Collective Action Clauses for the Eurozone*

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Abstract. One of the primary policy initiatives instituted in response to the Eurozone sovereign debt crisis is a requirement that all Eurozone sovereign bonds issued after January 1 2013 include provisions referred to as Collective Action Clauses or CACs. These CACs allow for a super-majority of creditors to impose restructuring terms on minority holdouts. This article assesses the likely effect of this proposal on the borrowing costs of sovereign debtors. Contrary to much of the literature, we find that the presence of CACs leads to a lower cost of capital, especially for below-investment grade bonds.

1. Introduction

In the wake of Greece's first bailout in mid-2010, and with problems in Ireland, Spain, and Portugal looming on the horizon, politicians in the richer Eurozone nations came under increasing pressure from an angry public to make policy changes that would mitigate the need for future bailouts. One of the primary policy reforms, announced in a statement by the Eurogroup on November 28 2010, was to require all Eurozone sovereign bonds issued after January 1 2013 to include Collective Action Clauses or CACs (Hall, Peel, and Chaffin, 2010). These clauses allow for a super-majority of creditors to impose restructuring terms on minority holdout creditors. Although the goal of this mandate is to reduce the costs of restructuring financially troubled sovereigns, there is considerable debate as to whether the savings of ex post restructuring costs will be overwhelmed

by an increase in ex ante borrowing costs (Eichengreen, 2003; Portes, 2004). On the positive side, CACs facilitate the coordination of dispersed investors and thereby reduce the effectiveness of holdouts, which makes restructurings easier for sovereign debtors. On the negative side, if restructurings are made easier, debtor sovereigns might be encouraged to engage in excessive borrowing, and behave more irresponsibly after the debt has been issued (Ghosal and Thampanishvong, 2010; Pitchford and Wright, 2010). Overall, the impact of CACs on the pricing of sovereign debt is ambiguous.

The existing empirical evidence regarding the effect of CACs on the yields to sovereign debt is also ambiguous. Part of this ambiguity is due to the data limitation that prior researchers were forced to labor under. In particular, prior researchers faced two dilemmas.

First, much of the existing research is based on data prior to 2003—a period in which a significant portion of the market for sovereign bonds did not contain CACs; specifically bonds issued under New York law. Researchers attempted to correct for this deficiency in the data by comparing yields on bonds issued under New York law (without CACs) with those issued under English law (which almost universally contained CACs). However, this comparison is inappropriate because the standard New York and English law bonds at the time differed in many ways other than the inclusion of CACs.

Second, many of the prior studies used the governing law under which a bond was issued as a proxy for whether the bond contained a CAC provision. However, as demonstrated later, CAC provisions vary considerably, even within a particular governing jurisdiction and a dichotomous indicator (dummy variable) cannot adequately capture the effects of these differences.

This article makes two contributions to the empirical literature on sovereign debt. First, we provide the first detailed analysis of the variations in CAC terms for bonds issued under London and New York laws during the period 1990–2010. Contrary to the assumptions made in prior work, we demonstrate that there is wide variation in CAC provisions, even within these two jurisdictions.

Second, we find that, whether written under either New York or English law, the presence of CACs reduces the when-issued spreads of sovereign debt, and that this reduction is greater the weaker the financial condition of the issuing country. This result is contrary to prior research that finds either no pricing effect from including CACs or finds that including CACs increases the cost of capital for weaker nations and decreases the cost of capital for stronger ones. Further, our results hold not just for the difference between bonds containing provisions requiring unanimous votes to change key bond terms versus those requiring super-majority votes (the question

addressed by prior research), but also for the other variations in CAC terms that make them more or less amenable to restructurings.

The remainder of this article is organized as follows. Section 2 reviews the classic holdout problem associated with sovereign debt. Section 3 describes the prior literature. Sections 4 and 5 discuss our database and provide summary statistics. Section 6 describes the various forms of CACs and sets out our predictions as to their likely effects on a sovereign's cost of capital. Section 7 reports our main empirical results. Section 8 supplements these results with a discussion of recent sovereign restructurings and notes the extent that the restructured debt relies on CACs. Section 9 concludes.

2. Background: The Holdout Problem with Sovereign Debt

The term CAC refers to a range of contract terms, each of which operates to ameliorate the problem of holdout creditors (Buchheit, 1998a, 1998b, 1998c; Gelpern, 2003; Drage and Hovaguimian, 2004). To understand the relevance of the holdout problem in the sovereign debt context, it is instructive to keep in mind three things. First, there is no bankruptcy regime for sovereigns. Thus, there is no bankruptcy-type process whereby a judge supervises a restructuring and, under certain conditions, can impose a restructuring plan on all holdouts (Sachs, 2003).[1] Second, restructuring a sovereign's debt will necessarily involve a third party, be it a member of the "Official Sector" (the Eurogroup, the ECB, the IMF, the U.S. Treasury, etc.) or countries that would be most affected by a potential default, which, incidentally, may not even be a creditor of the debtor nation. An implication of this second factor is that sovereign debt contracts will be written so as to anticipate and facilitate a subsequent restructuring by a third party, which might explain why the Eurozone has mandated the inclusion of CACs in all newly issued bonds.

Finally, prior to 2003, the standard practice in sovereign bonds written under New York law had long been for bondholder rights to be individual rather than collective (Gelpern and Gulati, 2006). Consequently, any modification of the debt contract such as reducing or delaying the payment obligation must be negotiated with each bondholder individually. Thus, even if a majority of bondholders who had originally lent to the sovereign as part of a single bond issue agreed that it would be beneficial to grant the debtor some relief, an individual bondholder could refuse to do so and hold out for her promised amount, and thus frustrating the attempted reorganization.

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[1] A procedure similar to the so-called cram down provisions of Chapter 11 of the U.S. Bankruptcy Code.

In a world with a small number of bondholders, all of whom know each other and have repeated interactions, individual negotiations would not pose a serious problem. However, as the number of bondholders increases, and they become more autonomous and dispersed, the holdout problem can become severe. The problem is exacerbated by investors who specialize in taking a position in an issue for the sole purpose of holding out and demanding a disproportionate payment in exchange for their bonds.[2] Essentially, to renegotiate the terms of an entire outstanding bond issue, a sovereign must obtain unanimous and simultaneous agreement from all of the outstanding bondholders. As long as there is the possibility of holdouts, all bondholders have an incentive to refuse to accept a payoff for anything less than the original obligation, which would frustrate any restructuring attempt.[3]

CACs ameliorate the holdout problem in a variety of ways. Most important are those that permit the modification of payment terms for the entire issue if a pre-specified fraction of the outstanding bondholders (in value) agree to the restructuring plan, making it harder for particular subsets of creditors to institute litigation that might disrupt the reorganization process, or forcing any creditor recovering a disproportionate payment to share it proportionally with the others. Essentially, CACs obviate the need for individual bargaining and permit renegotiations via the collective actions on the part of a subset of the outstanding bondholders.

The most frequently used CAC applies to the modification of payment terms. These "modification CACs" come in a variety of forms depending on the percentage of votes needed to change the bond's payment terms. Although 75% is the typical requirement today, there are modification CACs that require a favorable vote by as many as 85% and as few as 18.75% of the outstanding bondholders.[4] The CACs mandated by the Eurozone require a minimum of 66.67% of the vote to change payment terms.

In addition to setting minimum voting requirements, there are other important features of CACs that have the potential to affect the holdout problem. Some modification CACs allow for the vote to occur in writing whereas others require a bondholder meeting. CACs also vary in terms of restrictions on who can vote on a restructuring plan. Some bonds allow the issuer carte blanche in voting, whereas others restrict the issuer's ability to vote the bonds it holds or controls.

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[2] These specialist holdouts are referred to by a number of names, including "vulture creditors" or, more euphemistically, "distressed debt investors".

[3] Of course, the time value of money and legal fees are deterrents to holdouts.

[4] As we explain later, the 18.75% vote typically is applied only if an initial quorum requirement is not satisfied.

Other CACs seek to ameliorate the holdout problem by means other than voting requirements. These CACs apply to matters such as the acceleration of payments and the criteria as to who has standing to sue a financially impaired sovereign.

The incentives of Official Sector institutions to encourage a shift to CACs are clear. The presence of a CAC reduces the costs of restructuring a distressed sovereign debtor. By implication, that reduces the amount of Official Sector support that is needed. To avoid the negative externalities of a complete or partial default, the Official Sector often feels compelled to provide complete bailouts (Eichengreen and Ruhl, 2001). But the taxpayers of the countries providing the funds are inevitably annoyed at having to subsidize either sovereigns who over-borrow or financiers who over-lend. CACs provide a way to diminish the wrath of the taxpayers somewhat in that they impose some of the costs of the bailout on private creditors.

Given that CACs are a way of shifting some of the costs of financial distress on to private creditors, the question is whether including CACs will necessarily increase the cost of borrowing in the private markets. Indeed, some commentators in the context of the current Eurozone crisis have blamed the announcement of the CAC initiative in late 2010 for the precipitous rise in yields for the weaker Eurozone nations that took place around the same time (Alphandery, 2011; De Grauwe, 2011). But this conclusion is not obvious because the increased likelihood of haircuts for private bondholders (in addition to any increased propensity on the part of the debtor to ask for a restructuring) has to be balanced by the savings that result from a lower cost of restructuring (lower cost because CACs reduce the costs of dealing with holdout creditors).

The current Eurozone proposal to include CACs in all sovereign debt issues by Eurozone members is reminiscent of the U.S. Treasury's initiative on CACs from roughly a decade ago (2002–03). The result of this initiative was the widespread shift in New York law bonds, staring in early 2003, from requiring unanimous consent from bondholders for any alteration of payment terms to the use of a 75% vote requirement to alter payment terms (Taylor, 2007; Bradley et al., 2010). Prior to this initiative, only bonds governed by English law, for the most part, contained 75% modification CAC provisions; virtually no bonds governed by New York law contained such CACs prior to 2003 (Liu, 2002; Eichengreen, 2003). Figure 1 shows the shift in the use of CACs written under New York law that occurred starting in 2003.

Figure 2 reports the dollar value of the issues. Note that although there were issues prior to 1993, the dollar amounts are too small to be seen in the graph. However, the patterns are roughly the same in the two graphs: 2003
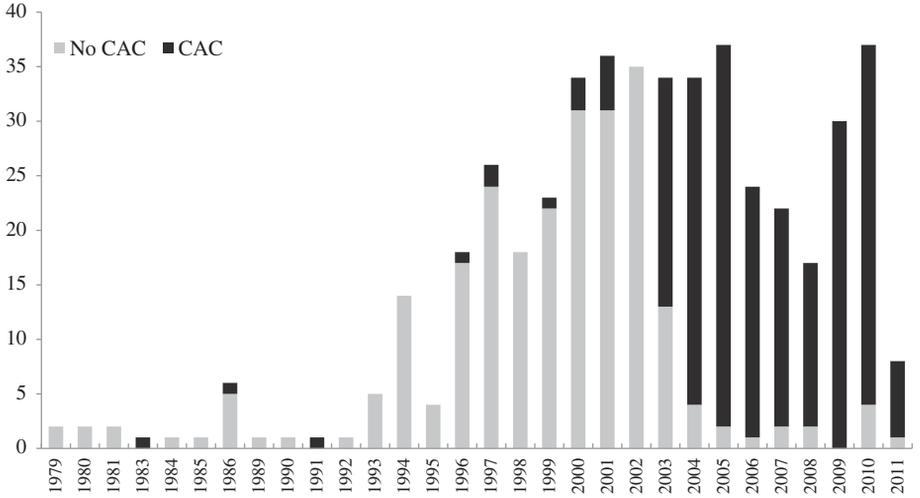
Figure 1. Total number of bonds issued under New York law with and without CACs.
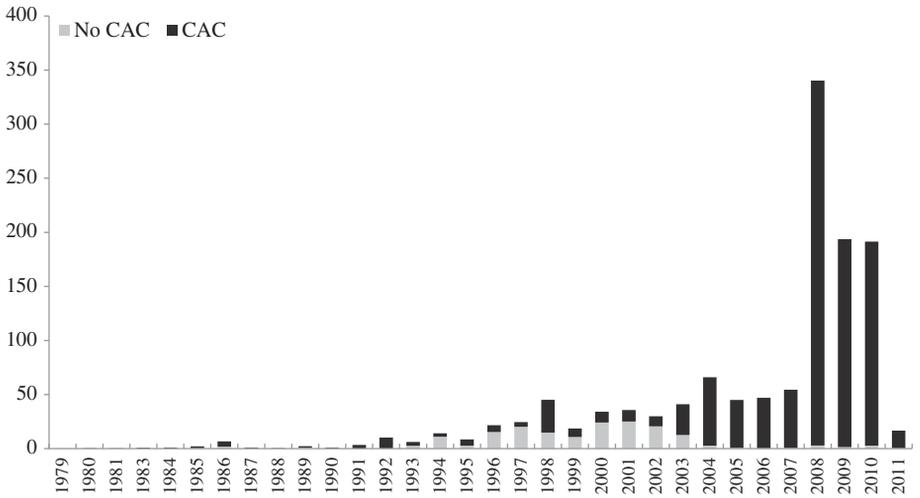
Figure 2. Total value of bonds issued under New York law with and without CACs (millions of current U.S. Dollars).

marks the beginning of the tsunami of CACs whether in terms of the number of issuances or dollar amount.

When sovereigns began adopting CACs in 2003 (or modifying old CACs), they fashioned the types of clauses they (presumably) thought best suited their needs. The result was more variation in the types of CACs in the market than had existed before (Gelpern and Gulati, 2009). The dominant

model that emerged from these proposed reforms requires a 75% voter approval, in dollar amount. The Euro CAC initiative is designed to shift the costs of a restructuring yet again, and in the direction of moving further away from individual rights (Clifford Chance, 2012). Two aspects of the Euro CAC model are key. First, it reduces the vote requirement for altering payment terms from the existing market standard of 75% to 66.67% for an individual bond. Second, the Euro CACs add a new feature that was part of the G-10 recommendations in 2002, but was not adopted by more than a handful of issuers under New York law. This new feature enables aggregated voting whereby modification of payment terms in all of the sovereign's bonds occurs simultaneously so long as an overall vote of 75% across the different series of bonds is achieved and a minimum vote of 66.67% is reached in each individual bond.[5]

3. Prior Literature

The earliest CAC pricing studies were based on comparisons of the yields on English law bonds and New York law bonds (Petas and Rahman, 1999; Tsatsaronis, 1999). These studies assumed that all bonds within a given legal jurisdiction were identical, and that the differences in bond terms between legal jurisdictions (in particular, New York and England) involved the difference in the vote required to alter the payment terms on these bonds. The basic findings reported in these studies are similar. The studies failed to find significant price differences among bonds issued under different governing laws. The conclusion was that CACs had no meaningful impact on the pricing of sovereign debt.

Subsequent studies using better data and more sophisticated empirical techniques still found little in the way of any pricing effects of CACs (Becker, Richards, Thaicharoen, 2003; Weinschelbaum and Wynne, 2005). This was not the general finding throughout the literature, however. Perhaps, the best known study that came to contradictory conclusions was by Eichengreen and Mody (2004), who found that for riskier issuers, the cost of borrowing increased with the use of CACs, but for financially sound issuers, CACs reduced the cost of borrowing. These authors argued that

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[5] Based on conversations with market participants, our understanding is that the change in voting threshold has been of particular concern in the weaker and smaller nations in the Eurozone. That is, nations like Greece, Portugal, Cyprus, Slovenia, and Slovakia will probably have to issue most of their new debt in foreign law bonds. The strong issuers, such as Germany are able to issue under local law and CACs are unlikely to make much of a difference for these countries.

the increased flexibility that came with the English-style modification pro-
visions was most valuable for those nations least in need of demonstrating
credibility (financially sound nations). For if these credible nations should
need to be restructured in the future, bondholders would want to make the
process as easy as possible. In contrast, for the less credible nations, a unan-
imity (highly inflexible) voting rule was needed to convince creditors that
these nations were committed to repaying their debts.[6] Importantly, the
authors in this second group of studies did not all assume that New York
law bonds were identical in terms of lacking CACs and that English law
bonds were identical in their use of CACs. In particular, Gugiatti and
Richards (2004) found that there had in fact been a subset of bonds issued
by relatively small and obscure issuers under New York law that had been
using CACs for a number of years already. Incorporating corrections for this
small subset of exceptional bonds into their analyses did not, however,
change the any of their basic results.

The most recent paper dealing with the pricing of CACs is a Banca d'Italia
working paper by Bardozzetti and Dottori (2013), hereafter B&D. This
manuscript differs from much of the prior research in two significant
ways: the paper does not use governing law as a proxy for the absence or
presence of a modification CAC. Rather it uses Bloomberg's coding of the
absence or presence of a modification CAC; and it uses secondary market, as
opposed to primary market, data. B&D find, unlike the prior research, a U-
shaped pricing effect. In other words, CACs have little impact on the cost of
capital for the highest rated issuers and the lowest rated issuers, but reduce
the cost of capital for those in the middle range.

Our methodology differs in three significant ways from that employed by
B&D. First, although the B&D study improves upon prior work in that it
does not use governing law as a proxy for the type of contract terms being
used, it still only looks at the effect of a single contract term, the modifica-
tion CAC, and ignores the variation among the different types of modifica-
tion CACs. Second, based on our findings, the type of 0–1 coding of the
CAC variable that B&D use is potentially problematic in the post-2003 era
because almost all bonds issued under foreign laws during that period con-
tained CACs and it was only the bonds under local laws that lacked CACs.
This suggests that what B&D might have identified is a foreign-law versus a

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[6] The Eichengreen and Mody results are broadly consistent with the observation that
creditors seem to demand tougher and tighter contract provisions from weaker issuers
(Mody, 2004; Bradley and Roberts, 2004).

local-law pricing effect, rather than a CAC effect.[7] We correct for this problem by examining the effects of different types of CACs within individual legal regimes. Third, B&D use secondary market data. In contrast, following the majority of the prior literature, we use primary market data.

To elaborate on this last point, in a host of applications, secondary market data, in theory, has some advantages over primary market data. If markets are efficient, the prices of actively traded securities provide an unbiased estimate of a security's intrinsic value. But the sovereign debt market is relatively illiquid; rarely do these bonds trade in the secondary market. Reflecting this illiquidity, B&D are forced to use the average of bid and ask rates instead of traded prices. Thus, the question to be asked is whether the average of the bid/ask rates in the secondary market is a better indicator of the price of covenants than the when-issued rate. More directly, which is a better measure of a sovereign's cost of capital: the when-issued rate (established through negotiations with informed agents) or the average of the bid and ask rates in the aftermarket? It is not clear that the latter is the better measure. Indeed, we argue that the when-issued rate is the appropriate measure of a sovereign's cost of capital.

The bid price reflects the highest price that a dealer in the market would be willing to sell the security in question and the ask price is the lowest price that a dealer would be willing to buy the security, and in most instances they are not the same individual (financial institution). Therefore, the bid/ask rates may reflect the opinion of only one or two dealers—indeed, the most optimistic and the most pessimistic dealers in the market. Moreover, the bid/ask rates are for a pre-specified amount of a security that could be purchased at the ask price or sold at the bid price by a potential investor. In contrast, the when-issued rate reflects the price at which the entire issue is sold to the public. Indeed, it is quite plausible that the due diligence of informed buyers (institutions) at the time of issuance reflects the most informed opinion as to the value of the covenants (including CACs) contained in the security being sold. Additionally, the paucity of data (even for bid/ask rates) forces B&D to confine their analysis to the 5-year period 2007–11—the period for which these data are available. As shown in Figure 1, almost all bonds written under New York Law contained CACs after 2003, which reduces the ability of their analysis to say anything about the significance of the emergence of CACs.

Even if researchers were able to observe actual traded prices in the secondary market, these rates would not be measures of a sovereign's cost of

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[7] The effect they find is similar to that found in Choi, Gulati, Posner (2013) with respect to Greek local law bonds (lacking CACs) versus Greek English law bonds (containing CACs).

capital. A sovereign's cost of capital is given by the rate negotiated at the time of issuance. Only then can we observe the ex ante pricing of the covenants contained in a particular issue. Once an issue is "sold to the public," prices in the secondary market are irrelevant to the sovereign's cost of capital, unless of course it expects to issue additional debt in the near future. To see this more clearly, consider the moral hazard problem associated with sovereign debt. At the time of issuance, market participants would evaluate the extent of the moral hazard problem given the financial condition of the issuer and the security's covenants. Now, assume that after the security has been issued, the sovereign begins to act opportunistically. When market participants become aware of the sovereign's malfeasance, the price of the security will fall (rates will rise); but this fall in price has absolutely no effect on the sovereign's cost of capital, which was established at the time the security was issued in the primary market. Put differently, the pricing of sovereign debt in the secondary market reflects the ex post behavior of the sovereign, which again, has no effect on the sovereign's ex ante cost of capital. Finally, the vast majority of sovereign debt is sold at par, which means that the coupon is probably a good estimate of a sovereign's cost of capital.[8]

We are aware of only one paper that uses both primary and secondary market data (Becker, Richards, Thaicharoen, 2003). After extolling the virtues of secondary market data they, like B&D, calculate the average of the bid/ask rates in the secondary market and interpret these rates as the sovereign's cost of capital. Not surprisingly, using the average of the bid/ask rates, Becker *et al*. find results consistent with those of B&D—overall, CACs do not appear to be priced by the market. However, when they replicate their analysis using primary (when-issued) market data, they get results similar to ours: CACs are associated with lower when-issue rates, and only for low-rated bonds.

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[8] Discussions with practitioners suggest that, because of complications arising from tax treatments, sovereign bonds of the type that we examine (foreign-law governed) are almost always issued at par. That said, researchers have found instances where sovereigns have tried to manipulate the coupon rates on the face of their bonds to help satisfy external benchmarks (e.g., those imposed by the IMF or the Maastricht Treaty) (Dias, Richmond, Wright, 2011). These manipulations can occur in a variety of ways, including adjusting the fees paid to financial institutions, using implicit guarantees from third parties, and issuing the bonds at a discount. While our understanding is that these manipulations are rare in the context of the foreign-law bonds, our analysis is vulnerable to the criticism that we have not fully corrected for them.

4. Database

Our empirical analyses are based on a dataset taken from the sales documents of sovereign debt issuances, which are available from the Thomson One Banker and Perfect Information databases and cover the period January 1 1990, through December 31 2010. We exclude data beyond 2010 because the data from 2011 and 2012 are likely to have been heavily influenced by the Eurozone sovereign debt crisis. In particular, we are responding to a concern that the overall shift in market sentiment that occurred during these two crisis years might be driving our results. There is a general notion that during this time period, debt issued by emerging sovereigns was underpriced, whereas debt issued by developed sovereigns was overpriced.

Because the actual contracts are usually not available, we rely on the sales documents (prospectuses, prospectus supplements, and offering circulars). These documents describe the key contract terms of the issue. There are two reasons to expect that the sales documents accurately represent the actual contract terms. First, market participants themselves use these sales documents as their primary source of information regarding the contract terms of each issue. Second, issuers and underwriters face the risk of liability for inaccurate disclosures.

The Thomson One Banker and Perfect Information databases are two of the most extensive collections of offering circulars and prospectuses for sovereign debt issues. However, they are not an exhaustive set. In particular, we suspect that there is a bias toward including bonds that are likely to be of interest to cross-border investors. One indication of this is the fact that the two databases contain relatively few bonds governed by local laws.

The two databases contain a small number of documents pertaining to sovereign issuances governed by laws other than those of New York and England, particularly Germany, Switzerland, and France. We excluded these data for two reasons. First, there are very few issuances for most of these jurisdictions; the exception being Germany. Second, even for Germany, there are almost no issuances for the post-2002 period, which is an important focus of our analysis. Figure 3 presents the overall distributions of the bonds by governing law. The figure shows the dominance of New York law and English law bonds in the post-2002 period, and also the disappearance of the German law bonds in 2001.[9]

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[9] The increase in local-law bonds, we suspect, is largely the result of Eurozone countries beginning to issue to foreign investors under their local laws.
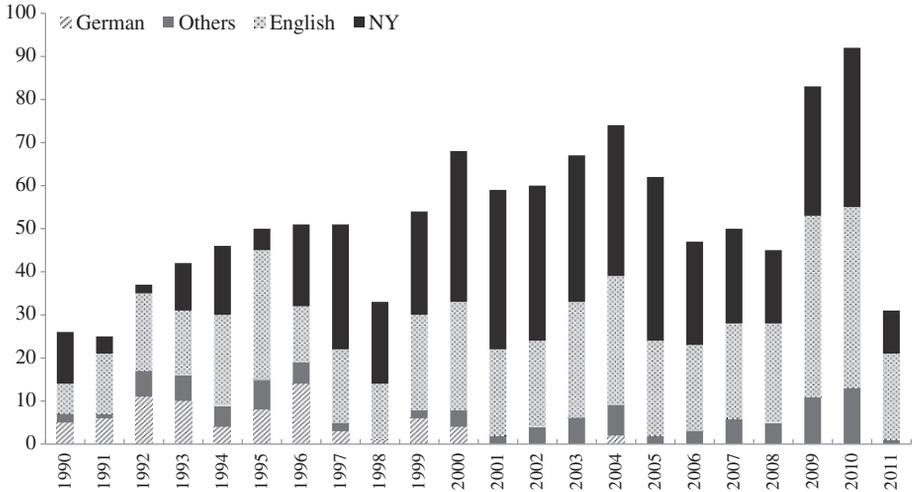
Figure 3. Total number of issues by governing law.

The source databases also contains a small number of bonds governed by the local laws of the issuer. Again, we exclude these observations because there are so few. The issuers for whom we have data over the period 1990–2011 include over 75 nations and range from issuers who access the market regularly, such as Mexico and Brazil, to those nations who rarely access the market, such as Ghana, Vietnam, and Nigeria.

Until about 1990, the sovereign bond market was dominated by a small number of high-rated issuers such as Norway, Sweden, and Japan. In the post-1990 period, the market expanded, with more variation in the quality of issuers who were able to access the market. Our dataset also includes a small number of bonds for quasi-sovereigns such as the handful of central banks, foreign cities, and states that effected international issuances during the period under study, and for whom information was available from Thomson and Perfect Information. For example, in the 1990s, the Greek Central Bank was the primary conduit through which the Hellenic Republic issued bonds. For purposes of our study, we treat the Central Bank bonds as the equivalent of bonds issued by the Hellenic Republic. For the 1990–2011 period, and particularly for the 2003–11 sub-period, there are but a handful of these bonds.

Table I presents the countries and the number of bonds issued by each in our New York and English bond samples. All of our empirical analyses are based on these data. As discussed earlier, we do not include British data beyond 2010 in our regression models so as to avoid the risk of our results

Table I. 1990–2011 Sample

New York bonds		English bonds	
Issuer	Freq.	Issuer	Freq.
Argentina	18	Abu Dhabi	2
Aruba	2	Albania	2
Australia	1	Argentina	16
Austria	2	Austria	18
Bahamas	2	Bahrain	2
Belize	5	Barbados	7
Bosnia	2	Belarus	2
Brazil	36	Belgium	18
Bulgaria	5	Brazil	2
Chile	10	Croatia	18
China	13	Cuba	3
Colombia	23	Cyprus	11
Congo	1	Czech	10
Costa Rica	8	Denmark	18
Dominican Republic	5	Dubai	6
Ecuador	3	Estonia	1
Egypt	5	Fiji	1
El Salvador	11	Finland	25
Finland	3	Georgia	2
Gabon	1	Ghana	1
Greece	1	Greece	31
Grenada	2	Hungary	5
Guatemala	4	Iceland	18
Hungary	5	Iran	2
Iceland	1	Ireland	9
Indonesia	7	Japan	12
Iraq	1	Jordan	1
Ireland	1	Kazakhstan	2
Israel	8	Latvia	7
Italy	32	Lebanon	7
Jamaica	16	Lithuania	20
Japan	4	Macedonia	2
Kazakhstan	1	Malaysia	1
Korea	11	Mauritius	1
Lebanon	14	Mexico	1
Malaysia	7	Moldova	2
Mexico	48	Montenegro	2
Micronesia	1	Morocco	3
Panama	20	New Zealand	7
Peru	9	Nigeria	1
Philippines	27	Norway	11
Poland	8	Oman	1
Portugal	7	Pakistan	7
Qatar	7	Philippines	12
South Africa	14	Poland	19

(continued)

Table I. (Continued)

New York bonds		English bonds	
Issuer	Freq.	Issuer	Freq.
Spain	1	Portugal	19
Sri Lanka	1	Romania	6
Sweden	1	Russia	15
Thailand	2	Senegal	1
Trinidad and Tobago	5	Serbia	2
Tunisie	3	Seychelles	3
Turkey	24	Slovakia	8
Uruguay	25	Slovenia	3
Venezuela	24	South Africa	2
Vietnam	1	Spain	7
		Sri Lanka	1
		Sweden	37
		Thailand	2
		Trinidad and Tobago	2
		Tunisie	4
		Turkey	15
		Ukraine	8
		Venezuela	1
Total	499	Total	485

being driven by the Eurozone sovereign debt crisis that, by late 2010, had hit a large portion of the European market.

5. Variables and Summary Statistics

5.1 DEPENDENT VARIABLE

Our dependent variable is the spread between the offering yield and the corresponding U.S. Treasury rate with the same maturity. Employing the spread relative to U.S. bonds, instead of simple yields, accounts, to some extent, for the state of the economy or stage in the business cycle. We express the spreads as percentages, that is, 5% is coded as 5.0. We exclude the relatively small number of floating rate bonds that were issued during the sample period.

5.2 PRIMARY INDEPENDENT VARIABLES

We examine the effects of six factors that are designed to reduce the holdout problem associated with sovereign debt issues. Our primary explanatory variable is the minimum percentage of bondholders required to change the

payment terms of an outstanding bond issue. Throughout the article, we designate this variable as *Vote*. Thus, for bonds that do not contain a modification CAC, *Vote* is coded as 1.0. **Investment** is set equal to 1 if the bond rating is of investment grade and 0 if it is below. The variable *Meet* is set equal to 1 if the vote must take place at an actual meeting of the bondholders and 0 otherwise.[10] We also construct a series of indicator variables depending on whether the bond (1) includes a right to accelerated payments, which can be an individual right, or a collective right if 10% or 25% of the holders have to agree—an accelerated collective action clause (*ACC*); (2) includes a provision restricting the issuer from voting bonds it "owns or controls"—a disenfranchisement clause (*Disen*); and (3) has a either a trustee or a bondholder committee that can act on behalf of all the bondholders of a certain issue—a collective representation clause (CRC).

Tables II–VII report the summary statistics of our dependent and independent variables. Table II–IV report the data from 1990 to 2011 and Table V–VII report the data from the shorter period 2003 to 2011.

The data in Table II–IV reveal that the mean *Spread* for the New York law bonds is higher than the *Spread* for the English law bonds (2.93% vs. 1.65%). This is consistent with the greater percentage of investment grade bonds in the latter subset (77% vs. 37%). The minimum percentage of bonds required to change payment terms (*Vote*) is higher for the New York sample, reflecting the number of unanimity CACs in the earlier (pre-2003) period. The simple correlation between *Vote* and *Spread* is insignificant for both samples over this period. Finally, as a data check, the correlations between **Investment** and **Sprea**d are negatively related in both samples.

Similar to the full sample, the data in Table V–VII show that the mean *Spread* for the New York bonds is higher than the English bonds in the subset of observations over the 2003–11 period (2.84% vs. 1.81%), again reflecting the greater percentage of investment grade bonds in the latter sample (80% vs. 38%). The mean percentage of *Vote* is 75% in the New

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[10] Note that this variable is only relevant to the English law issues. Most bonds today allow the sovereign the option of either using a written resolution process or calling a physical meeting of the bondholders. This creates a complication in assigning a value to the *Vote* variable because while the vote required at a meeting is typically lower than that required from a written resolution, meetings present the risk of exacerbating creditor holdout problems (and sovereigns generally prefer to avoid creditor meetings). In light of the foregoing, we use the following strategy for estimating the *Vote* variable. We first look to whether the bond allows for modification via a written resolution. If so, we use the minimum vote required via the written resolution as our measure for *Vote*. Only if voting via a written resolution is not permitted, do we go to the second step of looking at the requirements for quorums at bondholder meetings.

Table II. Summary statistics 1990–2011

	Panel 1: NY bonds			Panel 2: English bonds		
Variables	Observations	Mean/Percent	SD	Observations	Mean/Percent	SD
Spread	419.00	2.93	2.05	373.00	1.65	2.30
Vote	468.00	0.87	0.14	409.00	0.32	0.23
Investment	476.00	0.37	0.48	460.00	0.77	0.42
Meeting	497.00	0.04	0.19	481.00	0.65	0.48
Disenfranchisement	393.00	0.40	0.49	332.00	0.28	0.45
Acceleration	420.00	0.70	0.46	407.00	0.51	0.50
Trustee/Committee	395.00	0.10	0.31	332.00	0.41	0.49

Table III. Correlation matrix: New York law bonds 1990–2011

	Spread	Vote	Investment	Meeting	Disenfranchisement	Acceleration	Trustee
Spread	1.00						
Vote	0.02	1.00					
Investment	−0.51	0.01	1.00				
Meeting	0.04	−0.15	−0.14	1.00			
Disenfranchisement	−0.09	−0.71	0.06	−0.17	1.00		
Acceleration	0.13	−0.33	−0.31	−0.15	0.37	1.00	
Trustee/committee	−0.02	−0.16	−0.11	−0.06	0.20	0.16	1.00

Table IV. Correlation matrix: English Law bonds 1990–2011

	Spread	Vote	Investment	Meeting	Disenfranchisement	Acceleration	Trustee
Spread	1.00						
Vote	0.03	1.00					
Investment	−0.44	0.08	1.00				
Meeting	0.03	−0.58	−0.04	1.00			
Disenfranchisement	0.07	0.65	0.19	−0.53	1.00		
Acceleration	0.16	0.57	−0.11	−0.57	0.58	1.00	
Trustee/Committee	0.09	0.73	−0.07	−0.64	0.72	0.69	1.00

York sample, consistent with Figure 1 which shows that essentially all New York bonds issued after 2002 contained a 75% voting requirement to change contract terms. This is also reflected in the zero correlation between *Vote* and *Spread*, indicating that the former is essentially a constant in this sample. To isolate the effect of **Vote** on **Spread,** we use a set of control variables that proxy for other effects that might impact spreads.

Table V. Summary statistics 2003–2011

Variables	Panel 1: NY bonds			Panel 2: English bonds		
	Observations	Mean/Percent	SD	Observations	Mean/Percent	SD
Spread	225.00	2.84	1.85	194.00	1.81	2.22
Vote	221.00	0.75	0.07	182.00	0.45	0.25
Investment	243.00	0.38	0.49	235.00	0.80	0.40
Meeting	250.00	0.04	0.19	248.00	0.41	0.49
Disenfranchisement	202.00	0.77	0.42	184.00	0.45	0.50
Acceleration	218.00	0.83	0.38	222.00	0.73	0.45
Trustee/Committee	199.00	0.17	0.37	185.00	0.62	0.49

Table VI. Correlation matrix: New York Law Bonds 2003–2011

	Spread	Vote	Investment	Meeting	Disenfranchisement	Acceleration	Trustee
Spread	1.00						
Vote	0.00	1.00					
Investment	−0.45	0.11	1.00				
Meeting	0.05	−0.03	−0.13	1.00			
Disenfranchisement	−0.15	−0.30	0.20	−0.40	1.00		
Acceleration	−0.04	−0.01	−0.17	−0.07	0.09	1.00	
Trustee/Committee	−0.01	−0.07	−0.13	−0.07	0.08	0.04	1.00

Table VII. Correlation matrix: English law bonds 2003–2011

	Spread	Vote	Investment	Meeting	Disenfranchisement	Acceleration	Trustee
Spread	1.00						
Vote	−0.08	1.00					
Investment	−0.29	0.15	1.00				
Meeting	0.08	−0.45	−0.15	1.00			
Disenfranchisement	0.03	0.54	0.26	−0.40	1.00		
Acceleration	−0.01	0.51	0.08	−0.60	0.47	1.00	
Trustee/Committee	0.02	0.68	−0.07	−0.55	0.61	0.54	1.00

5.3 CONTROL VARIABLES

5.3.a. *Credit ratings*

Roughly speaking, sovereign credit ratings provide an estimate of the sovereign's likelihood of default, although governments might exert pressure in the form of veiled threats of regulation and "investigations into practices"

(as evidenced by the recent spat between S&P and the U.S. government) or seek to "compensate" (bribe) the rating agencies to present optimistic prospects of the issuer's future by presenting its financial position in the most favorable light. Of course traders are aware of this possibility and take this into consideration when pricing new issues. Nevertheless, we expect that the ratings are an indication of underlying quality and that higher ratings are associated with a lower cost of capital.

Our ratings are taken from S&P, one of the three primary rating agencies for sovereign debt.[11] We divide the bond ratings into six categories (AAA, AA, A, BBB, BB, and B), which combine ratings of pluses and minuses into these respective six categories.

To determine the extent to which our ratings variable is related to the financial condition of the issuing sovereign, we run an Ordered-Logit Regression in which the dependent variable is the ratings' categories defined above. We arbitrarily assign the value of 1 to our lowest category (B) and a value of 6 to our highest category (AAA). We also entertain the independent variables suggested by the literature (Cantor and Packer, 1996; Afonso, Gomes, and Packer, 2007).

As Table VIII shows, our ratings categories are significantly related to the variables that are typically cited when describing a country's financial condition. For example, a country's bond rating is negatively related to its ratio of debt to GNP, GDP Growth, and Debt Service to Exports ratio.[12] The only counter intuitive relation is the positive relation between ratings and the ratio of domestic credit to GNP. We speculate, however, that this variable is a proxy for developed economies (countries), whose bonds are typically higher rated.

5.3.b. *Number of banks*

Sovereign offerings often differ in terms of the investor groups to whom they are targeted. Some issuances are targeted to small groups of sophisticated investors, whereas others seek to attract a broader bondholder base. The risk of encountering a problem with holdouts is likely to differ as a function of the nature of the investor base. The smaller and more concentrated the

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[11] We used the S&P ratings because they have the most extensive set of ratings of the three major rating agencies (the other two being Moodys and Fitch).

[12] We believe that the negative relation between growth and ratings is due to the following. First, emerging countries (non-investment grade) often have periods of GDP growth that are much larger than the rates for any OECD countries (investment grade). Second, the emerging countries also often have periods of low growth or even negative growth rates. As Barro (2006) shows, non-OECD countries have similar average growth rates to OECD countries but the non-OECD countries have a larger variance.

Table VIII. Ordered-logit model of bond ratings

The dependent variable is the sovereign's debt rating and ranges from 1 (B: the lowest rating) to 6 (AAA: the highest rating category). *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Coefficient	Z statistic
Debt/GNP	−0.05	−10.55***
GDP growth	−44.08	−5.82***
Debt service/exports	−0.04	−5.34***
Standard deviation of export growth	−0.04	−2.14**
Standard deviation of export growth squared	0.00	2.01**
Reserves/imports	0.00	−1.02
Debt rescheduled in previous year	−0.61	−2.10**
Reserves/short-term debt	0.00	−1.37
Short-term debt/total debt	−0.02	−1.71
Reserves/GDP	0.00	−0.12
Domestic credit/GNP	0.01	8.63***
Observations	914	
Pseudo R-squared	0.27	

investor base, the lower the risk of holdout problems. The number of banks involved in the offering provides a proxy for the dispersion of the investor base because each bank is likely targeting a different investor group.

5.3.c. *Size of offering*

Another factor that can influence the pricing of a bond is its liquidity. Other things equal, investors prefer more liquidity. The size of an offering provides a likely measure of the liquidity of the bond.

5.3.d. *Shelf/private offering*

There are two regulatory structures for bonds governed by U.S. law. The larger and more frequent issuers typically use a structure called a "shelf offering". Shelf offerings tend to be done by the most established issuers, who register a whole series of bonds at one time and "place them on the shelf." These issuers then take a portion of the issue "off the shelf" and issue them whenever they believe market conditions to be favorable. The issuers that do not use shelf registrations almost all use private offerings, which are offerings restricted to small subgroups of investors (typically, those qualifying as "sophisticated" under the rules of the U.S. Securities and Exchange Commission). The Shelf/Private Offering variable tends to be correlated with offering size. Hence, we use the former in tests involving

bonds issued under New York law and the latter in tests involving the
English law bonds.

6. The Various Forms of CACs

Having described our sample, we now elaborate on the distinctions among
the various forms of CACs, which, as defined earlier, are our primary inde-
pendent variables, and their frequency of use through time. There is consid-
erable variation in the type of CACs that have been adopted by issuers in the
post-2002 period. A question of relevance to the current Euro CAC initiative
is whether market participants price the various forms of CACs differently.
One would expect that they would since they provide different degrees of
vulnerability to the holdout problem. For example, an 85% vote require-
ment for changes to payment terms versus an 18.75% requirement should be
relevant to investors and be reflected in the required rate of interest. Further,
an 18.75% vote requirement will operate differently depending on whether
the bond in question mandates a creditor meeting. Below, we describe the
various anti-holdout provisions that have been adopted by sovereigns in the
post-2002 era. With respect to each, we also note the relevant reform being
suggested as part of the Euro CAC package. Our expectation for each of
these provisions is that if the provision (or a particular form of it) helps to
ameliorate the holdout creditor problem, its presence should reduce the cost
of capital.

6.1 THE MINIMUM VOTE TO MODIFY PAYMENT TERMS

The minimum vote required to modify payment terms in any given sovereign
bond issue varies considerably. This minimum vote can be as high as 100%
(in the case of the handful of issuers who still require unanimity) and as low
as 18.75% (for those issues containing diminishing quorum requirements).
Figures 4 and 5 illustrate the variation in the minimum vote requirement for
New York law and English law bonds, respectively. Note the dramatic
change in the percentage of votes required for both jurisdictions in 2003.
But also note that, although the New York bonds decreased the percentage
requirement, the English law bonds for the most part increased the percent-
age requirement. The overall market standard is 75%. The Euro CAC
proposal decreases the market standard vote requirement from 75% to
66.67%.[13]

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[13] The vote requirement that we refer to in the text is that which is required with a written
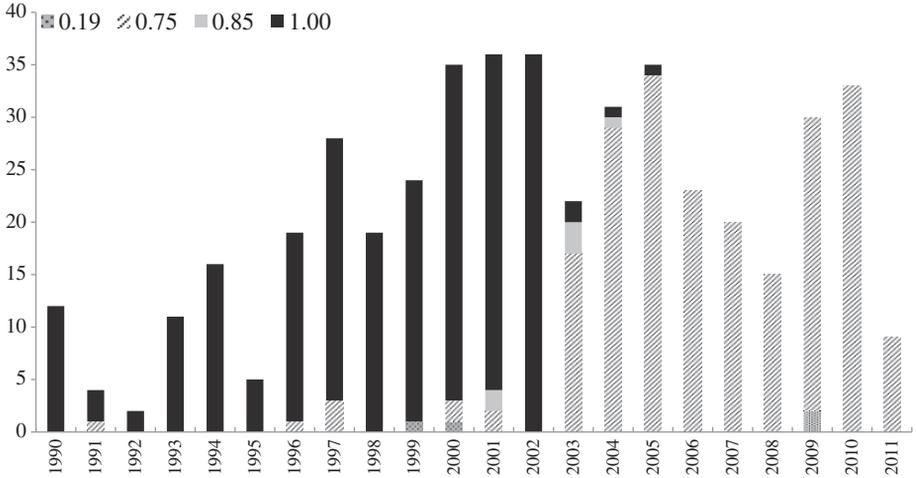resolution. If a physical meeting is held, there is a quorum requirement (66.67% of the

Figure 4. Minimum percentage votes to modify payment terms in New York bonds.
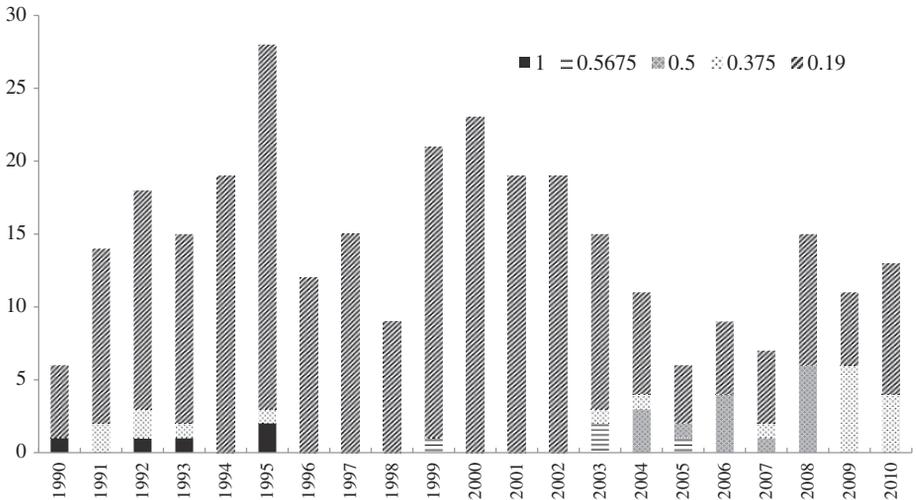

Figure 5. Minimum percentage votes to modify payment terms in English bonds.

An important aspect of our coding reflects the fact that when bonds mandate that there be a meeting for any vote to take place, they tend to contemplate the possibility of at least two meetings (a second meeting is held if the necessary quorum is not met at the first meeting). The question then is

outstanding bonds) and the required vote is 75% of the outstanding bonds, assuming the quorum is met. See http://europa.eu/efc/sub_committee/pdf/cac_-_text_model_cac.pdf.

whether to code the vote required at the first or the second meeting. We use the minimum vote required to obtain a change at the second meeting because our understanding from market participants is that the second meeting is generally the most relevant for a sovereign debtor that has dispersed bond-holders. The recent Greek restructuring in March 2012 is illustrative. Even though this was perhaps the most widely discussed sovereign restructuring in recent history and Greece had effective control through its banks over a large percentage of their own bonds, the necessary quorums could not be achieved in a number of cases.[14]

We expect that, holding other things constant, spreads over the risk-free rate should be positively correlated with the minimum modification vote for a bond (a higher modification vote means a higher likelihood of holdout problems).

6.2 MANDATORY MEETINGS

Prior to 2003, practically all English law bonds required formal meetings to vote on changing the payment terms of outstanding debt issues.[15] Figure 6 illustrates this change in practice. As the figure shows, the fraction of issuers mandating meetings was close to 100% throughout the 1990–2002 period. But then, starting in 2003, a number of issuers dispensed with the mandatory meeting requirement altogether. By 2010, fewer than 50% of the English law issuances contained mandatory meeting requirements. Euro CACs, while allowing for vote modifications to take place at a meeting with quorum requirements and so forth, do not mandate that a meeting take place. We expect that a mandatory meeting is likely to increase holdout problems. Therefore, bonds for which meetings are mandated (as opposed to optional) should have a higher spread.

6.3 DISENFRANCHISEMENT CLAUSES

Given that under a unanimity rule each holder essentially has a veto right, no holder has any reason to care about who the other holders are or how they would vote for a restructuring plan. But, in the post-2002 era, with a super-majority being able to impose its preferences on the other bondholders, the issue of who is entitled to vote becomes of paramount importance. Thus,

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[14] Our thanks to Lee Buchheit, who was counsel for Greece during their restructuring, for conversations on this issue.
[15] Bonds written under New York law almost never include a mandatory meeting requirement.
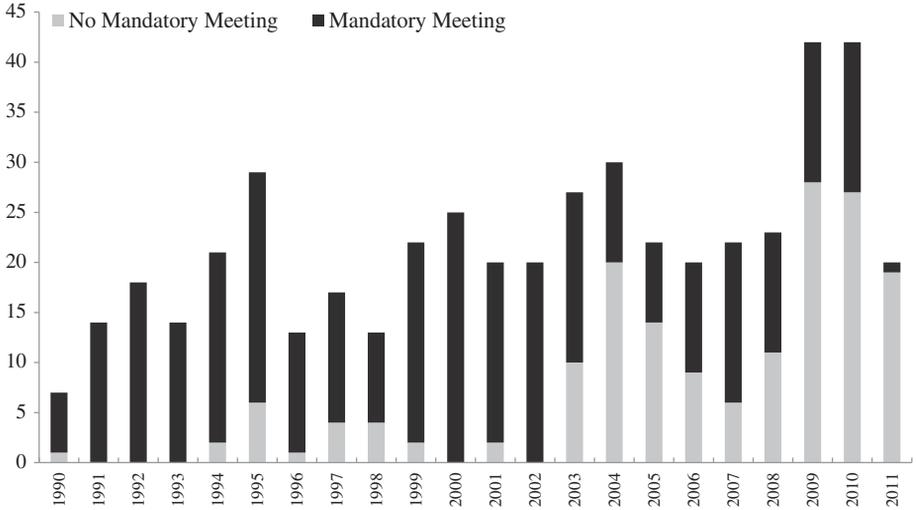
Figure 6. English law bonds requiring mandatory meetings.

an important aspect of any CAC provision is whether it contains a disenfranchisement clause that bars certain bondholders from voting on restructuring plans. It is important to note that unlike the shift away from a unanimity rule, which was almost universal, there is variation in the types of disenfranchisement strategies used. Some issuances have explicit provisions that disenfranchise bonds owned or controlled by the issuers, whereas others allow the issuer's Central Bank to vote, and still others are silent as to who can vote, suggesting that the issuer has the right to vote its own bonds (Drake, 2012). Rational creditors presumably care about the specifics included in disenfranchisement provisions. Figures 7 and 8 report the use of disenfranchisement provisions in New York and English law bonds, respectively.

The data in these figures show that, post-2002, there is considerable variation in the inclusion of disenfranchisement provisions under both sets of laws. A larger fraction of New York law issuers have adopted disenfranchisement clauses than English law issuers, but the basic point is that starting in 2003, an increasing number of issuers perceived a need to include these clauses. As of 2010, over 50% of the bonds written under the two legal regimes contain these clauses. Disenfranchisement provisions are part of the model Euro CACs.

Disenfranchisement provisions do not lend themselves to a clear prediction even under our holdouts-impose-costs model. On the one hand, their presence worsens holdout problems because the sovereign cannot influence
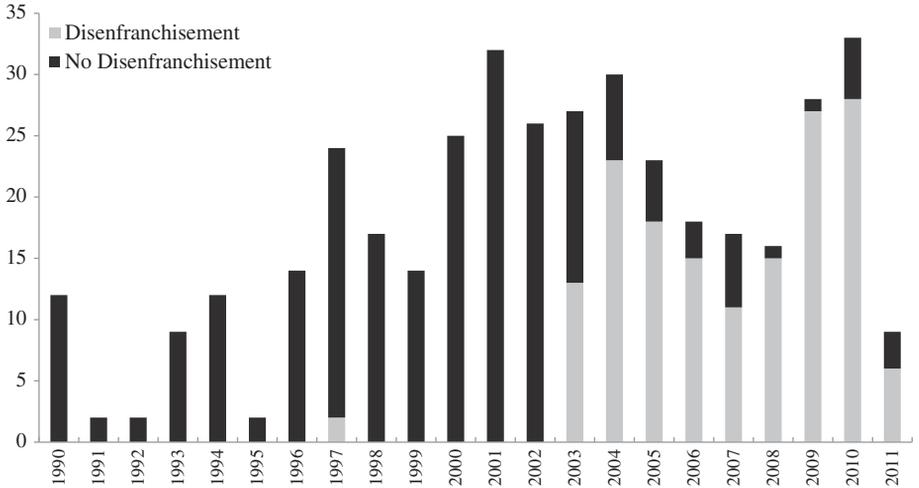
Figure 7. Total number of NY issues, number with disenfranchisement clauses.
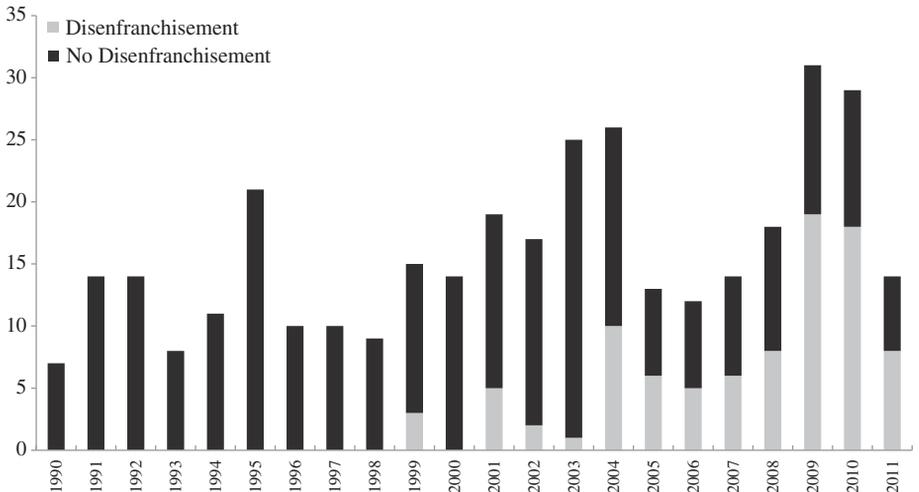

Figure 8. Total number of English issues, number with disenfranchisement.

the vote using bonds it controls, which should increase spreads. On the other hand, their absence means that the sovereign can vote to determine the fate of its own restructuring; a sure invitation for misbehavior, which should also increase spreads.

6.4 AGGREGATION

In the post-2003 period, a small subset of New York issuers began including aggregation provisions in their bond issues. These clauses go beyond the basic 75% modification clause in terms of deterring holdouts. A concern with a distressed debtor having a wide range of bonds issuances outstanding with the 75% vote requirement is that a holdout could buy a 25% interest of an issue and disrupt a restructuring proceeding. Aggregation provisions not only contain a modification vote for each individual bond but also specify provisions that govern the modification of the terms of all bonds outstanding. For example, Argentina's post-2002 bonds include a clause that states that, if there is an overall cross-series vote by 85% of the outstanding bonds approving a modification to payment terms, then it does not matter that an individual bond did not meet the 75% threshold; the bondholders of all issues are all bound so long as each bond issue garners at least 66.67% approval. Only four nations (Argentina, the Dominican Republic, Uruguay, and, most recently, Greece) have included this provision.[16] The Euro CACs contain an aggregation provision with a lower vote requirement than prior users of aggregation under New York law, such as Uruguay and Argentina, had used previously. The cross-series vote requirement for the Euro CACs is 75% (as opposed to 85%), so long as every individual bond garners at least a 66.67% vote in favor of the proposed modifications to payment terms.[17]

Aggregation provisions are a form of super CACs in that they operate across all of the sovereign's bonds. Their presence should reduce spreads. It is unlikely that we will be able to use our quantitative data to say anything about the pricing impact of using aggregation, given the small amount of data. However, we return to this issue when we discuss the parameters of restructured debt.

Thus far, we have discussed only the variations in terms of modification CACs. There were, however, a number of other changes—all of which also relate to the issue of reducing the risks of holdout creditors—which both English and New York law bonds adopted after 2002. The proposals for these changes were generated in the debate over individual and collective rights in the 1995–2003 period. However, the U.S. Treasury and other Official Sector institutions had not, as best we know, put pressure on issuers to adopt any of these supplementary anti-holdout provisions, for example, acceleration, aggregation, and mandatory meetings. These

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[16] The Province of Buenos Aires also shifted to using aggregation provisions.
[17] See http://europa.eu/efc/sub_committee/pdf/cac_-_text_model_cac.pdf.

supplementary anti-holdout provisions were simply part of the recommended set of clauses that that came from a variety of sources (most prominently, the G-10 expert group report released in 2002). As with the disenfranchisement provision discussed earlier, there is variation in terms of the adoption rates of these supplementary CACs, both in New York and English law bonds. As with the 2002 U.S. Treasury initiative, the 2012 Euro CAC initiative gives less attention to these secondary CAC provisions. A supplement to the report describing the model Euro CACs sets out the basic CACs relating to acceleration and bondholder representatives, but leaves it to the individual nations to decide whether to adopt them.[18]

6.5 ACCELERATION

Beyond the shift away from unanimity to a 75% vote that was driven by the 2002 U.S. Treasury initiative, the change that found the most adherents was the move away from individual to collective action with respect to acceleration rights. It had been the case that, upon the occurrence of an "Event of Default" in a sovereign debt contract (e.g., the declaration of a debt moratorium by the issuer) individual creditors could accelerate all the future payments that were owed to them to the current point in time. This right is relevant to the holdout creditor problem because a holdout creditor's ability to interfere with a restructuring diminishes considerably if all that it can do is to sue the debtor for the single unpaid coupon payment. In fact, if the coupon payment is small, the debtor can pay the holdout creditor her coupon payment and stop her efforts to interfere with a restructuring. On the other hand, if the holdout can accelerate all of the promised interest and principal, then she is more likely to sue. Post-2002, many issuers in both England and New York included acceleration provisions requiring a 25% vote before there could be an acceleration, thereby reducing the ability of holdouts to accelerate their individual claims.

As Figures 9 and 10 reveal, some issuers, particularly those who issued under New York law, implemented collective acceleration clauses as early as the mid-1990s. The 2003 shift to modification CACs seems to have spurred a further move toward acceleration provisions. As seen in these figures, there is variation in the adoption rates for the two legal regimes. For New York law bonds, the shift toward acceleration provisions appears to have started much before 2003 and the U.S. Treasury's initiative. In the English law bonds, however, 2003 looks to be the starting point for the shift. By 2010, acceleration provisions were being used by over 50% of the issuers under

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[18] *See* http://europa.eu/efc/sub_committee/pdf/cac_-_supplemental_provisions.pdf.
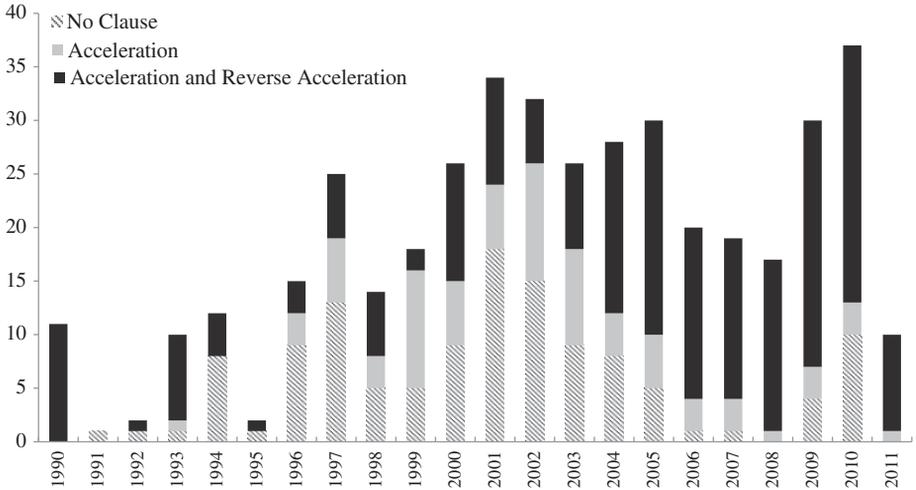
Figure 9. Total number of NY issues, number with acceleration, and reverse acceleration clauses.

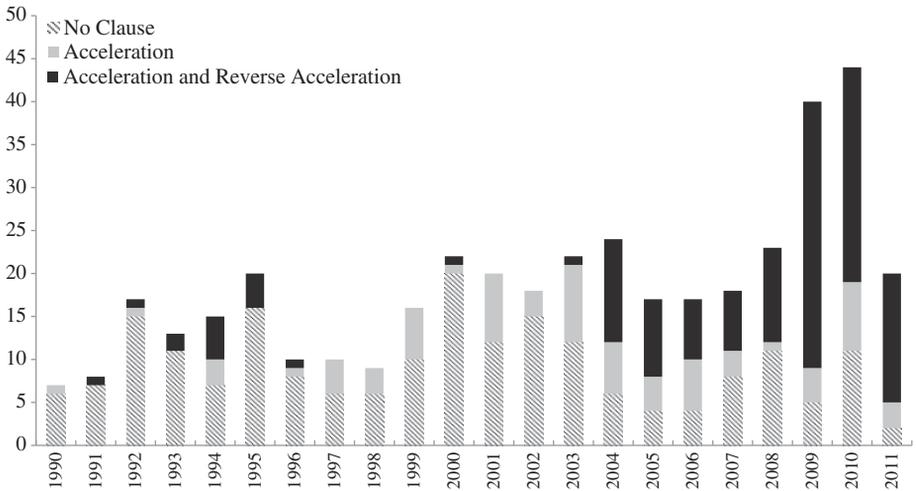*Figure 10*. Total number of English issues, number with acceleration, and reverse acceleration clauses.

both sets of laws. Although not mandating the inclusion of collective acceleration provisions, the explanatory memorandum accompanying the model Euro CACs mentions these clauses and collective reverse acceleration clauses (discussed below) in an approving fashion. We expect that the presence of

collective acceleration provisions (as opposed to individual acceleration provisions) will reduce spreads.

6.6 REVERSE ACCELERATION

A subset of sovereigns have gone further still by including also a reverse acceleration provision that allows for a 50% vote to reverse a 25% acceleration clause in the event that a holdout creditor held a 25% block of the issue. Thus, a reverse acceleration clause frustrates the holdout creditor even if a single entity is able to acquire a 25% block of votes. If the majority of creditors happen to be in the process of negotiating a value-enhancing debt restructuring plan, the last thing they want is for a holdout creditor to manage to get a 25% voting block and interfere with the deal. Hence, for those bonds that contain a reverse acceleration provision, a 50% vote can reverse an acceleration attempt by a 25% block holder.[19]

Figures 9 and 10 also present the frequency of adoptions of reverse acceleration provisions. Not surprisingly, the level of adoption of these clauses, under both English and New York law, is correlated with the adoption levels of the basic 25% acceleration provision (a reverse acceleration provision without an acceleration provision would be pointless). However, it bears reiterating that there is a small subset of issuers who use the acceleration provision, but decided to forego the reversal option. We expect that the presence of reverse acceleration clauses will reduce spreads.

6.7 COLLECTIVE REPRESENTATION CLAUSES

Issuers have also attacked the holdout problem from a different direction by either appointing trustees or putting in place provisions for a bondholder representative committee. The typical sovereign bond lacks a bondholder representative who can make decisions on behalf of the bondholders as a group, including deciding whether to accelerate, when to sue and how to share payments. Instead, sovereign bonds tend to rely on fiscal agents, who attend to administrative matters (payments and such) on behalf of the issuer. The problem of holdout creditors is further ameliorated through the appointment of a trustee who owes duties to the bondholders as a group and

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[19] A small handful of bonds use reverse acceleration provisions with a vote of 66.67% and two bonds use a 75% vote. The 50% vote appears to have become the dominant standard though.

can block actions by subsets of bondholders that propose value-reducing restructurings. Further, and this is a point relevant in the context of recent vulture fund litigation against sovereigns, funds that are transferred to a trustee are less vulnerable to attack by a holdout creditor because they are now under the control of a creditor representative, who owes obligations to all the creditors. By contrast, funds that are under the control of a fiscal agent, awaiting disbursement, are technically controlled by the issuer's representative and are more vulnerable to litigation by holdouts.

A related modification clause that some bonds contain in the post-2002 period is a contractual mechanism to appoint and fund a committee to act on behalf of the creditors as a group. These committees, which typically are appointed only in the event of a payment crisis for the bond, also serve a representative role that can thwart holdout creditors.

Figures 11 and 12 report the adoption of these two types of bondholder representative provisions in New York law and English law bonds, respectively. The figures show that these provisions were adopted by only a minority of issuers under New York law, whereas they enjoyed greater popularity in issues under English law.[20] We expect that the presence of a trustee or bondholder committee provision should reduce the issuing spread.

7. Empirical Analysis

We perform our empirical analysis on the New York law bonds and English law bonds separately, so as not to have to account for the differences in the two legal systems. We also separate New York law bonds from English law bonds in our subsets of high-rated (investment grade) and low-rated (non-investment grade) issuers.

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[20] The foregoing differences in adoption rates are interesting because they may be indicative of differences in the two legal regimes. Bondholder representatives, by being designated representatives, take on a set of legal obligations that the local regime specifies. These obligations (often referred to in terms of a "fiduciary" duty) are not easy to contract around. The patterns in Figures 11 and 12, therefore, may indicate that the legal system in England, for some reason, provides a more conducive legal environment for the use of trustees and bondholder committees. Again though, note that the shift begins around the 2002–03 mark, for both legal regimes. The supplementary memorandum accompanying the model Euro CACs, while not expressing a preference for either the fiscal agency or trustee structure, suggests that creditors' individual rights to sue be constrained in favor of a creditor representative (such as a trustee), should such a representative structure be included in the bond in question.
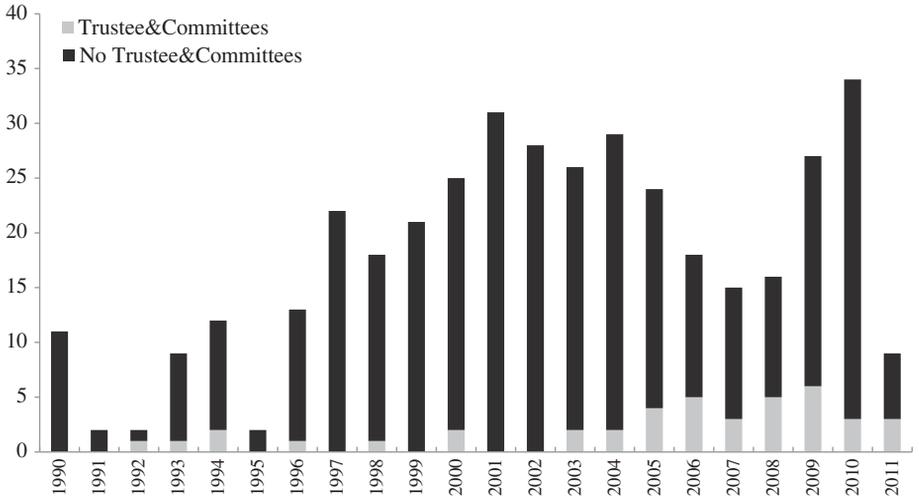
Figure 11. Total number of NY issues, number with trustee and bondholder committees.
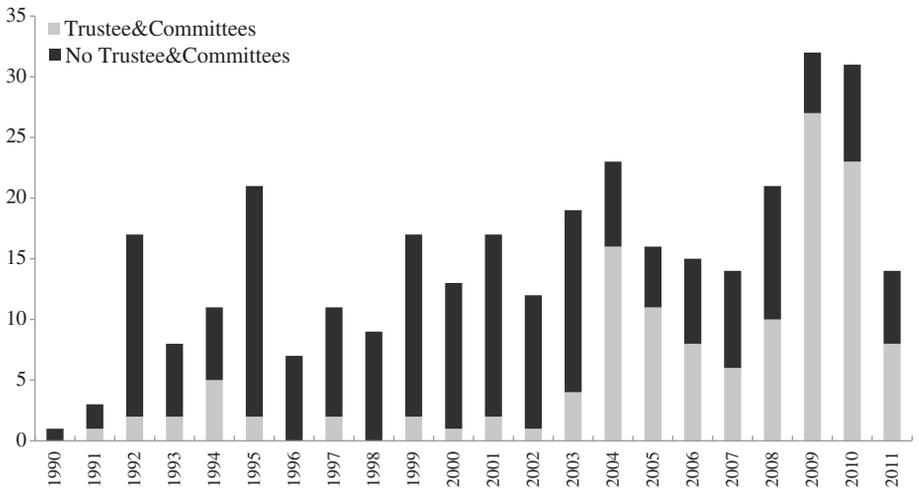
Figure 12. Total number of English issues, number with trustee and bondholder committees.

7.1 MINIMUM MODIFICATION VOTE

Recall that we defined the variable *Vote* as the minimum vote required to alter the payment terms of an outstanding bond issue. Historically, the empirical literature on sovereign debt has focused on a dichotomous variable indicating the absence or presence of a CAC. In our full sample, *Vote* ranges

from a high of 100% (the old-style New York requirement of a 100% vote to change payment terms) to a low of 18.75% (the English-style diminishing quorum requirement).

We expect that the higher the required vote percentage, the greater the potential holdout problem, which would increase the costs of a restructuring, and therefore lead to a higher offering spread. Bondholders would anticipate the difficulty of changing the payments of a particular bond issue and would require a premium commensurate with these anticipated costs should a restructuring be necessary in the future. Thus, *Vote* should be positively related to *Spread*—the higher the number of votes required to change payment terms the greater the probability of holdout problems and therefore the higher the issuing spread. In addition, the relation between *Vote* and *Spread* should be greater for sovereigns more likely to encounter financial difficulties in the future. Thus, we expect a stronger relation for low-quality sovereigns (sovereigns with below investment grade debt) than high-quality sovereigns (sovereigns with investment grade debt) and this expectation is borne out by the data.

Table IX presents the results based on our sample of New York law bonds from 1990 to 2011. All but one of the ratings variables in Table IX are significant at the 1% level and all but one are monotonic. Our holdout ratings category is BBB. Thus, the coefficients on all ratings above BBB are negative, indicating a lower spread relative to the BBB rating, and all ratings below BBB are positive. The coefficient on the number of banks (*Bank*) is negative and significant, suggesting that the higher the number of banks the broader the investor base and the greater the liquidity resulting in a lower spread. The coefficient on the dummy variable indicating a shelf registration (*Shelf*) is significantly positive. Consistent with prior research (Bradley, Cox, Gulati, 2010), this suggests that market participants anticipate that sovereigns issue debt when they believe that the market conditions are ripe for an offering. In response to the asymmetric information possessed by the issuing sovereign, investors will price-protect themselves and require a higher issue premium.

The primary result of interest in Table IX is the significantly positive relation between *Vote* and *Spread*. This relation suggests that there is a pricing penalty for bonds that face a higher risk of holdout problems (the higher the value of *Vote*, the higher the risk of holdouts and the higher the issuing spread). Put differently, the shift toward CACs—moving from a unanimity regime to a 75% vote requirement—is associated with a reduction in the spreads of New York law bonds. Since *Vote* is coded as decimals and **Spread** is coded as percentages, the coefficient of 2.2 implies that a 1% increase in the required vote percentage results in an increase of the spread by 2 basis points (2.2/100). Thus, the effect of moving from a

Table IX. New York law bonds (1990–2011) OLS results

Dependent variable is the **Spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Ratings** are taken from S&P with the pluses and minuses being combined with the lettered ratings. **Bank** is the number of banks participating in the offer. **Shelf** is equal to 1 if the offer is shelf registered and zero otherwise. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Total	Investment grade	Non-investment grade
Ratings			
AAA	−1.485***		
	(0.356)		
AA	−1.939***		
	(0.266)		
A	−0.474		
	(0.290)		
BB	1.192***		
	(0.280)		
B	2.384***		
	(0.415)		
Bank	0.072***	0.182***	−0.047
	(0.023)	(0.531)	(0.037)
Shelf	0.545***	0.173	0.524*
	(0.202)	(0.365)	(0.282)
Vote	2.243**	−0.611	3.344***
	(0.910)	(1.203)	(1.090)
Constant	0.38	3.113***	0.750
	(0.914)	(1.053)	(0.964)
Adjusted R^2	0.50	0.27	0.118
Observations	294	107	186

requirement of unanimity to one of 75% approval translates into a decrease in the cost of capital of 55 basis points for all bonds written under New York law and a decrease of 83 basis points for non-investment grade bonds.

The results of the subsets of investment grade and non-investment grade bonds are consistent with the expectation that this shift is more important for low quality sovereigns. Indeed, the sign on *Vote* is insignificantly negative for the investment grade issuances, whereas the sign is significant and positive for the non-investment grade bonds—reducing the required

percentage reduces the spread demanded by investors. Again, as the dependent variable (*Spread*) is defined in terms of percentages and the independent variable (*Vote*) is defined in terms of decimals, the effect of a 1% increase in the estimated number of votes needed to change payoff terms is the estimated coefficient divided by 100. Given that the coefficient on *Vote* is 3.44 and significant, a 1% increase in *Vote* leads to a 3 basis points increase in the when-issued spread. Thus, decreasing the voting requirement by 25 percentage points corresponds to a reduction in the spread of 86 basis points. The signs and statistical significance of the control variables **Bank** and **Shelf** are consistent with those of the whole sample.

Table X presents the result of adding yearly dummy variables for the post-2002 period to the regression model. Although the estimated coefficient on *Vote* is positive, it is not statistically different from zero ($t = 1.12$). This is to be expected. As indicated in Figure 1, except for a few outliers the value of *Vote* is a constant 1.0 from 1990 to 2002 and a constant of 0.75 from 2004 to 2011. It is therefore not surprising that yearly dummy variables would "explain" more than the essentially dichotomous variable *Vote*. The yearly dummy variables account for more than the presence or absence of a CAC. These variables also capture the state of the world economy in a particular year, the prevailing and expected interest and exchange rates and the stage of the current business cycle. Apparently, our use of spreads relative to U.S. Treasury Bills, instead of the contracted yields, is insufficient to capture the important international monetary and macro variables that are manifested in this 8-year time period.

Note that the coefficient on *Vote* for the investment-grade subsample is negative and statistically significant. Although we have no ready explanation for this relation, it is inconsistent with the results reported in the literature that CACs are beneficial for financially sound nations. These results suggest the opposite. For this subsample over this period, the lower the number of votes required for changing the pricing terms, the greater the spread for investment grade bonds.

Figure 13 presents the time series of the mean average spreads for investment and non-investment grade bonds written under New York law from 1996 to 2011.[21] As expected, the data show that the cost of debt (mean annual spread) is higher for the below-investment grade sample. However, note that the average spread for this sample begins to fall in 2003, which corresponds to the advent of CACs. According to previous research, the adoption of CACs by low quality countries should result in an increase in

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[21] We report data starting in 1996 because of the paucity of bonds issued prior to that date (see Figure 1).

Table X. New York law bonds (1990–2011) includes yearly dummy variables for 2003–2011

OLS results. Dependent variable is the **spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Ratings** are taken from S&P with the pluses and minuses being combined with the lettered ratings. **Bank** is the number of banks participating in the offer. **Shelf** is equal to 1 if the offer is shelf registered and zero otherwise. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Total	Investment grade	Non-investment grade
Ratings			
AAA	−1.378***		
	(0.311)		
AA	−1.797***		
	(0.300)		
A	−0.496*		
	(0.248)		
BB	1.272***		
	(0.281)		
B	2.723***		
	(0.387)		
Bank	0.076***	0.173***	−0.046
	(0.022)	(0.054)	(0.037)
Shelf	0.537**	0.225	0.498
	(0.211)	(0.382)	(0.299)
Vote	1.784**	−1.986***	1.933
	(0.806)	(0.664)	(1.724)
Constant	4.298***	4.550***	2.152
	(0.8914)	(0.518)	(1.713)
Adjusted R^2	0.565	0.472	0.190
Observations	294	107	186

the cost of debt or should produce no effect at all. As can be seen in the graph, however, the average spread for the lower rated issuers begins to decrease with the addition of CACs in 2003.

   Figure 13 is particularly informative given the stability of bond ratings for each country through time. There are 204 bonds issued by 42 sovereigns in the 1990–2002 time period. Of these 42 sovereign issuers only 3 issued both investment and non-investment grade bonds over this time period. Likewise there are 222 bonds issued by 37 countries in the 2003–11 time period and
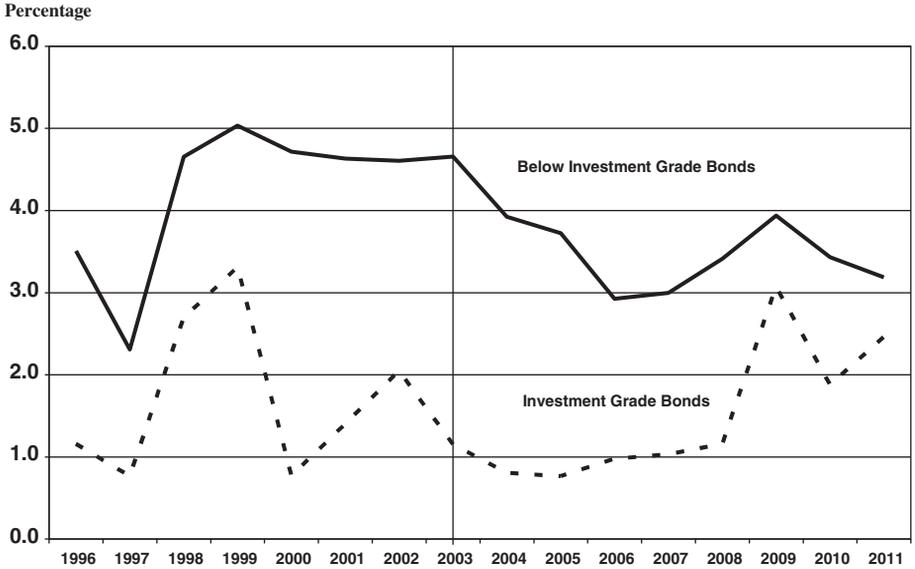
Percentage

Figure 13. Mean annual spread New York law bonds.

only one country issued both investment grade and non-investment grade bonds over this time frame. Finally, there are 29 countries that issued bonds in both periods, and all but 8 issued exclusively either investment or below investment grade bonds. These data underscore the stability of ratings over time and the fact that ratings reflect the quality of the issuing sovereign rather than a specific bond issue. For our purposes here, the data show that sovereigns did not switch from one category to the other in these two time periods.

Table XI is the regression counterpart to Figure 13. These data show that the mean spread for non-investment grade bonds is significantly lower in the post-2002 period, whereas mean spread of the investment grade bonds is insignificantly lower in the latter period. It should be noted that in the post-2002 period, 95% of the bonds in the sample contained a CAC, whereas only 1% of the bonds in the sample contained a CAC in the earlier period. These results suggest that the adoption of CACs in the post-2002 period is associated with a decrease in the spreads of non-investment grade bonds, whereas the adoption had no effect on investment grade bonds.

Table XII presents our results for the English law dataset for the 1990–2010 period. The signs of the ratings coefficients are monotonic and significant. The coefficients on the two control variables **Bank** and **Amount** (the log

Table XI. New York law bonds OLS regression

The dependent variable is the **Spread** between the issue rate and the U.S. Treasury rate. The independent variables are the number of **Banks** participating in the issue, dummy variables for investment grade and non-investment grade bonds and an interaction variable equal to 0 if bond was issued before 2002 and 1.0 if issued afterwards. *t*-Statistics are reported in parentheses. Standard errors are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Rating = 1, if investment grade	Rating = 1, if non-investment grade
Constant	4.26***	2.21***
	(−19.43)	(−8.69)
Banks	−0.10**	−0.10**
	(−2.14)	(−2.47)
Rating	−2.03***	2.42***
	(−5.76)	(−6.94)
Rating × post-2002	−0.1	−0.61
	(−0.35)	(−3.41)
Adjusted R^2	36.78	38.09
Observations	333	333

of the size of the issue) are not significant but do have the expected signs. The coefficient on **Vote** is positive and significant for the entire sample. However, while the coefficient on **Vote** is positive for the non-investment sample, it is not statistically significant. This result is contrary to our expectations. Note that we include dummy variables to account for the fact that some of the English law bonds are denominated in Euros (**Euro**) and some in pounds (**Pound**). Note also that since the English law bonds do not face an SEC-type registration process, there is no issue of controlling for shelf offerings.

Table XIII adds yearly post-2002 dummies to the regression models in Table XII. Contrary to our findings in the New York subsample, we see that adding yearly dummy variables for the post-2002 period results in a significant positive coefficient for **Vote** in the non-investment subsample, while the coefficient on the investment grade subsample is insignificant. These findings are consistent with our expectations.

It is important to appreciate that the results for the subset of bonds written under English law is more relevant to our hypothesis than the results based on the subset of bonds written under New York law. Recall that **Vote** is essentially a dichotomous variable in the New York law subset, whereas **Vote** is more like a continuous variable across the English law bonds.

Table XII. English law bonds (1990–2010)

OLS results. Dependent variable is the **Spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Ratings** are taken from S&P with the pluses and minuses being combined with the lettered ratings. **Bank** is the number of banks participating in the offer. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. **Amount** is the log of the size of the issue. **Euro** and **Pound** are dummy variables if the issue is stated in either currency. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Total	Investment grade	Non-investment grade
Ratings			
AAA	−1.696***		
	(0.525)		
AA	−1.426***		
	(0.534)		
A	−0.877		
	(0.680)		
BB	0.447		
	(0.517)		
B	1.752**		
	(0.792)		
Bank	−0.018	−0.021	−0.027
	(0.013)	(0.017)	(0.026)
Amount	−0.046	0.197	−0.156
	(0.105)	(0.161)	(0.404)
Euro	−0.623*	−0.006	−0.725
	(0.361)	(0.238)	(0.849)
Pound	0.985*	1.436***	
	(0.494)	(0.434)	
Vote	1.234*	−0.162	1.816
	(0.651)	(0.694)	(1.728)
Constant	2.307**	0.047	3.749
	(0.707)	(0.760)	(2.657)
Adjusted R^2	0.391	0.084	0.142
Observations	185	128	56

The foregoing results are based on bonds issued throughout the 1990–2010 period. Table XIV reports results for the sub-period 2003–10. Again we report results for the New York law bonds and English law bonds separately and present subsets of the two based on investment and non-investment grade bonds. The results in Table XIV are consistent with our primary

Table XIII. English law bonds (1990–2010) includes yearly dummy variables for 2003–2010 OLS results

Dependent variable is the spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Bank is the number of banks participating in the offer. Shelf is equal to 1 if the offer is shelf registered and zero otherwise. Vote is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. Amount is the log of the size of the issue. Euro and Pound are dummy variables if the issue is stated in either currency. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Total	Investment grade	Non-investment grade
Ratings			
AAA	−1.778***		
	(0.516)		
AA	−1.368***		
	(0.401)		
A	−0.546		
	(0.361)		
BB	0.811***		
	(0.395)		
B	2.428***		
	(0.631)		
Bank	−0.011	0.000	−0.098**
	(0.015)	(0.016)	(0.043)
Amount	−0.330**	−0.166	0.343
	(0.1262)	(0.109)	(0.414)
Euro	−0.567**	0.197	−0.563
	(0.275)	(0.1913)	(0.752)
Pound	1.098***	1.546***	
	(0.381)	(0.314)	
Vote	0.798	0.035	3.007**
	(0.641)	(0.725)	(1.434)
Constant	3.774***	1.727**	2.086
	(0.937)	(0.629)	(2.482)
Adjusted R^2	0.600	0.432	0.398
Observations	185	128	56

expectation (a positive relation between *Vote* and **Spread** for low quality sovereigns).

    The coefficients on the ratings variables in the New York sample reported in Table XIV are monotonic and all but one are statistically significant. The

signs of the control variables **Bank** and **Shelf** are as expected, although neither is statistically significant. Importantly, the sign on the coefficient for **Vote** is positive and significant for the non-investment grade subset. For the English law bonds, all but one of the coefficients on ratings are monotonic and all but two are statistically significant. The coefficient on **Vote** for the non-investment grade subset is positive but not statistically significant.[22]

Table XIV reports results for the sub-period 2003–10. Again we report results for the New York law bonds and English law bonds separately and present subsets of the two based on investment and non-investment grade bonds. The results in Table XIV are consistent with our primary expectation (a positive relation between **Vote** and **Spread** for low quality sovereigns).

Table XV reports the results of adding yearly fixed effects to the regression models in Table XIV. As is the case for the entire sample period, adding yearly dummy variables to the New York law sample from 2003 to 2010 results in an insignificant coefficient on **Vote**. However, as was the case with the longer period, adding yearly fixed effects to the sample of English law bonds results in a positive and statistically significant relation between **Vote** and **Spread**.

The estimates of the relation between **Vote** and **Spread,** in the regressions in which the relation is significant, range between 2 and 5, which translates into an increase in the spread of 2 to 5 basis points. Given that the most frequent change in our database is from 1.0 to 0.75, the data suggest that the advent of CACs coincided with an increase in spreads of below investment grade bonds of between 0.5 basis points and 1.25 basis points, which is certainly economically significant.

By and large, the findings reported above are at odds with the findings of the prior generation of empirical studies on CACs. Those studies find that modification CACs (the shift from unanimity votes to something less) had either a *zero* price effect or that they *lowered* spreads for the high-rated nations and *increased* the spreads for the low-rated sovereigns. The implication being that shifting to a lower vote requirement either made no difference or *increased* the costs of borrowing for the weaker nations. Based on those results, it is surprising that any low-rated nation was willing to shift away from unanimity provisions. Yet, they did, en masse. With the caveats

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[22] A caveat is in order regarding the results in Table XIV. Although the positive relation between **Vote** and **Spread** for the non-investment New York subsample is consistent with our basic hypothesis, there are only 4 observations that are different from 75%, and 3 of the 4 bonds are issued by the same country (Brazil). The value of **Vote** for these observations is 85%. Consequently, we do not include the variable **Vote** for New York bonds in subsequent analyses, as this would essentially create two constants in the regressions.

Table XIV. New York law and English law bonds (2003–2011) OLS results

Dependent variable is the spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Bank is the number of banks participating in the offer. Shelf is equal to 1 if the offer is shelf registered and zero otherwise. Vote is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. Amount is the log of the size of the issue. Euro and Pound are dummy variables if the issue is stated in either currency. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	New York law bonds			English law bonds		
	Total	Investment grade	Non-investment grade	Total	Investment grade	Non-investment grade
Ratings						
AAA				2.459***		
				(0.648)		
AA	2.077***			−2.066***		
	(0.293)			(0.721)		
A	−0.382			−1.493		
	(0.346)			(−0.955)		
BB	1.225***			−0.775		
	(0.303)			(0.754)		
B	1.628***			0.720		
	(0.325)			(0.907)		
Bank	−0.027	−0.195***	0.025	−0.0676*	−0.045	1.197***
	(0.022)	(0.051)	(0.014)	(0.035)	(0.052)	(0.247)
Shelf	0.155	0.655	0.036			
	(0.194)	(0.395)	(0.259)			
Amount				0.043	0.494	0.540
				(0.163)	(0.298)	(0.941)
Euro				−0.571	−0.064	−1.594*
				(0.418)	(0.532)	(0.820)
Pound				−1.474*	−0.319	
				(0.810)	(0.367)	
Vote	3.739**	0.812	14.18***	1.471	0.294	4.867**
	(1.405)	(1.791)	(2.004)	(0.928)	(0.78)	(1.712)
Constant	−0.695	0.036	−7.356***	2.541**	−1.485	−5.684
	(1.163)	(0.259)	(1.585)	(1.107)	(1.294)	(6.225)
Adjusted R^2	0.463	0.311	0.060	0.393	0.097	0.256
Observations	154	57	97	102	68	34

Table XV. New York law and English law bonds (2003–2011) yearly fixed effects

OLS results. Dependent variable is the **spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Ratings** are taken from S&P with the pluses and minuses being combined with the lettered ratings. **Bank** is the number of banks participating in the offer. **Shelf** is equal to 1 if the offer is shelf registered and zero otherwise. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. **Amount** is the log of the size of the issue. **Euro** and **Pound** are dummy variables if the issue is stated in either currency. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent Variables	New York Law Bonds			English Law Bonds		
	Total	Investment Grade	Non-Investment Grade	Total	Investment Grade	Non-Investment Grade
Ratings						
AAA				−2.635***		
				(0.612)		
AA	1.873***			−2.496**		
	(0.320)			(0.934)		
A	−0.487			−0.910*		
	(0.301)			(0.449)		
BB	1.298***			0.010		
	(0.243)			(0.626)		
B	2.018***			1.614***		
	(0.255)			(0.566)		
Bank	−0.039*	−0.136**	0.006	−0.009	−0.018	0.962***
	(0.0192)	(0.055)	(0.027)	(0.041)	(0.040)	(0.251)
Shelf	−0.061	0.008	−0.220			
	(0.219)	(0.527)	(0.307)			
Amount				−0.493***	−0.157	−0.806
				(0.172)	(0.169)	(1.407)
Euro				−0.821**	0.550*	1.991
				(0.350)	(0.298)	(2.472)
Pound				−0.305	1.042***	
				(0.656)	(0.244)	
Vote	1.517	1.772	−3.160	1.064	−0.050	7.093**
	(1.245)	(1.965)	(3.504)	(0.805)	(0.892)	(2.707)
Constant	0.643	1.408	4.768	4.292***	−0.330	−2.448
	(0.934)	(1.491)	(3.504)	(1.052)	(0.964)	(8.571)
Adjusted R^2	0.582	0.662	0.325	0.703	0.523	0.502
Observations	154	57	97	102	68	34

discussed in the last section of the article, our results may begin to provide an explanation for the observed behavior.

Our results suggest that the markets, and the advocates of CACs, might have been right to abandon the unanimity requirement. For the post-2002 period, we find that CACs are associated with lower spreads for weaker nations. We attribute this diminution of the spreads for low-quality countries to the fact that restructurings are easier and cheaper when the required vote thresholds for modifications of payment terms are lower.

We now turn to other aspects of modification clauses that as yet have not been explored in the literature. Because of the slight (near zero) variation in these contract provisions prior to 2003, we concentrate on the post-2002 period.[23] Moreover, most of these additional covenants are present in bonds written under English law, whereas, even where they are present, there is little to no variation in these provisions for bonds written under New York law. Consequently we present data only for the English law bonds and discuss any relevance for New York bonds in the text.

7.2 ADDITIONAL COVENANTS

7.2.a. *Meeting*

As discussed in the Introduction, prior studies involving comparisons of the spreads on English law and New York law bonds ignored an important feature of English law bonds—namely mandatory meetings. This feature requires that a vote to change the payment terms of an outstanding issue has to take place at an actual, physical meeting of the bondholders. Such a requirement might hinder reorganization efforts by sovereigns for two reasons. First, it would be costly in terms of time and out-of-pocket expenses for bondholders to gather in a particular location to hold such a vote, particularly if the bondholders were scattered throughout the world. Second, the fact that bondholders were required to meet face-to-face might actually exacerbate the holdout problem since such a gathering would make coordination among bondholders easier. Bondholders might collectively agree to hold out rather than accept a reduction in their principle or interest. Thus, we hypothesize that a meeting requirement would increase the spread on sovereign debt issues.

The requirement of a meeting is primarily found in English law CACs. Moreover, almost all English law CACs prior to 2003 included mandatory

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[23] Unreported, for the tests discussed in the remainder of the paper, is the impact of controlling for a time trend in the 2002–11 period. The introduction of a time trend does not change our basic results.

meetings. Consequently, we focus on English law bonds from 2003 to 2010 to examine the effects of this variable on the cost of capital. For the reasons explained earlier, we use the votes required at the second meeting, assuming that a meeting is mandated.

7.2.b. *Disenfranchisement*

The second variation in the modification CACs that we examine is the use of disenfranchisement provisions. There are two dynamics that are possible with disenfranchisement provisions, and both have the effect of reducing spreads. The first is based on the conventional explanation for why creditors want disenfranchisement provisions. An issue with any collective action provision is its vulnerability to vote manipulation. That is, the issuer might be tempted to park its bonds with sympathetic entities who would then vote in a manner contrary to the interests of the other creditors. For example, Ecuador threatened as much in its restructuring in 2009 (Drake, 2012). Given this concern, one would expect creditors to demand, and issuers to provide, provisions that protect against vote manipulation.

Second, disenfranchisement provisions might also help protect against a debtor that is reluctant to restructure. Recall that the CAC initiatives, both in the U.S. a decade ago and today in the Eurozone, were driven by the Official Sector. Recall also the premise that debtor states are often reluctant to restructure because of the political costs to the leaders (they frequently lose their jobs). Disenfranchisement provisions, therefore, can not only help protect private creditors against the risk of issuer manipulation of the vote in favor of a restructuring, they can also help protect the Official Sector against the risk of issuer manipulation of the vote against a restructuring.

Consistent with the foregoing, many issuers began including disenfranchisement provisions after 2002 (Figures 7 and 8). These provisions typically specify that issuers are barred from voting bonds that they "own or control". However, not all issuers made this shift. Some provided no anti-manipulation protections to their creditors, even after the shift to collective action.

Creditors, we hypothesize, would charge less to issuers willing to constrain themselves against the temptation to manipulate the vote. Creditors should also want to constrain the politicians of the debtor state from unnecessary and costly delays to a restructuring, if it is clear that there is a solvency problem. Further, these effects should be higher for weaker issuers since they, by definition, face a higher risk of financial distress.

7.2.c. *Acceleration/reverse acceleration*

The ability to accelerate debt obligations upon the occurrence of an "Event of Default" is a significant weapon in a holdout creditor's hands. Acceleration clauses permit a bondholder to demand the receipt of all future interest payments as well as the payment of principal. Absent the power to accelerate, litigation becomes a decidedly less attractive proposition. Pre-2003, the vast majority of issuances under both English law and New York law granted the right of acceleration to the individual bondholder. Post-2002, many of these issuers moved to requiring a 25% vote for an acceleration to occur (a small subset moved to 10%). The shift was nowhere near as uniform as the move in the New York law bonds away from unanimity for modification CACs. But, as Figures 7 and 8 show, well over 50% of the issuers in both jurisdictions move from individual rights to acceleration to collective ones. In addition, most of these issuers also put in place Reverse Acceleration provisions to protect against the possibility that a holdout might gain a 25% stake. In that case, a 50% vote of the creditors (in principal amount) would have the power to reverse or negate the initial vote to accelerate.[24]

Consistent with our hypotheses, we conjecture that the use of collective acceleration provisions should have a spread reducing effect, and that this effect should manifest itself more in the subset of offerings by weaker issuers.

7.2.d. *Collective representation clauses*

CRCs consolidate authority for key decisions in the hands of either a committee or a bondholder representative, such as a trustee. Standard practice in sovereigns bonds, in the post-World War II era, has been to use Fiscal Agents. These institutions, as a formal matter, are agents for the issuer. They perform administrative functions related to the bond, such as ensuring that payments are made at the appropriate places and in the appropriate currencies. Decisions as to important matters, such as whether to demand acceleration or to initiate a lawsuit against the debtor, tended to be allocated to the individual bondholder. Among the range of proposed changes to standard contracting practices that were made in the aftermath of the Mexican crisis in 1995 and the subsequent Asian crisis, was that sovereign bonds shift to a model that used collective representatives—agents who had responsibilities toward the bondholders as a group and were delegated the authority to act in the best interests of the collective (a

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[24] A handful of issuers have used higher vote thresholds for Reverse Acceleration, such as 66.67% and 75%.

mandate that would most likely entail acting in a manner adverse to any creditor who was seeking a holdout premium).

Two types of CRCs began to emerge in the post-2002 period; a Trustee provision and a Bondholder Committee provision. The former is a permanent representative for the bondholders who is present through the life of the bond; effectively the Trustee substitutes for the Fiscal Agent. The latter typically is appointed only in the event of a crisis situation. As shown in Figure 11, unlike the shift away from unanimity and the move toward acceleration provisions, only a small number of issuers implemented CRCs under New York law. However, as shown in Figure 12, more than half of the issues written under English law between 2004 and 2011 adopted these provisions. Because of the small numbers, we cannot test the effects of the two types of CRCs individually. We report, therefore, the results for a consolidated CRC variable. Our hypothesis is that the move toward collective action (here, a CRC) will have a spread reducing effect for the subset of bonds issued by weaker issuers.

Table XVI presents the results of our examination of the effects of these additional contract features on the cost of sovereign debt written under English law. In the interest of space, we report data based only on the below-investment grade sample. Nothing is lost by presenting only the results for the below-investment grade sample since none of these covenants have a significantly statistical relation to the *Spreads* in the investment grade sample.

Column 1 in Table XVI reproduces the results reported in Table XII. Again, consistent with our perspective, there is a positive and statistically significant relation between *Spread* and *Vote*, but only for the non-investment grade sample. As stated above there is no relation between *Vote* and *Spread* in the investment grade sample. These results are consistent with our view of the effects of CACs on issue spreads.

In the next four columns, we add the additional contract terms and an interaction term with *Vote*. The reason it is important to examine the interactive effect is that these additional provisions operate in conjunction with the primary CAC variable, *Vote*. In other words, they literally interact with it in terms of their effect on holdouts. In column 2 we add the independent variable *Meet* which is an indicator variable that equals one if a meeting of bondholders is required to change payment terms and an interaction term with *Vote*. The coefficient on *Meet* is negative and statistically significant. This implies that the requirement of a meeting correlates with a lower cost of capital. This is contrary to what we had predicted at the outset; which was that the meeting requirement would correlate with a greater difficult in tackling holdouts. What is important to see, however, is that the coefficient

on the interaction term is positive, statistically significant, and more than twice the estimated coefficient on *Meet*. Thus, the net effect (when the two coefficients are added together) is a positive relation, which implies that a higher vote requirement increases spreads, when a meeting is required.

In the next column, we entertain the indicator variable for the presence of a disenfranchisement clause *Disen* and the relevant interaction term. Neither the coefficient on *Disen* nor the coefficient on the interaction term is statistically significant, although the coefficient on our primary independent variable *Vote* is positive and statistically significant. The third column in Table XVI includes the dummy variable *ACC & RVC*, which indicates the presence of an acceleration or a reverse acceleration clause and the interaction variable. Not only is our primary variable *Vote* positive and statistically significant, but the interaction term is significantly negative, which indicates that including these clauses reduces the when-issued interest rate, presumably because they reduce the costs of the holdout problem.

Finally, the last column includes the dichotomous variable *CRC* and an interaction term with *Vote*. Although the estimated coefficients on both our primary variable *Vote* and the interaction term are negative, neither is statistically different from zero. Moreover, the coefficient on the interaction term is positive, statistically significant and the point estimate is greater than the sum of the coefficients on *Vote* and *CRC*. These results suggest that contrary to our expectations, including *CRC* clauses actually increases the when-issued *Spread* for below investment grade bonds.

Table XVII reproduces Table XVI but with the inclusion of yearly fixed effects. As is the case with a number of results reported in this study, the addition of fixed effects reduces the statistical significance of all of the interaction variables except for a weak positive relation between *CRC* and *Spreads*, which is inconsistent with our previous speculation.

To summarize, the relation between the ancillary CAC terms and spreads seems complex. Our results suggest that these terms have important interactive effects with the **Vote** variable, but we have just scratched the surface of identifying those effects.

8. Restructured Issues

Our analysis up to this point has been based on an unbalanced panel of issuances by a number of countries over two decades. We focused on the market reactions to issuances across time and across countries, which is to say across the spectrum of countries in varying financial conditions. An alternate approach would be to conduct a time-series analysis that

Table XVI. Non-investment grade English law bonds 2003–2010

OLS results. Dependent variable is the **Spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Bank** is the number of banks participating in the offer. **Amount** is the log of the size of the issue. **Euro** is a dummy variable which is 1 if the terms of the bond are stated in Euros and zero otherwise. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. **Meet** equals 1 if a formal meeting is required to vote and zero otherwise. **Disen** is a dummy variable set equal to 1 if the bond contains a disenfranchisement clause. **ACC/RVC** is equal to 1 if the bond contains an acceleration or a reverse acceleration clause. **CRC** is set equal to 1 if the bond contains a CRC. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent Variables	Vote	Meeting	Disen	ACC&RVC	CRC
Bank	1.197***	−0.040	−0.512	−0.073	−0.063
	(0.247)	(0.061)	(0.072)	(0.055)	(0.073)
Amount	0.540	0.589**	0.995	0.132	0.906
	(0.941)	(0.248)	(0.625)	(0.327)	(0.508)
Euro	−1.594*	−0.887	−1.401*	−1.065	−1.432
	(0.82)	(0.607)	(0.645)	(0.951)	(1.01)
Vote	4.867**	1.342	7.221**	8.366***	−2.801
	(1.712)	(2.762)	(2.880)	(1.710)	(3.113)
Meet		−2.529***			
		(0.763)			
Meet × Vote		6.585**			
		(2.580)			
Disen			0.721		
			(1.347)		
Dis × vote			−3.051		
			(4.229)		
ACC and RVC				1.394	
				(1.063)	
ACC and RVC × Vote				−6.092**	
				(−2.236)	
CRC					−1.704
					(0.975)
CRC × Vote					8.901**
					(2.833)
Constant	−5.684	−0.614	−4.994	0.235	−2.247
	(6.225)	(1.975)	(4.483)	(2.386)	(3.352)
Adjusted R^2	0.256	0.609	0.514	0.582	0.563
Observations	34	33	33	33	31

Table XVII. Non-investment grade English law bonds 2003–2010 fixed effects

OLS results. Dependent variable is the **Spread** between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. **Bank** is the number of banks participating in the offer. **Amount** is the log of the size of the issue. **Euro** is a dummy variable which is 1 if the terms of the bond are stated in Euros and zero otherwise. **Vote** is the minimum percentage of votes by dollar amount needed to change the payment terms of the bond. **Meet** equals 1 if a formal meeting is required to vote and zero otherwise. **Disen** is a dummy variable set equal to 1 if the bond contains a disenfranchisement clause. **ACC/RVC** is equal to 1 if the bond contains an acceleration or a reverse acceleration clause. **CRC** is set equal to 1 if the bond contains a CRC. Robust standard errors are reported in parentheses and are clustered at the country level. *Significance at the 10% level, **Significance at the 5% level and ***Significance at the 1% level.

Independent variables	Vote	Meeting	Disen	ACC & RVC	CRC
Bank	−0.098**	1.007**	−0.003	−0.005	−0.040
	(0.043)	(0.386)	(0.094)	(0.090)	(0.098)
Amount	0.343	−0.510	0.797	0.137	0.585
	(0.414)	(1.161)	(0.648)	(0.441)	(0.625)
Euro	−0.563	−0.131	−1.797**	−0.964	−1.676*
	(0.752)	(2.386)	(0.763)	(1.142)	(0.915)
Vote	3.007**	17.510	6.061**	7.468**	−2.258
	(1.434)	(22.41)	(2.772)	(3.037)	(3.445)
Meet		11.860			
		(16.84)			
Meet × Vote		−11.880			
		(23.360)			
Disen			0.128		
			(1.032)		
Dis × Vote			−1.781		
			(3.335)		
ACC & RVC				1.600	
				(1.290)	
ACC & RVC × Vote				−4.829	
				(3.129)	
CRC					−2.097
					(1.194)
CRC × Vote					7.817*
					(3.607)
Constant	2.086	−11.770	−3.775	−0.159	−0.130
	(2.482)	(16.71)	(4.472)	(3.145)	(4.075)
Adjusted R^2	0.398	0.609	0.714	0.734	0.772
Observations	56	33	33	33	31

examines whether the impact of using CACs changes when a country shifts from being a high-risk issuer to a low-risk issuer or vice versa. As a practical matter, this is difficult because the ratings of countries—our measure of risk—rarely change. Further, even if such a shift occurs, we could conduct our analysis only if the country issues bonds after the shift in risk level.

An exception to the foregoing is the small set of cases in which a country restructured its debt after it has defaulted on its creditors.[25] Not only does the nation's risk level change significantly (it has just defaulted), but also it will generally issue new bonds to exchange for the outstanding old ones. Important for our purposes, the contract terms of the new bonds will reflect the nation's downgraded status because these are terms negotiated with a set of creditors who have just been asked to take reductions in principal or interest or an extension of the maturity date and, in most cases, all three.

Focusing on the subset of nations that have done restructurings in the post-2002 period, we seek to determine whether these countries, in the wake of their defaults/restructurings, altered their contract terms.[26] Finding that these countries shifted away from a 75% vote to alter payment terms toward a unanimity provision would call into question our basic thesis and prior results. By contrast, finding that these sovereigns moved toward weaker individual rights and stronger collective and third-party rights would be consistent with the dynamics observed in our empirical results.

Broadly speaking, we have examined three types of CACs—modification CACs, acceleration provisions, and CRCs. Consequently, we seek to determine what type of CACs, if any at all, the issuers in our subsample of restructured bonds adopted.

The sample of issuers in our dataset that have restructured in the post-2002 period is small—comprising only 13 issuances. One of the restructuring countries, Dominica, issued its post-restructuring bonds under the laws of Trinidad and Tobago, which makes a comparison of the post-restructuring terms with a market standard difficult because there is no market standard for Trinidadian sovereign bonds. Another country, St. Kitts & Nevis, wrote its post-restructuring issuance under its local law, which creates similar problems of comparisons. Of the remaining 11 restructurings, 9 were issued under New York law and 2 under English law.

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[25] We use the term "default" in the credit rating sense of the word in this section, rather than a formal legal default.

[26] Because the set of nations that have done sovereign restructurings is small and data relatively easily available, we have attempted to utilize all of the information available until the date of this writing (August 2013). As of this writing, Belize, Grenada, and Jamaica are in the process of conducting restructurings. However, there is not enough information available on any of these deals yet.

The issuers are Uruguay, Argentina, Dominican Republic, Belize, Grenada, Congo, Ivory Coast, Seychelles, Iraq, the Province of Buenos Aires, and Greece. Our examination of the restructured bonds of these 11 defaulted sovereign issuers can be summarized as follows.

8.1 MODIFICATION CACs

The restructured issuances in our sample follow the dominant post-2002 practice of incorporating a 75% vote requirement. The exception is Greece, the most recent (and biggest) restructurer. The new bonds have a 66.67% requirement to change payment terms.

The key difference we find in the subset of restructured bonds is that the bonds contain aggregation provisions, which as described earlier, is an aggressive form of CACs that almost no other issuers use. Five of the 11 issuers—Argentina, Dominican Republic, Uruguay, the Province of Buenos Aires, and Greece, include aggregation provisions. No other issuers use these types of provisions.

8.2 DISENFRANCHISEMENT

Disenfranchisement provisions protect investors against the temptation of the issuer to act opportunistically by placing bonds in the hands of sympathetic parties. Over 50% of issuers in the post-2002 period shifted to using disenfranchisement provisions. In our sample of restructured bonds though, 10 out of the 11 issuers included disenfranchisement provisions. More important, 7 of these 11 issuers utilized enhanced disenfranchisement provisions that are not seen elsewhere in the market. The standard provisions prohibit the issuer from voting bonds that it owns or controls. The problem with the standard provision though is that it has no mechanism by which the creditors can find out which bonds are problematic. The enhanced disenfranchisement provisions that 7 of the 11 of the issuers in our post-default sample use creates a monitoring mechanism, in that the issuer is required to report to the trustee, prior to any vote, the fraction of bonds that are to be stricken from the voter rolls. No other issuers in our sample use these types of provisions.

8.3 ACCELERATION/REVERSE ACCELERATION

The 11 issuers in our sample follow the dominant industry norm in terms of having acceleration/reverse acceleration clauses. As discussed earlier, the post-2002 era saw a significant number of nations (roughly 60%) move

away from individual acceleration rights towards a collective right (25% for acceleration; 50% for reversal). In our sample of restructured issuances, 100% have moved to using the 25/50 collective right for acceleration and reverse acceleration. Overall, the pattern is as we saw with the earlier variables. The post-restructuring issuers are more aggressive adopters of CACs than the other issuers in the market.

Note also that 2 of these 11 restructurers go beyond the emerging market standard of a 50% reverse acceleration vote and utilize instead a 75% reversal vote requirement (for payment accelerations only; for non-payment matters, the reversal vote is still 50%). Once again we see that these post-restructuring deals not only adopt the emerging market standards for CACs more aggressively than their less risky counterparts, but also they are ahead of the curve in terms of designing innovations that might make CACs even more effective.

8.4 COLLECTIVE REPRESENTATION CLAUSES

In our broader sample of sovereign bonds under New York and English law, trustee provisions are the least frequently used CAC. Fewer than 10% of the issuances under either English law or New York law use these provisions. In the subset of restructured bonds, however, 100% of the issuers use trustee provisions. Further, as we saw earlier in our discussion of disenfranchisement, the obligations of the trustees in a number of these post-restructuring bonds are enhanced.

Overall, the patterns are consistent. We find evidence that restructured bonds contain more, not less, aggressive CACs, which is consistent with our overall thesis that weaker issuers and their creditors benefit from the inclusion of CACs.

8.5 REMOVAL OF THE INDIVIDUAL RIGHT TO SUE

The final and perhaps the most significant change in these restructured bonds is a form of CAC that has received almost no attention in the literature. Almost every sovereign bond allows an individual the right to sue. If the issuer fails to pay a creditor her coupon payments, she is allowed to sue at least for the amount that has not been paid. One might ask why does this individual right matter, given that the issuer can typically obtain a change of the payment terms with a 75% vote. The right matters because it is the rare sovereign issuer that foresees a financial crisis and does an anticipatory restructuring, without ever defaulting (Uruguay's 2003 restructuring being one of these rarities). For the most part, governments delay admitting that

they might have to restructure until the last possible moment, and then default. Only then do they begin talking about a restructuring. At that point, having defaulted, they are vulnerable to lawsuits by bondholders, unless this right has been taken away by features in the debt contract. This right of an individual to sue is mandated by statute for U.S. corporate bonds, and is considered by many as sacrosanct. In 5 of our 11 post-restructuring bonds, however—Granada, Belize, Congo, Ivory Coast, and Greece—there is a prohibition of the individual right to sue (unless the trustee fails in its obligation to pursue the interests of the creditors; in which case the right reverts to the individual). This innovation is found in no other sovereign bonds that we are aware of.

8.6 THE TRENDS IN CORPORATE VERSUS SOVEREIGN RESTRUCTURINGS

It is interesting to pause and note the opposite trends in the reorganizations under Chapter 11 of the U.S. Bankruptcy Code and sovereign restructurings. There is research that suggests that over the past decade Chapter 11 reorganizations have evolved from a pro-debtor process to a pro-creditor process.[27] During the past decade, creditors with senior, secured claims have come to dominate the Chapter 11 process. Courts are less inclined to permit managers to control the firm through the reorganization process by granting access to debtor-in-possession financing. In this modern era, more than 70% of CEOs are replaced within 2 years of the bankruptcy filing which is an increase over historical averages. This same literature documents a dramatic increase in asset sales and liquidations throughout the reorganization process.

In contrast, the results reported in this study, and reflected in the Table XVIII, suggest that sovereign reorganizations have become more pro-debtor over time. A possible rationale for this trend is the recognition that short of armed conflict or asset seizures, creditors cannot compel debtors to honor their debt obligations. Thus, the only means of inducing sovereigns to meet their financial commitments is to facilitate restructuring by reducing the major obstacle to an orderly process, which we contend is the potential holdup problem.

9. Conclusion

The goal of this article is to generate empirical evidence that sheds light on the effect that the use of CACs by Eurozone sovereigns issuing under foreign

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[27] See Ayotte and Morrision (2009) for a review of this literature.

Table XVIII. The shift toward CACs

	New York law bonds (%)		English law bonds (%)	
	1992–2002	2003–2012	1992–2002	2003–2012
Unanimity requirement to alter payment	94.81	2.71	1.94	0.00
Disenfranchisement provisions	1.13	77.23	6.76	45.11
Collective acceleration provisions	55.26	82.57	25.88	72.52
Trustee/bondholder committee provisions	4.37	16.58	13.29	62.16

law will have on their cost of capital. Although we examine the effects of a number of clauses contained in CACs, our main focus is on the number of bondholders required to change the payment terms of an existing debt instrument. It is our perspective that by allowing a majority of a sovereign's creditors to alter the payment terms of a bond and impose a restructuring plan on any minority holdout creditors, CACs reduce the costs of any third-party restructuring, which in turn reduces the cost of capital as measured by its when-issued interest rate.

Contrary to much of the existing literature, we find that the presence of a CAC in a sovereign bond issue is associated with a lower, not higher, cost of capital, especially for financially weak issuers. We document a fall in the cost of capital for bonds written under New York law beginning in 2003, which corresponds to the almost universal adoption of CACs by these sovereigns. Moreover, and consistent with the above thesis, this fall is due exclusively to the reduction of the rate for below-investment grade bonds. Indeed, we find that the advent of CACs over this time period had no measurable effect on the rates for investment-grade bonds written under New York law. The empirical results of our analysis of English law bonds are even stronger. We find a significant positive relation between spreads and the number of votes required to change the payment terms.

In terms of the ancillary covenants, we find some support for our notion that impediments to a speedy reorganization increase the cost of capital. The requirement of creditor meetings increases spreads the more votes required to change payment terms. Also, the inclusion of acceleration and reverse acceleration clauses are associated with lower issuance spreads.

At first blush, our general results present somewhat of a conundrum. If the degree of effectiveness of a CAC reduces the cost of capital for below investment grade bonds, then why would these sovereigns not include them in their covenants voluntarily? And specifically in the Eurozone context, why have the authorities felt the need to mandate the use of CACs with lower

vote thresholds than the status quo? Our conjecture is that CACs are being mandated by the Official Sector because the officials anticipate (expect) that the bonds of certain nations at least will likely have to be renegotiated prior to their maturity and the officials want to make this process more efficient (lower cost). Clearly, no small part of this strategy is due to the fact that the Eurozone is both a monetary and trade union. As such, it recognizes the possibility externalities that would befall other member nations if one member defaulted. The contagion effect throughout the European banking system could be catastrophic and might threaten the very viability of the Euro as a common currency. This same argument may also provide an explanation for why Euro area countries could not be depended on to adopt the model Euro CACs voluntarily (remember that these Euro CACs have lower vote requirements than the types of CACs ordinarily used). After all, one of the key purposes of the Euro CACs, as made explicit by policy officials themselves, was to send a signal to the markets that there would be private sector involvement (or "PSI") in the future (Gelpern and Gulati, 2013). Individual nations (and their creditors) would presumably prefer to avoid PSI and take a full bailout instead.

By contrast, perhaps the almost universal voluntary adoption of CACs by New York law bonds in 2003 reflects the absence of a monetary union. In other words, there was (is) no central authority that stands ready to bail out these countries should they experience an "event of default." As the chances of a complete bailout of most of the countries issuing in the New York market are slim to none, it is in their interest to reduce the costs of a restructuring by including CACs.

Before concluding, a few caveats regarding our results bear noting. First, our assumption and the assumption in much of the literature has been that the introduction of CACs would translate into a reduced likelihood of bailouts. After all, that is how CACs have been sold to the public—as a means to ensure PSI in bailouts. However, the experience with Greece, and particularly its EUR 130 billion bailout package in March 2012 suggests a different dynamic for why CACs might reduce borrowing costs instead of increasing them. Greece was told by the Official Sector (the richer Eurozone nations and the IMF) that it would only receive its bailout if it obtained a significant haircut from private creditors (Ekathimereni, 2012). Greece, therefore, had to retrofit modification CACs into its local-law bonds so that it could engineer its restructuring.[28] Under this dynamic, CACs, and the attendant PSI, might even raise the likelihood of a bailout because they make it more

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[28] Although we do not have concrete information on the recent restructuring by St. Kitts and Nevis, press reports suggest that it was probably required to obtain a substantial

likely that the richer nations will be able to sell the need for the bailout to their taxpayers if a defaulting sovereign and its creditors bear some of the pain.

Second, most previous CAC studies, in addition to focusing on data from a different period of time (pre-2002), focused exclusively on the portion of the vote continuum between unanimity and something below that. In contrast, our study examines a lower portion of the voting continuum as well. In particular, for the English law bonds, the range that we examine is between 75% and 18.75% (with the complications of mandatory meetings at the lower end of the spectrum). It is this lower portion of the voting spectrum that is most important in the contemporary context though, because the unanimity requirement has almost completely disappeared from foreign-law sovereign bonds. Unfortunately our empirical analysis tells us nothing about what happens at even lower ends of the spectrum (and without the complications of mandatory meetings). Other research and logic suggests that at the very low ends, where the vote is so low that the sovereign can basically do whatever it wants, investors show a clear preference for bonds that impose some constraint on the sovereign. This was illustrated by the Greek restructuring of 2012 where the local law aspect of the vast majority of its bonds was viewed as giving the Greek sovereign carte blanche to modify the bonds at will. In that context, investors showed a clear preference for bonds that had a higher effective voting requirement than zero (Choi, Gulati, Posner, 2011; Zettelmeyer, Trebesch, Gulati, 2013).

Third, although we believe that we have advanced the scholarship in this area by parsing the variations in contract language, we have not examined all of the variations found in sovereign debt contracts. Although many of these contract provisions are assumed to be boilerplate, some variations still exist. Unreported here, we tested our results in regressions that included controls for the presence or absence of the basic negative pledge clause, which is perhaps the most important covenant in these contracts other than the CACs themselves.[29] However, the variation is not sufficient to cause variations in issue rates. We also examined other key terms such as the waiver of sovereign immunity, and while there is a small amount of variation here as well, the variation had no statistically significant effect on spreads.

Fourth, it has been suggested to us that the markets may have "learned" from the experience of Argentina's 2001 default. Those bonds lacked CACs.

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amount of PSI (which it did, utilizing the CACs in its bonds) before it could avail itself of an IMF program (Cotterill, 2011).

[29] Negative pledge clauses prevent the issuer from issuing debt that is senior to the claims of existing creditors.

As of this writing, 10 years later, holdout litigation over those bonds continues. Learning from the Argentine experience might explain the difference in pricing results between our study and prior studies. Along these lines, the past 10 years have also seen the first five instances in which CACs have been utilized successfully (Uruguay, Seychelles, Belize, Greece, and St. Kitts & Nevis).

Fifth, 2012 witnessed what might well be the biggest victory by holdout creditors against a sovereign in the case, NML vs. Argentina, decided by the Second Circuit Court of Appeals in New York in October 2012. The full implications of the case have yet to be seen because the matter is under appeal. Nevertheless, commentators suggest that this case has the potential to alter the landscape of sovereign debt restructurings; that is, unless CACs counteract the effects of the ruling (something that the court in NML vs. Argentina suggested they would). In other words, the importance of CACs in sovereign bonds, starting in 2013, may be enhanced.

Sixth, more important than our pricing results, demonstrating the dramatic increase in the usage of these provisions, particularly modification CACs, over the past decade may be our most valuable contribution to the sovereign debt literature. The data in Table XVIII illustrate this trend over the past decade—a trend that appears to be continuing as the reforms contemplated for the Eurozone countries push further in the direction of collective action provisions, which we believe will result in decrease in the cost of capital, especially for financially weaker sovereigns.

References

Afonso, A., Gomes, P., and Rother, P. (2007) *What "Hides" Behind Sovereign Credit Ratings?* Working Paper 711, European Central Bank.

Alphondery, E. (2011) The economic consequences of the Euro pact, in: F. Allen, E. Carletti, and G. Corsetti (eds), *Life in the Eurozone, With or Without Sovereign Default*. Chapter 9, FIC Press, Philadelphia, 103–115.

Ayotte, K.M. and Morrison, E.R. (2009) Creditor control and conflict, *Journal of Legal Analysis* **1**, 511–551.

Bardozzetti, A. and Dottori, D. (2013) *Collective Action Clauses: How do They Weigh on Sovereigns*. Banca D'Italia Working Paper 897. Available at: http://www.bancaditalia.it/ pubblicazioni/econo/temidi/td13/td897_13/td897/en_tema_897.pdf.

Becker, T., Richards, A., and Thaicharoen, Y. (2003) Bond restructuring and moral hazard: are collective action clauses costly? *Journal of International Economics* **61**, 127–161.

Barro, R.J. (2006) Rare disasters and asset markets in the twentieth century, *Quarterly Journal of Economics* **121**, 823–866.

Bradley, M., Cox, J.D., and Gulati, M. (2010) The market reaction to legal shocks and their antidotes: lessons from the sovereign debt market, *Journal of Legal Studies* **39**, 289–324.

Bradley, M. and Roberts, M. (2004) *The Structure and Pricing of Corporate Debt Covenants?* Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=466240.

Buchheit, L.C. (1998a) The collective representation clause, *International Financial Law Review* **17**, 9–11.

Buchheit, L.C. (1998b) Majority action clauses may help resolve debt crises, *International Financial Law Review* **17**, 17–19.

Buchheit, L.C. (1998c) Changing bond documentation: the sharing clause, *International Financial Law Review* **17**, 9–11.

Canter, R. and Packer, F. (1996) Determinants and impact of sovereign credit ratings, *FRBNY Economic Policy Review* **2**, 37–53.

Choi, S., Gulati, M., and Posner, E.A. (2011) Pricing terms in sovereign debt contracts: a Greek case study, *Capital Markets Law Journal* **6**, 163–187.

Choi, S., Gulati, M., and Posner, E.A. (2013) The Dynamics of Contract Evolution, *New York University Law Review*. available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2093598.

Clifford Chance – Briefing Note. (2012) *Euro Area Member States Take Collective Action to Facilitate Sovereign Debt Restructuring*. available at: http://www.cliffordchance.com/publicationviews/publications/2012/12/euro_area_me.

Cotterill, J. (2011) *The Greek Bond Swap – Formalized*, FT Alphaville.

De Grauwe, P. (2011) *The Governance of a Fragile Eurozone*, Center for European Policy Studies (CEPS) Working Paper Number 346.

Dias, D.A., Richmond, C.J., and Wright, M.L.J. (2011) *The Stock of External Sovereign Debt: Can We Take the Data at 'Face Value'?* NBER Working Paper Series 17551. available at: http://www.nber.org/papers/w17551.

Drake, K. (2012) Disenfranchisement in Sovereign Bonds. Working Paper, Duke Law School, available http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2007294.

Drage, J. and Hovaguimian, C. (2004) *Collective Action Clauses (CACs): An Analysis of Provisions Included in Recent Sovereign Bond Issues*. Bank of England Financial Stability Review, November.

Eichengreen, B. and Ruhl, C. (2001) The Bail-in Problem: Systemic Goals, Ad Hoc Means, *Economic Systems* **25**, 3–32.

Eichengreen, B. and Mody, A. (2004) Do collective action clauses raise borrowing costs, *Economic Journal* **114**, 247–264.

Eichengreen, B. (2003) Restructuring Sovereign Debt, *Journal of Economic Perspectives* **17**, 75–98.

Gelpern, A. (2003) How collective action is changing sovereign debt, *International Financial Law Review* **22**, 19–22.

Gelpern, A. and Gulati, M. (2006) Public symbol in private contract: a case study, *Washington University Law Quarterly* **84**, 1627–1715.

Gelpern, A. and Gulati, M. (2009) Innovation after the revolution: foreign sovereign bond contracts after 2003, *Capital Markets Law Journal* **4**, 85–103.

Gelpern, A. and Gulati, M. (2013) The wonder-clause, *Journal of Comparative Economics* **41**, 367–385.

Ghosal, S. and Thampanishvong, K. (2010) *Does Strengthening Collective Action Clauses Help?* University of Warwick, Warwick Economic Research Series Working Paper.

Gugiatti, M. and Richards, A. (2003) *Do Collective Action Clauses Influence Bond Yields? New Evidence from Emerging Markets*. Working Paper, Reserve Bank of Australia, available at: www.rba.gov.au/rdp/rdp2003-02.pdf.

Hall, B., Peel, Q., and Chaffin, J. (2010) France and Germany agree to mechanism for future crises, *Financial Times*. November 28.

Liu, Y. (2002) *Collective Action Clauses in International Sovereign Bonds*. IMF Working Paper, available at: www.imf.org/external/np/leg/sem/2002/cdmfl/eng/liu.pdf.

Mody, A. (2004) *What is an Emerging Market?* IMF Working Paper 177, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=879002.

Petas, P. and Rahman, R. (1999) *Sovereign Bonds—Legal Aspects that Affect Default and Recovery*, Emerging Market Research, Deutsche Bank.

Pitchford, R. and Wright, M. (2010) *Holdouts in Sovereign Debt Restructuring*, National Bureau of Economic Research (NBER) Working Paper 16632.

Portes, R. (2004) *Resolution of Sovereign Debt Crises: The New Old Framework*, Center for Economic Policy Research (CEPR) Working Paper 4717.

Sachs, J.D. (2003) *The Roadblock to Sovereign Bankruptcy Law*. available at: http://www.earth.columbia.edu/sitefiles/file/about/director/pubs/cato_sum03.pdf.

Taylor, J.B. (2007) *Global Financial Warriors*, W.W. Norton, New York.

Tsatsaronis, K. (1999) The effect of collective action clauses on sovereign bond yields, *International Banking and Financial Market Developments*. Bank for International Settlements, available at: www.bis.org/publ/r_qt9911.pdf.

Weinschelbaum, F. and Wynne, J. (2005) Renegotiation, collective action clauses and sovereign debt markets, *Journal of International Economics* **67**, 47–62.

Zettelmeyer, J., Trebesch, C., and Gulati, M. (2013) The Greek debt exchange: an autopsy, *Economic Policy* **28**, 513–563.