interpreted as signal to financial markets that there is “a high chance of bailout of risky borrowers” (Seitz 2000, p.30). Yet, more recent rulings of the Constitutional Court in which the former rejected federal aid to states under financial distress question the approach of Fitch (1999) (Heppke-Falk & Wolff 2008).

In sum, arguments exist *pro and contra the* notion that German federalism is an unlimited bailout regime. In light of these ambiguities, questions emerge in how far bond markets view state credit risks as reflections of the economic, fiscal and political environments of a given state. “[P]references and ideology of political parties [do not only] significantly affect fiscal policy” of governments (Seitz 1998, 0.184). Within the highly

intertwined environment of fiscal federalism in Germany, the identity of the state-governing party might for example matter for the ability of a distressed state government to reach consensus with other state and federal governments so as to attract vertical and horizontal transfers as bailouts.

Given the existence of structural imbalances in reunified Germany investors might include additional factors to their calibrations of a state's willingness and ability to repay debt. As of 2009, GDP per capita in the Eastern German States had risen above 60% of Western German levels, but hourly labor costs remained 80% of those in the West.

Wage differences and continuously high unemployment rates resulted in net emigration. "The population of the former GDR declined by 1.5 million people or 10% from 1991 to 2008, while the population of the former Federal Republic, including West Berlin, increased by 3.7 million" (Sinn & Sinn, 2009). Eastern Germany's "disappointing growth" (ibid.) becomes also apparent in international perspective. Between 1995 and 2009 the Eastern German economy grew by 16.8% thus being outperformed in terms of growth rates by other former Eastern Block economies such as those of the Czech Republic (44.2%), or Slovenia (66.5%) (ibid.)

In order to mitigate disparities between Eastern and Western German states and to stimulate the Eastern German state economies, the federal government guaranteed in 2005 the continuation of transfers to Eastern German states until the year of 2019, paying those funds out of the 156 Billion Euros of the so-called "Solidarity Pact 2" in addition to existing transfers (Seitz 2006). Given the fact that Eastern German states still received on average about a fifth of their revenues in form of transfers from the federal government between 2005 and 2009, we are interested in finding out if credit markets reflect regional differences between the East and the West in their decisions about the relative risk of Western and Eastern German state bonds.

3.4 Method

Our work follows Poterba and Rueben (2001) in defining budget “shocks” that are revealed within a state’s fiscal year. Specifically, fiscal shocks are defined as

$$Defshockit = Ex pshockit - Revshockit \quad (1)$$

$$Revshockit = Act ual revenueit - \Delta Taxit - Forecast revenueit \quad (2)$$

$$Ex pshockit = Act ual out laysit - \Delta S pendit - Forecast out laysit \quad (3)$$

where *Defshockit* in Equation (1) is the unexpected deficit shock in a given fiscal year *t* in state *i*, which is our measure of a budget “shock”. The unexpected deficit shock equals the difference between unexpected revenue (*Revshockit*) and unexpected expenditure (*Ex pshockit*). Each component is defined by the difference between forecast revenues or expenditures before the beginning of the fiscal year and the revenues or expenditures that would have been collected during the fiscal year, given actual economic conditions.

As Poterba & Rueben (2001) developed their framework for US contexts where horizontal and vertical transfers are less relevant than in the German fiscal equalization system, we also try unexpected change in transfers and debt instead of fiscal deficit shock defined in Equation (1). As regression estimates were almost identical however, we present our estimates with the fiscal deficit shock variable.

The central question of our interest is whether the bond market’s reaction to an unexpected deficit shock depends on institutional and political factors. We begin our analysis by focusing on the share of “left political party” in state’s legislature. In other words, we aim to

estimate whether unexpected deficit shock is more easily transmitted to state's risk of default when the share of "left political party" is higher. To examine this question, we interact our measured unexpected deficit shock ($Defshock_{it}$) with the share of "left political party" in state's legislature controlling for economic conditions each state has faced.

The equation we estimate takes the form

$$R_{it} = \alpha + \beta_1 Defshock_{it} + \beta_2 (Defshock_{it} E_{astit}) + \beta_3 X_{it} + \beta_4 E_{astit} + \beta_5 S_i + \epsilon_{it} \quad (4)$$

where R_{it} denotes the difference between the Treasury yield and the yield on bonds issued by each state. E_{astit} , and X_{it} are the share of "left political party" and economic covariates of state i in fiscal year t , respectively.

Among various economic variables, we control for the three economic variables that turn out to have the most significant effect on the dependent variable: unemployment rate, the overall size of a state's economy measured by real GDP, and state budget deficit to GDP. S_i is a set of unobservable that is specific to state i but time invariant. As S_i is unobservable, we first-differentiate Equation (4) in order to get rid of S_i and have the following equation:

$$\Delta R_{it} = \alpha + \beta_1 \Delta Defshock_{it} + \beta_2 \Delta (Defshock_{it} E_{astit}) + \beta_3 \Delta X_{it} + \Delta \epsilon_{it} \quad (5)$$

where Δ denotes time-difference operator. The dependent variable, R_{it} , is the difference between the maximum and minimum yield spread of state i in a given year t .

To explore the robustness of our findings, we also use an yield spread of state i averaged for a given year t or for December of each year t and we find that our result does not depend on the various measures of our dependent variable.

Table 3.1. Average state deficit shocks

Fiscal Year	Unexpected increase in Budget deficit		Unexpected increase in Net Debt	
	in Million	in % of	in Million	in % of
	EUR	Exp. Budget	EUR	Exp. Debt
2005	-218.7	1.09	183.3	1.11
2006	95.2	0.39	614.5	5.36
2007	-200.6	1.14	461.1	2.86
2008	369.1	1.49	858.3	3.27
2009	122.3	1.02	122.5	1.16

3.5 Data

A full list of variables and their sources is given in Appendix A. As not all data is readily available from our main sources, Datastream and German federal and state statistical offices, this section also provides an overview over the methods of data set composure.

To determine the dependent variable of our analysis, we calculate time series by using bond data provided by Datastream for the period of 01/01/2006 – 12/31/2010. Data is available for 15 out of the 16 German states with the exception of Bremen. We further include observations on bonds jointly issued by different states (Gemeinschaft der Länder, Jumbo bonds). Like Schulz & Wolff (2009) we limit our sample to straight bonds denominated in Euros. More than 500 bonds remain in the sample.

When computing daily spreads we note that not all bonds issued on state level can be matched with government bonds that are equivalent in structure and residual maturity. We solve this issue by using data on spreads of state bond yields over equivalent benchmark redemption yields directly provided by Datastream.

We cluster our data into four groups according to years of residual maturity of the respective bond at the date of yield observation. Within each cluster we average yield spreads of bonds issued by identical states over respective government benchmark redemption yields.

We now can calculate average spreads for each state within each of the four groups. We observe that within each of the four groups, average values of bond spreads differ across states. Like Schulz & Wolff (2009) we observe that average spreads of Jumbo bonds are among the lowest in the sample. We interpret the fact that this finding is consistent with results of other researchers as confirmation of our procedure. We focus our analysis on maturity class 2 as this is the sample with the largest number of bonds.

Table 3.2. Descriptive statistics, state bond spreads over government benchmarks

	Maturity Class I	Maturity Class II	Maturity Class III	Maturity Class IV
Time to Maturity	0-4 years	4-7 years	7-11 years	> 11 years
Number of bonds (N)	281	390	176	26
Mean*	69.58	49.23	41.09	52.87
Standard Deviation*	50.55	34.04	22.19	46.68
Min*	-179.40	-32.10	-3.19	-75.20
Max*	350.95	181.15	134.75	1325.60

*Spreads in basis points

In our calculations of unexpected deficit shocks and changes in revenues from taxes and administration we refer to data on projected and realized revenues and expenditures as published in the budget plans of the state parliaments and the audit offices of German states.

For calibrating our economic and fiscal control variables we use employment data that we directly obtain from the German statistical office (2007 – 2010, table 3) for the period

of 2006 – 2009. To control for the potential impact of relative size for the same period we rely on GDP data available from the German statistical office (2007

– 2010). We further control for the relative size of budget deficits in terms of GDP, calculating budget deficits as differences between state revenues and expenditures (German statistical office, 2007-2009, Table 23; *ibid.*, 2010, Table 24.21).

We also control for differences in productivity by calculating GDP per capita ratios relying on data from statistical yearbooks on state level GDP (*ibid.*, table 4) and state population (*ibid.*, 2007 – 2010, table 2). We account for institutional arrangements of German fiscal federalism by computing horizontal transfers (*ibid.*, table 23.1.4) and vertical transfers (*ibid.*) for the period of 2006 – 2009 that we include into our regressions.

When testing for the relevance of party-identity for state specific risk perceptions, we apply different approaches. The German party landscape is dominated by five parties: The CDU (the Christian democratic party), the FDP (the liberal party), the SPD (the social democratic party), and the Green party. “With German reunification . . . a far left wing party, the PDS (Socialist party), which succeeded the former SED that ruled the GDR, won considerable votes in local . . . as well as in all state parliaments of the Neue Laender [states in the territory of the former GDR]” (Seitz 2000, p.190).

In 2007, the PDS, together with the Wahlalternative Arbeit und soziale Gerechtigkeit (Labour and Social Justice – The Electoral Alternative), formed a new party called “Die Linke” (The Left). Die Linke entered state parliaments in Bremen (2007), Hessen (2008) and Lower Saxony (2008). Together with its seats in the parliaments of the five states that comprised the former GDR and Berlin, Die Linke has since been represented in nine out of 16 German state parliaments.

We test the “left party-hypothesis” (e.g. Alesina, Ardagna, and Trebbi (2006)) by using data on the fraction of legislative seats held by the SPD and Die Linke in state

parliaments using information published in the statistical yearbooks of 2007 - 2010. For our tests of the relevance of other institutional factors such as assumed party solidarity across federal and state levels we construct a binary variable which captures party identity of the head of state government as being either identical to head of federal government (1), or not (0).

In order to be able to differentiate between residual effects due to economic and institutional characteristics and factors that are correlated to differences in recent history and/or geographic situation of German states that may influence investors' sentiments, we introduce a dummy variable for bonds being either issued by an Eastern German state (1) or not (0).

We aim at separating effects due to "Easternness" from other effects that are specific to states in the former GDR, i.e. parliamentary and governmental relevance of parties at the far left (Die Linke / PDS), and differences in electoral participation. We account for differences in political participation by computing voter turn-outs as recorded in the statistical yearbooks (2007 – 2010).

3.5.1 Liquidity measure

German subnational bond markets are characterized by liquidity differences that lead to varying transactions costs and thus may impact spreads of state bonds over government equivalent benchmarks (Schulz & Wolff (2009, p.68). In the absence of a theory, "a definition of illiquidity and its quantifications remain imprecise" (Bao, Pan, Wang, 2008, p. 8).

In order to account for differences in liquidity we introduce a control variable relying on the proxy proposed by Schulz & Wolff (2009). Schulz & Wolff (2009, p.68) reason that

"[t]he law of one price states, that the bonds of one Land outstanding at a point in time (after adjusting for the term spread as we pool bonds into

maturity classes) should have identical yields. Assuming the absence of arbitrage opportunities, the remaining yield differences are a sign of differing liquidity. Otherwise, traders would be able to exploit the yield differential thus equalling the yields of the respective bonds.”

Following the approach of Schulz & Wolff (2009, p.68) we introduce a liquidity measure into our considerations that “is related to Longstaff (2004) as he compares the spread between two bonds with equal credit risk (US Treasuries and bonds of Refco, which enjoys a federal guarantee)”. Like Schulz & Wolff (2009, p.68) “we compare the yield dispersion of two or more bonds which have the same credit risk,” as issuing states are identical. We do so by computing daily standard deviations of yield spreads of state bonds over government benchmark equivalents. Congruent to our calibrations of state specific average spreads we rely on daily information provided by Datastream on “those bonds used to compute the respective average” spread curves in our model (Schulz & Wolff, 2009). We obtain values for each state within each of the four different maturity classes. Analogous to our focus on daily bond spreads we focus on data in maturity class II in context of our further analysis.

3.6 Findings

The main empirical results are presented in Table 3.3 in which we use state bond spreads as a proxy for states’ risk. The first column is a regression of change in spread on a number of economic variables: changes in GDP, unemployment rate, vertical transfer from federal government and horizontal transfer from other states, and liquidity. As expected, size of the economy measured by GDP and unemployment rate have a positive association with an increase in state’s risk, whereas transfer has a little, but negative association. This result is consistent with studies that identify the size of the economy as the most important

determinant of state's risk in the U.S. during the financial crisis. The second column reports that budget deficit shock has a positive and significant association with a state's risk. An unexpected increase in budget deficit by a one billion EUR is associated with additional 16 percentage points increase in state bond spread.

However, this estimate rises to 50 percentage points for Eastern states. In other words, an unexpected budget deficit has had a greater negative impacts on a state's risk in Eastern states. This result becomes even more significant when we control for other political variables. In column 3, we control for the party identity of the Head of state government by including a dummy variable with a value 1 if the party of the Head of state government is the same as that of Chancellor and 0 otherwise. We also control for the interaction between the party identity of the Head of state government and budget deficit shock to have a more flexible functional form. As we see in column 3, the estimated impacts slightly increase. In columns (4) and (5), we also present a model with the share of SPD in state legislature as a control variable. In order to have a clearer interpretation of the model, we take an average share of SPD as a control. Taking average of SPD party share in the model is justified as there were little change in the share in our data set as it covers a relatively short period of time. In addition to the SPD, we also include other political parties in order to see whether the results in columns (2)-(5) are robust to different specifications. We found that those added political parties did not have significant impact on the model and the results in (2)-(5) remains significant.

3.6.1 Easternness vs. Die Linke

Taken altogether, estimates in Table 3.3 show that Eastern states had a higher increase in borrowing costs in response to a budget shock even after we control for key economic and political variables. Then, why do Eastern states have a higher increase in risk

in response to a negative economic shock? There might be many different explanations for this finding, but in this paper we try to focus on whether we find evidence that the share of the left party (Die Linke) is associated with the result presented in Table 3.3. The left party (Die Linke) is more influential in Eastern states. Thus it might be that the policies proposed by the left party or simply their presences in either the government or legislature are correlated with the observed higher borrowing costs. To test this argument, we estimate Equation (5) with the left party's control of the government and legislature as treatment variables in place of a dummy variable indicating an Eastern state.

presents the results. Column (1) uses a dummy variable indicating whether left party (Die Linke) participates in the government or not, and column (2) uses the share of left party (Die Linke) in the state legislature as the treatment variable. We see that both estimates are statistically significant; in other words, a higher left party share in either the government or legislature is associated with a higher increase in borrowing costs in response to a negative budget shock. However, the results in column (1) and (2) are not robust to different specifications. For example, Eastern states had a lower average voter turnout during 2006-10, and we find that a lower democratic participation measured by voter turnout is highly associated with a higher borrowing costs in response to a negative budget shock, as presented in column (3). Furthermore, the coefficients in column (1) and (2), which measures the impact of a change in the left party, are no longer statistically significant when we add a democratic participation as a control in column (4).

This evidence suggest that there might be factors other than the share of the left party, which exposes Eastern states to a higher risk.

Table 3.3. No Caption					
	(1)	(2)	(3)	(4)	(5)
	$\Delta Spread$	$\Delta Spread$	$\Delta Spread$	$\Delta Spread$	$\Delta Spread$
$\Delta Def shock$		0.0155**	0.0211**	0.0268**	0.0276**
		(0.00719)	(0.00898)	(0.0116)	(0.0133)
$\Delta Def shock \times East$		0.0331*	0.0403**	0.0533**	0.0552**
		(0.0185)	(0.0190)	(0.0249)	(0.0248)
$\Delta Def shock \times Gov$			-0.0242		0.00632
			(0.0185)		(0.0413)
$\Delta Def shock \times SPD$				0.0997	0.121
				(0.0794)	(0.152)
$\Delta Unemployment rate$	14.75**	13.45*	12.02*	10.61	10.45
	(6.916)	(6.936)	(6.680)	(7.233)	(7.604)
ΔGDP	851.6***	823.2***	873.9***	828.3***	823.9***
	(179.5)	(185.7)	(187.7)	(203.7)	(216.0)
$\Delta Vertical transfer(\%)$	-283.1	-341.6	-523.4	-271.4	-216.9
	(454.1)	(459.5)	(469.0)	(489.3)	-(625.2)
$\Delta Horizontal transfer(\%)$	-2.0432	-2.499	-4.633	-4.257	-4.082
	(3.526)	(4.018)	(4.571)	(4.753)	(5.318)
$\Delta Liquidity$	0.250	0.292**	0.350**	0.333**	0.348**
	(0.160)	(0.132)	(0.141)	(0.124)	(0.133)
Constant	14.16*	12.40	8.663	9.146	9.250
	(8.246)	(8.618)	(8.438)	(9.524)	(9.785)
N	42	42	42	42	42
$adj. R2$	0.421	0.414	0.436	0.418	0.400
Standard errors in parentheses *p < 0.10, **p < 0.05, ***p < 0.01					

Table 3.4. No Caption				
	(1) ΔS pread	(2) ΔS pread	(3) ΔS pread	(4) ΔS pread
$\Delta Def shock$	0.102**	0.0236***	-0.000566	0.00855
	(0.00463)	(0.00500)	(0.00689)	(0.00772)
$\Delta Def shock \times Die Linke in Gov$	0.0294**			0.0250
	(0.1042)			(0.0154)
$\Delta Def shock \times Die Linke in Legis$		0.145**		0.0779
		(0.0629)		(0.0671)
$\Delta Def shock \times Dem Participate$			-0.00547***	-0.00587***
			(0.00134)	(0.00141)
$\Delta Unemployment rate$	21.74***	21.02***	23.21***	23.50***
	(4.697)	(4.792)	(4.984)	(4.819)
ΔGDP	746.8***	720.5***	699.4***	743.4***
	(111.0)	(106.1)	(108.0)	(104.4)
$\Delta Vertical transfer(\%)$	-1204.0***	-1113.0***	-819.4**	-1277.6***
	(322.7)	(314.0)	(400.1)	(356.8)
$\Delta Horizontal transfer(\%)$	4.404	4.868*	5.986**	3.175
	(2.757)	(2.632)	(2.577)	(2.586)
$\Delta Liquidity$	0.104	0.112	0.0958	0.0963
	(0.106)	(0.0925)	(0.104)	(0.0969)
Constant	29.23***	28.75***	32.28***	29.75***
	(5.868)	(6.036)	(5.099)	(5.590)
N	42	42	42	42
$adj. R2$	0.662	0.667	0.684	0.699
Standard errors in				

Table 3.4. No Caption				
	(1) ΔS <i>pread</i>	(2) ΔS <i>pread</i>	(3) ΔS <i>pread</i>	(4) ΔS <i>pread</i>
parentheses *p < 0.10, **p < 0.05, ***p < 0.10				

3.7 Conclusions And Future Directions

Our investigation confirms existing results on the economic effects of state political institutions. In analogy to previous studies we found that both the presence of various fiscal rules as well as political institutions affect the average borrowing costs of states within a federal framework. Moreover, this paper presents new evidence on three issues.

First, by studying how the German state bond market reacted to changes in state fiscal conditions we present clear evidence of a link between unexpected changes in state deficits and surpluses, and changes in the required yield on general obligation debt. This finding adds to ongoing discussions on the question in how far bond markets perceive of German states as entities that can default. It implies that during the financial crisis bond markets were discounting state specific factors when evaluating state default risks. In a world of unconditional and universal bailout guarantees, state specific factors should not impact state default risks. We hence interpret our finding as reflection of investor assumptions according to which state bailouts by the federal government would be carried out at non-zero costs.

Second, we were surprised to observe that Eastern states displayed higher increases in borrowing costs in response to budget shocks. This observation holds even after we controlled for key economic and political variables. While studies exist that hold that capital markets discounted “Easternness” in credit risk evaluations in the 1990s (cf. above), we are not able to reject the hypothesis that there may be other factors that explain our observations. For example, systematic differences in yields of Eastern and Western German states could also be explained by variances in the fractions that far left parties such as “Die Linke / PDS” hold in Eastern vs. Western states.

In this case our observation could be explained by partisan approaches that assume investors to differentiate between various parties with regard to fiscal prudence and bailout

policies. Similar reasoning applies with regard to differences in electoral participations that are lower in the East than in the West. Hence, further analysis is necessary to isolate additional factors so as to be able to better explain this part of our observations. This analysis should most likely contain explorative elements testing for factors that we might have overseen in our present analysis.

Third, we find that fiscal institutions such as vertical and horizontal transfers matter. As the regression tables show, we have to be careful in the interpretations of our results before we can draw certain conclusions. States that are net recipients of fiscal transfers seem to face lower borrowing costs than states that do not receive those benefits.

With regard to vertical transfers, a potential explanation might be that markets assume that it is easier for states that already receive transfers to file for additional funds than it is for other states to forsake their status of independence and to tap federal resources for the first time. In case of horizontal transfers ambiguities prevail.

On the one hand, bond markets may assume states that are already receiving transfers from other states are in a better position to negotiate additional funds in case of distress than states that are net payers of vertical transfers.

On the other hand, markets may discount obligations of net paying states within the context of the German transfer system as additional liabilities and burden on the fiscal independence of these states. Our findings open up questions on the role of transfers in context of costs and benefits of fiscal transfer unions. These questions are relevant beyond the specific case of Germany.

Some caveats remain. We will discuss four of them that we believe to be most relevant for our results. Due to analogies between our approach and the procedure suggested by Poterba & Rueben (2001), the caveats are partially identical with those suggested by the latter. They are comprised of questions with regard to the “rationality of budget forecasts of

both expenditures and revenues” (ibid.). For, “[t]here may be political influences on these forecasts, and the extent to which these forecasts make use of all publicly available information that could bear on the prediction is unclear” (ibid). Hence, endogeneity problems persist.

Furthermore, as Schulz & Wolff (2009) demonstrate, liquidity differences play an important role for yield performances within the context German state bond markets. While we replicate the approach of the former so as to account for these differences, our observations are still based on a liquidity proxy. In lack of a better alternative, we cannot fully erase inexactitudes in our data.

Another issue is the problem of state guarantees. In retrospect we can say that state governments faced severe burdens due to their obligations to bail out state owned banks that went into distress in context with the global unfolding of the financial crisis. Ex-post observations show that state owned banks placed heavy burdens onto state budgets.

But could investors foresee this from an ex-ante perspective? Many of the banking activities that led to the financial turmoil were off-balance operations and banks differed in how they recorded and communicated those activities to the public. So it is questionable in how far and at what time state bond markets did know about those activities and their consequences.

Finally, imprecisions also stem from the fact that our equations have only 15 time-series observations due to the number of German states that issue bonds (cf. Poterba & Rueben, 2001).

What are the prospects that limits in our research can be overcome in future investigations?

In order to overcome endogeneity issues it would be necessary to find out in how far budget forecasts are truly of political nature. It would thus be necessary to look for evidence

that would show that governments systematically mispredict the future before we can make further suggestions how to alter the variable *Defshock*.

With regard to liquidity issues, we note that it is yet unclear how the recently introduced debt brake that forbids German states to take out new loans after 2020 will affect future bond issuances of the latter. We hence do not know if German state bond markets that only have been evolving since the 1990s will become more liquid over time (thus offering a natural solution to the problem of liquidity differences) or whether they will dry out. In the latter case, revisions of sampling strategies (e.g. by introducing different sub-sample categories) should be considered carefully due the fact that less liquid market would most likely imply thinner data on which observations can be based.

As to the issue of state owned banks and other state guarantees, researchers could exploit their ex post situation looking in form of an event study bearing in mind that not all information that is available as of today has been available to markets between 2008 - 2010.

Finally, in order to overcome the limited number of time series observations future research could add observations on analogous debt instruments that bear state guarantees.

A Appendices

A.1 Overview of Reported Variables

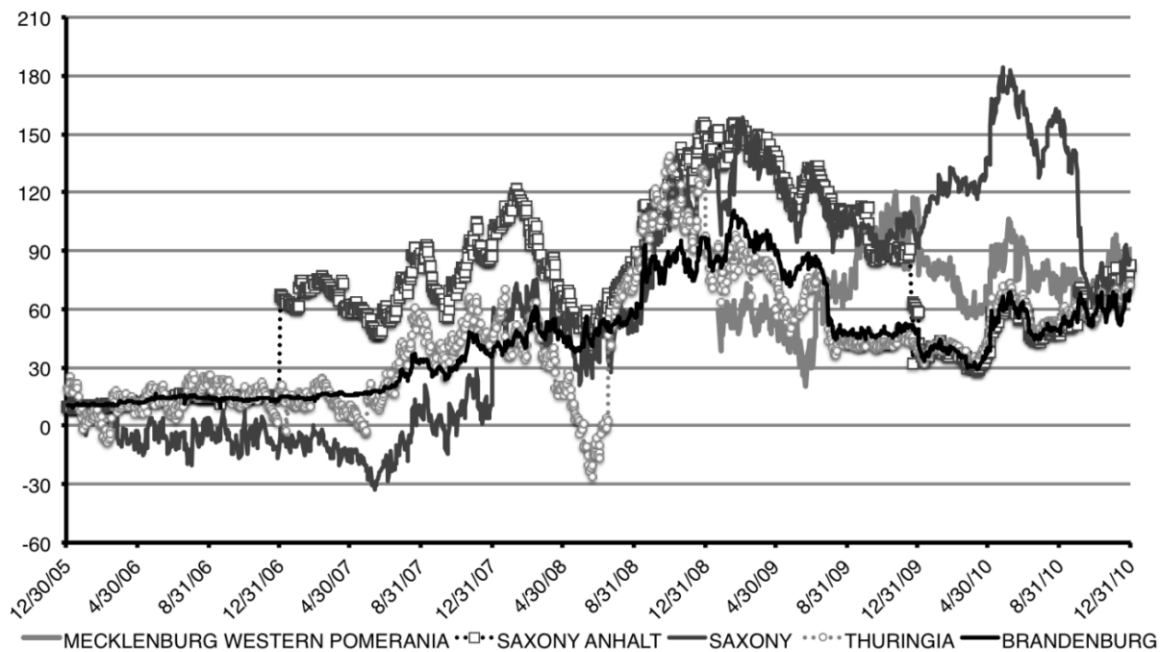
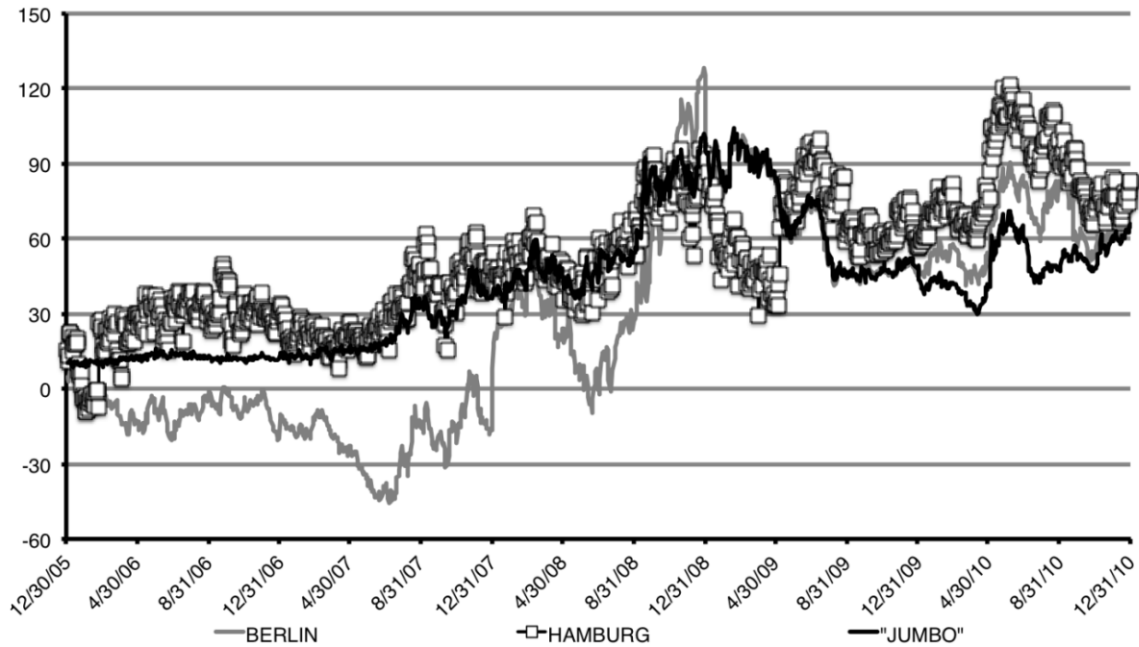
Variable	Data	Measure	Source	Calculation
<i>ΔSpread</i>	Difference between state bond			
	yields and government	basis	Datastream	Datastream
	benchmark equivalent, daily	points		
spreads				
<i>ΔDef Shock</i>	Difference between expected and realized budget deficits	EUR mill.	State audits / budgets	Own calculation
<i>ΔUnemployment rate</i>	Registered unemployed as fraction of workforce, annual data	%	Stat. yearbooks	Own calculation
<i>ΔGDP</i>	GDP per capita, annual data	EUR K	Stat. yearbooks	Own calculations
<i>ΔHorizontal transfer</i>	Transfers from other states in % of state revenues, annual data	%	Stat. yearbooks	Own calculation
<i>ΔVertical transfer</i>	transfers from fed. gov. in % of state revenues annual data	%	Stat. yearbooks	Own calculation
<i>East</i>	If state is on territory of former GDR (excluding Berlin)	binary	Länderneugliederungsgesetz	NA

<i>Gov</i>	if party identity of head of state identical to party identity of fed. chancellor identical to CDU	binary	Stat. yearbooks	NA
<i>SPD</i>	Fraction of state parliament seats held by SPD	%	Stat. yearbooks	Own calculation
<i>Die Linke in Gov</i>	Fraction of state gov. seats held by extreme left party	%	Stat. yearbooks	Own calculation
<i>Die Linke in Legis</i>	Fraction of state parliament seats held by extreme left party	%	Stat. yearbooks	Own calculation
<i>DemParticipate</i>	Voter turn up in last state elections	%	Stat. yearbooks	Stat. yearbooks
<i>ΔLiquidity</i>	standard deviations of yield spreads of bonds issued by identical states within identical maturity class	basis points	Datastream	Own calculation

OVERVIEW OF REPORTED VARIABLES, THEIR MEANINGS, AND SOURCES

A.2 Spreads of German State Bonds over Government

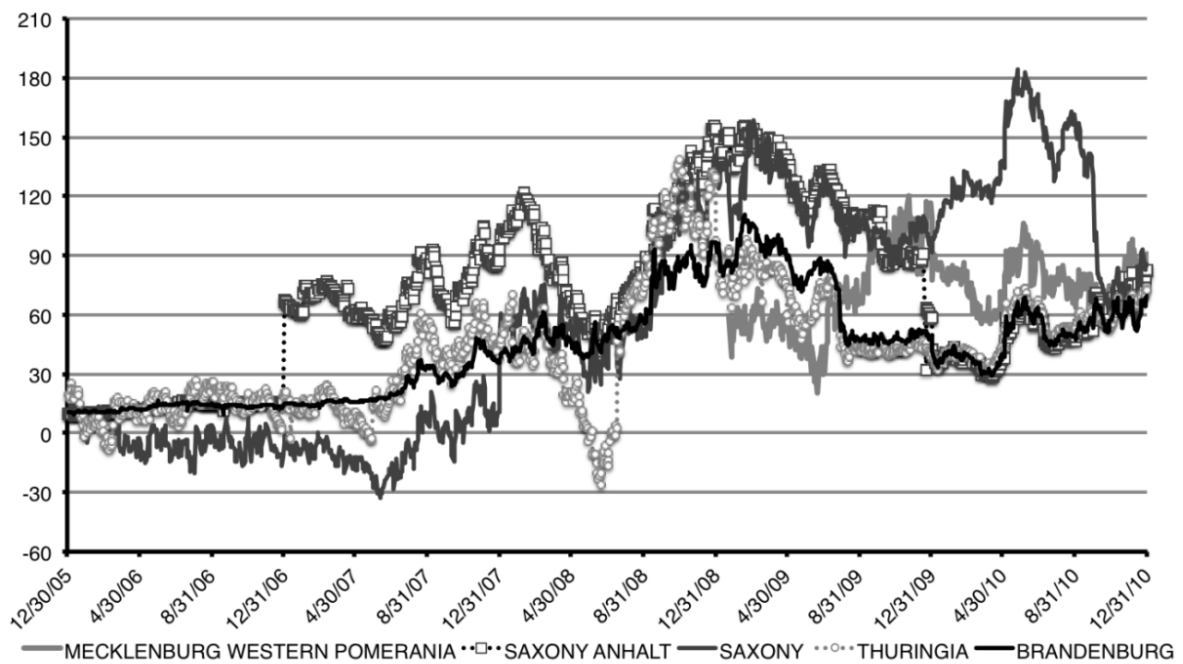
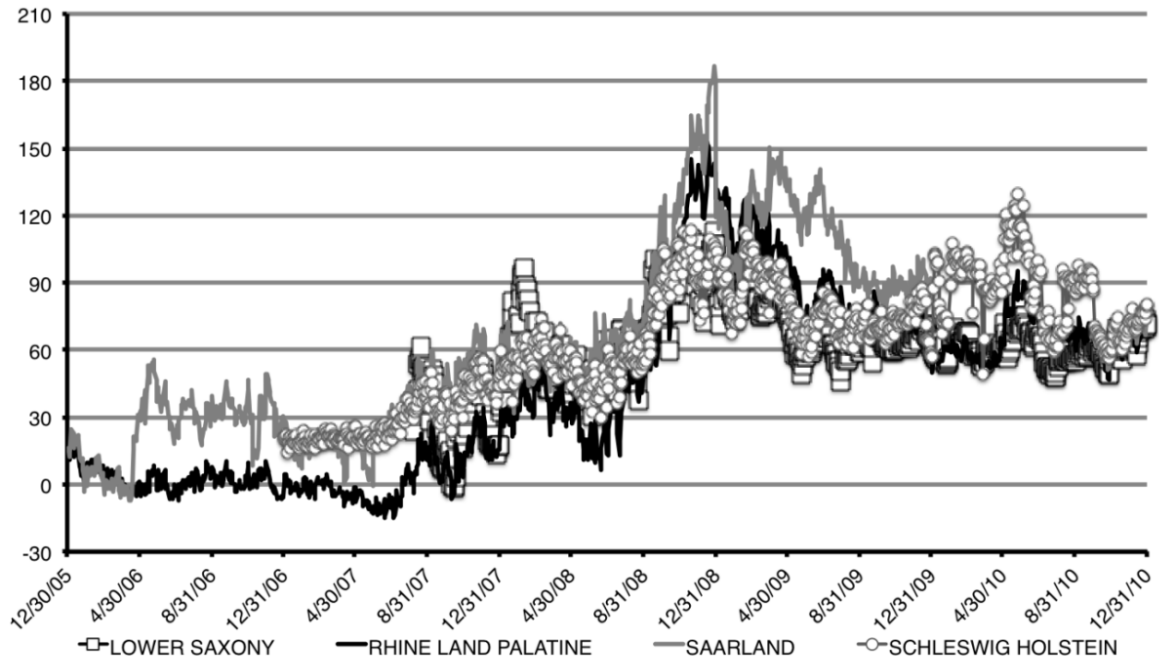
Benchmarks - Eastern German and City States



Mean daily yield spreads of German state bonds over government benchmarks: Eastern German state bonds (upper figure) and bonds issued by city states including jointly issued bonds (“jumbo”; lower figure)

Source: Datastream, own calculations

A.3 Spreads of German State Bonds over Government Benchmarks - Non-City States



Mean daily yield spreads of German state bonds over government benchmarks: non-city state bonds (upper and lower figure)

Source: Datastream, own calculations

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