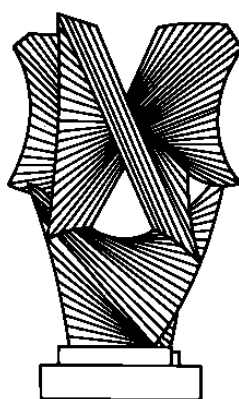


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Pricing Terms in Sovereign Debt Contracts: A Greek Case Study with Implications for the European Crisis Resolution Mechanism

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Pricing Terms in Sovereign Debt Contracts: A Greek Case Study with Implications for the European Crisis Resolution Mechanism

Stephen J. Choi, Mitu Gulati & Eric A. Posner*

Abstract. Conventional wisdom holds that boilerplate contract terms are ignored by parties, and thus are not priced into contracts. We test this view by comparing Greek sovereign bonds that have Greek choice-of-law terms and Greek sovereign bonds that have English choice-of-law terms. Because Greece can change the terms of Greek-law bonds unilaterally by changing Greek law, and cannot change the terms of English-law bonds, Greek-law bonds should be riskier, with higher yields and lower prices. The spread between the two types of bonds should increase when the probability of Greek default increases. Recent events allow us to test this hypothesis, and the data are consistent with it. We suggest that sovereigns, like private entities, minimize their cost of credit by offering investors with different risk preferences bonds with different levels of risk, which is reflected in their terms, including choice-of-law clauses. The market understands this practice. This finding has implications for the design of the European Crisis Resolution Mechanism (ECRM), which is currently being debated. To the extent the goal of the new restructuring mechanism is to force private investors to take better precautions, *ex ante*, the restructuring authorities would be well advised to abandon the past practice of largely ignoring variations in the boilerplate of sovereign debt contracts and giving equal treatment to different types of debt.

1. Introduction

An open question that sits at the intersection of law and finance is the extent to which provisions in standardized financial contracts, such as bond covenants, are priced. Financial economists believe that contract terms, and particularly those that reduce agency costs, are valued by the markets. Lawyers, including experienced practitioners, tend to believe that the market does not price individual contract provisions; and especially not those that are boilerplate. These assumptions about pricing accuracy have come to the fore in the public debate over the current financial crisis, with many, including prominent economists, complaining that models built on unrealistic assumptions about the abilities of markets to price risks were a major factor leading to the crisis. One significant part of the current global crisis is the Eurozone debt debacle, which began with Greece. In this article, we examine whether, and

* Faculty at NYU, Duke and Chicago, respectively. For comments, thanks to Ken Ayotte, Michael Bradley, Lee Buchheit, Anna Gelpern, Kimberly Krawiec, and Un Kyung Park. Thanks also to the editors, Jeff Golden and Lachlan Burn, and to an anonymous referee.

when, the markets woke up to the risks associated with the differential contract terms in various Greek debt issuances. One of the results of the recent Eurozone financial crisis has been the decision, led largely by Germany, to put in place a mechanism to ensure an “orderly debt restructuring mechanism” for the future that will set up proper incentives for investors and hopefully avoid the need for taxpayer bailouts in the future.¹ And one of the likely early users of this mechanism is the Hellenic Republic. Our findings have implications both for the design of this European Crisis Resolution Mechanism (the “ECRM”) and, more specifically, the likely restructuring of Greek debt.

As an empirical matter, testing the pricing of boilerplate provisions is difficult. The nature of boilerplate contracts is that provisions show up in bunches and, within certain categories (e.g., public versus private debt in the high-tech industry), everyone uses the same sets of provisions. If all the bonds in particular categories have the same provisions, however, one cannot isolate the price effects of either individual provisions or subsets of provisions. Researchers are typically limited, therefore, to approximating the price effects of particular terms from the pricing differences between bonds with different groups of terms.

Subject to the foregoing caveat, the current Greek debt crisis has thrown up a natural experiment that allows for a test of the pricing question with respect to one subset of typical boilerplate instruments, sovereign bonds. Roughly speaking, we are able to estimate the yield premium that the markets demand for a sovereign issuing debt governed by local law (which the sovereign controls and can change when conditions demand) versus debt governed by foreign law (which the sovereign cannot control).

Estimates suggest that over 90% of the Greek sovereign debt outstanding today was issued under contracts governed by local Greek law.² The remaining issuances were governed by foreign law. In these issuances, a subset of investors was presumably unwilling to take the risk that Greece would get into financial trouble and alter its law to benefit itself. The result is that we have data on comparable Greek-issued Greek-law bonds and Greek-issued English-law

¹ See Richard Milne and Ralph Atkins. *Debt Costs Jump for Dublin and Lisbon*, Financial Times, November 1 (2010); FRANCOIS GIANVITI, ANNE O. KRUEGER, JEAN PISANI-FERRY, ANDRE SAPIR, AND JURGEN VON HAGEN. A EUROPEAN MECHANISM FOR SOVEREIGN DEBT CRISIS RESOLUTION, November (2010) (available at www.bruegel.org).

² See Desmond Lachman, *Differences Between Greece Now and Brazil Then*. Financial Times, August 27 (2010); John Dizard, *The Greek Drama Would be Better Played Sooner Than Later*. Financial Times, November 20 (2010).

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governed bonds. That allows us to separate out and approximate the price effect of the different governing laws. To the extent English law provides greater protection against a debt restructuring than Greek law (after all, Greece cannot change English law to suit its purposes), investors purchasing English-law governed bonds made a tradeoff—accepting lower yields in return for greater protections against default. As an aside, although concrete information is lacking, reports suggest that a similar pattern emerged with a number of the other Eurozone periphery countries that are in crisis today, including Spain, Portugal and Ireland.³ Ireland, in particular, may have almost all of its sovereign bonds governed by local law.⁴

All was well until late 2009, when a new Greek government came to power. The new government, led by George Papandreou, revealed that prior regimes in Greece had been cooking the books on their financials for some years (The Economist, 2009). Indeed, Greece appears to have falsified its numbers so as to be able to qualify for entry to the Eurozone in the first place. The new numbers revealed that Greece was in far worse economic position than had been realized. The fact that Greece faced the immediate prospect of having to either default or restructure its debt sent yields on Greek debt soaring.

Had this been a Latin American serial defaulter like Argentina, the externally held debt would almost all be denominated in a foreign currency and governed by a foreign law (typically either New York or English law). Given the similarity in the typical modification provisions for sovereign bonds issued under either New York or English law, the bonds would have all fallen into the same category and received similar treatment in a restructuring. Greece, however, had both Greek-law governed bonds and English-law governed bonds (all denominated in euros). And with the Greek-law debt making up the overwhelming majority of the debt stock, Greece had real leverage – since it could change the law, thereby altering the terms of the bond contracts.⁵ With this leverage, Greece had the ability to push through adjustments to interest

³ See Nouriel Roubini, *Irish Woes Should Speed Europe's Default Plan*. Financial Times, November 15 (2010).

⁴ The information available from Ireland's National Treasury Management Authority suggests that Ireland's outstanding sovereign debt is all in the form of local law governed bonds. For an example of a recent bond issuance, see http://www.ntma.ie/Publications/2009/Ireland_4pc_Treasury_Bond_2011_Offering_Circular.pdf

⁵ As Reinhart and Rogoff point out, domestic-law sovereign debt crises have generally received little attention in the academic literature. This is likely, they suggest, because domestic-law debt is rarely held by external investors. An exception to this is the Mexican crisis in 1994-1995, where Mexico's dollar-

payments and maturity dates to the detriment of the holders of the Greek-law denominated bonds. By contrast, with the small fraction of English-law bonds, Greece had relatively little that it could do other than hope to enter into a restructuring agreement with its creditors (the bonds in question required between 66% and 75% approval from the creditors for any modification of the payment terms). The holder of an English-law bond, because of the supermajority approval provisions in the bond covenants as governed by English law, would have a greater ability to resist any potential restructuring offer than the holder of a Greek law bond, who basically would have no ability to hold out. The difference in price between the two sets of bonds, therefore, can be described as either the market value of English law versus local law or the holdout premium. As we will explain in detail later, our characterization of the difference in price between the Greek-law governed Greek bonds and the English-law governed Greek bonds as the price of foreign law is but a rough approximation. This is so because there are also some other contractual differences between the two bonds.

A question to ask at this stage is why Greece could not simply refuse to pay the holders of its English law bonds anything more than the amount it was offering its Greek law bonds. In other words, isn't changing the governing law on a bond much the same as simply defaulting or declaring a debt moratorium? There are two reasons why the foregoing two sets of circumstances (changing law, in a local law bond, to induce a restructuring versus an outright default or debt moratorium) are likely to be meaningfully different.

The first reason is that it makes a difference whether a sovereign explicitly violates the terms of a sovereign bond contract, which it would be doing in the default/moratorium situation but not in the changing-local-law situation. An explicit violation of contract terms opens the sovereign up to a potential lawsuit. We acknowledge that suing a sovereign is difficult because the plaintiff is generally limited to bringing suit in foreign jurisdictions (suing a sovereign in its own courts presents the danger of a biased tribunal) where the sovereign is likely to have limited assets. There is also the reality that even the weakest sovereigns can generally hire expensive lawyers to fight any litigation. In the late nineteenth and early twentieth centuries, the solution foreign creditors used was to go to their governments and urge them to send in the

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gunboats to enforce their claims (hence the term “Gunboat Diplomacy”).⁶ That solution is no longer available. However, the market has developed an alternative approach. There have emerged specialist funds with both the war chests and the expertise to litigate effectively against defaulting sovereigns. These funds buy up distressed debt at low prices from other creditors and then sue. Either by obtaining injunctions against the sovereign’s payments to favored creditors⁷ or figuring out where the sovereign is hiding its foreign assets, these specialist funds have had some recent successes against defaulting sovereign debtors.⁸

The second reason is that the market is likely to view an explicit default of payment terms to all creditors en masse differently from where a sovereign in financial distress utilizes the flexibility to change its own local law that the sovereign might have bargained for at the outset with some of its creditors (by including a clause that local law governs the contract). Where the sovereign changes its local law to reduce the amounts it owes to the specific creditors with contracts governed under local law (those purchasers of Greek-law bonds for example), but keeps paying in full those creditors who bargained for more protective contract terms (purchasers of English-law governed bonds), the market may view such actions as consistent with the ex ante bargain struck with different types of creditors. While the markets are likely to raise the amounts they charge the sovereign that adjusts its obligations through changes in local law, the reputational penalty is likely to be smaller.

Turning back to Greece, as of November 2009, when the markets realized how fragile Greece’s economy was, the question of whether a particular issue of debt was governed by local or foreign law should have become an issue of significance to investors. Subsequently, over the next few months, leading up to the point at which the crisis got so bad that the Eurozone and IMF had to produce a bailout, the news for Greece worsened on a regular basis. As the news worsened and then eventually improved, with the bailout, the spread between the bonds governed by local law versus foreign law should have waxed and waned. That is, assuming that markets were pricing in the local law effect.

⁶ See, e.g., Faisal Ahmed, Laura Alfaro and Noel Maurer, *Lawsuits and Empire: On the Enforcement of Sovereign Debt in Latin America*, 73 *Law and Contemporary Problems* 101 (forthcoming 2010).

⁷ A sovereign in distress may, for example, seek to obtain new credit by promising high interest payments to be paid ahead of prior debt to the new, favored lender. A holdout creditor can attempt to intercept these interest payments, disrupting the sovereign’s ability to obtain new credit.

⁸ See Ahmed et al., *supra* note 6.

Two questions interest us. First, was the market pricing the holdout premium for English law bonds from the start, even prior to the November 2009 announcement of Greece's fiscal woes? In other words, was Greece able to raise more money at the outset by giving creditors a better ability to hold out in the event of a restructuring? Given that the credit rating agencies were not differentiating among the types of bonds in issuing their sovereign ratings and that the financial news agencies, such as Bloomberg and the Financial Times, were reporting prices and yields on Greek bonds as if they were all the same, there is reason to at least suspect that the markets had not been viewing these instruments differently. Second, assuming that a pricing differential did not exist at the outset, at what point did the markets wake up to the differential implications of holding debt governed by local versus foreign law? Related to our second question, we ask what information and events in the marketplace, including changes in credit rating agency views of Greece's sovereign debt, were important to pricing of the bonds in the marketplace?

To answer our two questions, we turn to a dataset of bond yields for a series of Greek-law governed bonds with maturity dates ranging from 2011 to 2040 and for a single English-law governed Greece-issued bond with a maturity date in 2016. Observing the yields on these bonds over time in comparison with one another allows us to assess whether the market price differences between the Greek and English-law governed bonds and the factors that affect how and when the markets change their view on the pricing of the bonds.

We find evidence that there is a holdout premium from the outset; that is, that the difference in governing law (England versus Greece) is priced. This finding, that there is an ex ante benefit to the debtor to granting creditors holdout rights, is at odds with the literature on holdout creditors in sovereign debt, which tends to focus almost exclusively on the ex post costs of delays to restructurings as a result of holdout litigation.⁹ The spread that we find is small at the outset, but discernable. This spread then increased as the news about Greece's true financial state emerged starting in November 2009 and the probability of a restructuring increased.

The foregoing is relevant to what has been one of the major policy debates in the sovereign debt area over the past few decades, which is the question of how best to design a

⁹ See Gianviti et al., *supra* note 1.

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mechanism for the orderly treatment of sovereign defaults.¹⁰ One of the key questions is what kinds of haircuts to impose on the different private creditors, so as to induce them to exert greater care at the outset in choosing debtors to which to lend.¹¹ The point we emphasize is that creditors must take care in choosing not only debtors, but also debt instruments. Past practice in the sovereign area has been largely to ignore contract differences among the various unsecured creditors – a practice that was perhaps driven by the assumption that contract differences among these various boilerplate packages of terms were not priced by the market. Our findings cast doubt on that assumption. Most immediately, assuming that Greece will be one of the first nations to make use of the new ECRM mechanism, there are implications for how the various Greek bonds should be treated within this mechanism. If the market does price contract differences, respecting such differences in determining haircuts for debtors in a sovereign default will lead generally to a lower cost of capital for sovereigns when they initially incur debt.

In Section 2, we review the existing literature on the pricing of bond contract terms. In Section 3, we describe the key contract terms of the Greek issued bonds that we focus on in our study and formalize our hypotheses. In Section 4, we report our results. Section 5 concludes and discusses implications of our findings.

2. Background Literature on Pricing Bond Contract Terms

The theoretical base for much of the literature on the pricing of bond terms comes from a classic paper by Smith and Warner in 1979, where they set forth the “Costly Contracting Hypothesis” or “CCH”.¹² They hypothesized that covenants that constrained managers—such as restrictions on the types of investments managers were allowed to make or the amount of debt

¹⁰ The debate over the design of a sovereign bankruptcy system has been going on for much longer than a decade. See Kenneth Rogoff and Jeromin Zettelmeyer, *Bankruptcy Procedures for Sovereigns: A History of Ideas, 1976 – 2001*, IMF Working Paper 02/133 (2002); *Early Ideas on Sovereign Bankruptcy Reorganization: A Survey*, IMF Working Paper 02/57 (2002). However, the debate heated up considerably in 2002, in the wake of the Argentine default, when IMF’s Deputy Director, Anne Krueger, proposed an IMF-led version of a sovereign debt restructuring mechanism. See Anne O. Krueger, *A New Approach to Sovereign Debt Restructuring* (2002) (available at <http://www.imf.org/external/pubs/ft/exrp/sdrm/eng/index.htm>).

¹¹ See Gianviti et al., *supra* note 1

¹² Clifford W. Smith and Jerold B. Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 *Journal of Financial Economics* 117 (1979).

they could raise—could, in cases where there was a heightened concern about managerial misbehavior, reduce the firm’s cost of capital because those constraints would provide investors with additional protections against managers misbehaving. The basic predictions are straightforward. Firms that face greater vulnerability to agency problems (for example, firms with high cash flows) should constrain themselves by using more restrictive covenants as a means to assure investors that agency costs will be minimized. On the flip side, because these covenants constrain managerial discretion, they can be especially costly for firms that need greater amounts of flexibility (for example, in high growth sectors). Building on the basic CCH predictions, scholars have compared covenant use in a variety of settings where agency costs might be predicted to differ. Among these have been comparisons of the covenants used in a variety of settings, including: firms with high versus low growth; firms with different types of ownership structures; firms with different capital structures; in public issuances versus public ones; and in junk bonds versus high-rated debt instruments.¹³ While several scholars have studied the incidence of particular covenants, few have analyzed the pricing effects of using particular provisions, likely because of the standardized nature of most categories of debt instruments. Firms with similar characteristics—in the same industry, with the same growth prospects, and so on—tend to all use the same set of provisions. This makes it possible to compare the covenants used by firms with differing characteristics but at the same time makes it difficult to isolate the price effects of individual terms. If two firms in different industries with different growth prospects use different contract terms, it is difficult to separate whether any pricing difference observed in the bonds issued by the two firms is due to the varying contract terms or, alternatively, differences in industry characteristics, investor bases or growth prospects. When there has been variation in use of covenants for similar firms such as with the

¹³ E.g., Martijn Cremers, Vinay Nair and Chenyang Wei, *Governance Mechanisms and Bonds*, Yale International Center for Finance Working Paper 06-30 (2006) (available on ssrn.com); Simon Kwan and Willard Carleton, *Financial Contracting and the Choice Between Private Placement and Publicly Offered Bonds*, Federal Reserve of San Francisco Working Paper 2004-20 (2004) (available at <http://www.frbsf.org/publications/economics/papers/2004/wp04-20bk.pdf>); Robert Nash, Jeffrey Netter, and Annette Poulsen, *Determinants of Contractual Relations Between Shareholders and Bondholders; Investments Opportunities and Restrictive Covenants*, 9 *Journal of Corporate Finance*, 201 (2003); Joy Begley and Gerald A. Feltham, *An Empirical Examination of the Relation Between Debt Contracts and Management Incentives*, 27 *Journal of Accounting & Economics* 229 (1999); Marcel Kahan and David Yermack, *Investment Opportunities and the Design of Debt Securities* 14 *Journal of Law, Economics, and Organization* 136 (1998); Stuart Gilson and Jerald Warner, *Private versus Public Debt: Evidence from Firms that Replace Bank Loans with Junk Bonds*, Working paper, Harvard Business School and University of Rochester (1998).

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“super poison put”, scholars have sought to estimate price effects.¹⁴ Overall, the basic conclusion of the research is that covenants do vary across types of firms in a way that correlates with greater or lesser needs to constrain managerial misbehavior and that markets value the role that covenants play.

The sovereign bond area is different from the corporate context for at least four reasons. First, with sovereigns, there is no equity, only debt. Second, instead of managers, who are appointed by shareholders, there are governments, who are generally selected by voters. Third, the primary assets of corporations and sovereigns are quite different. Corporations tend to have tangible productive assets – factories, intellectual capital, mines, etc. The sovereign’s primary asset is its ability to tax; and that ability is a function of the political will of the populace. If there is no political willingness to be taxed, the asset has little value. Fourth, sovereigns, unlike corporations cannot go bankrupt and be liquidated. The debts, in other words, never get extinguished. Sovereigns have unlimited liability in contrast to their limited liability brethren on the corporate side.

The concerns of sovereign investors, however, are similar to those in the corporate context. Government officials, just like managers, may misbehave, investing in projects that are excessively risky, or appropriating funds for their own personal benefit. Consequently, investors should value covenants that reduce the risk of such misbehavior. Governments that value and need flexibility will be less willing to agree to restrictive covenants, whereas governments whose need to demonstrate their commitment to repaying their debt is greater (to obtain investors willing to invest in their sovereign debt) will be willing to agree to those covenants.

Another difference between sovereigns and corporate issuers is that enforcing contract violations against a sovereign will typically be more difficult, particularly if one is asking the court to force the sovereign to act in a particular fashion. But this does not mean that covenants lose their value in the sovereign debt context; it just means that the types of mechanisms that investors will have to use to impose discipline will be different. Investors

¹⁴ E.g., Leland Crabbe, *Event Risk: An Analysis of Losses to Bondholders and ‘Super Poison Put’ Bond Covenants*, 46 *Journal of Finance* 689 (1991); Khalil Torabzadeh, John Roufagalas, and Criss Woodruff, *Self-Selection and the Effect of Poison Put/Call Covenants on the Reoffering Yields of Corporate Bonds* 9 *International Review of Economics and Finance* 139 (2000); Michael Bradley and Michael R. Roberts, *Are Bond Covenants Priced?* (2004) (available at ssrn.com).

seeking to restrict sovereign misbehavior by, for example, imposing a ceiling on the amount of debt that the sovereign can issue or restricting the sovereign's ability to grant security interests to other lenders in its key assets, will typically negotiate for cross default and acceleration provisions that can impose a significant penalties on governments that are in violation of their covenants. Investors can also demand other provisions that make it more likely that they will be able to recover from a defaulting sovereign, such as the ability to use their bond coupons in lieu of taxes or that the sovereign waive its immunity on otherwise protected assets such as its embassies.

The research on the pricing of contract provisions in sovereign bonds has largely focused on one particular provision, the "Collective Action Clause" or "CAC". This provision sets out the conditions under which the payment terms for a bond can be modified. In the period roughly between 1990 and 2003, there were two versions of this clause that were used in sovereign bonds. In bonds issued under New York law, unanimous approval of all the bondholders was required before payments terms could be altered. In other words, because of the inherent holdout problem in the unanimity requirement, payment terms were effectively unalterable. In bonds issued under English law, by contrast, payment terms could be altered by 75% of the holders in principal amount (or fewer, at an adjourned meeting), in the context of a bondholder meeting.¹⁵

In the wake of the Mexican crisis in the mid 1990s and then the Argentine default in 2000, a heated debate developed over whether the unanimity requirement in New York-law bonds was inefficient because of the undue constraints it imposed. Among other things, the unanimity provisions gave every creditor the ability to hold out from a proposed restructuring. Within this context, a number of empiricists sought to test the market's sentiments on the matter. A handful of studies found that there were no pricing differences between the English-law bonds and the New York-law bonds.¹⁶ Arguably, that suggested that the greater ability to

¹⁵ Stephen J. Choi and Mitu Gulati, *Innovation in Boilerplate Contracts: An Empirical Examination of Sovereign Bonds*, 53 Emory Law Journal 927 (2004).

¹⁶ See Mark Gugiatti and Anthony Richards, *Do Collective Action Clauses Influence Bond Yields? New Evidence from Emerging Markets*, 6 International Finance 415 (2003); Torbjorn Becker, Anthony Richards and Yunyong Thaicharoen, *Bond Restructuring and Moral Hazard: Are Collective action Clauses Costly?* 61 Journal of International Economics, 127 (2003); K. Tsatsaronis, *The Effect of Collective Action Clauses on Sovereign Bond Yields*, in International Banking and Financial Market Developments, Bank for International Settlements (1999) (available at www.bis.org/publ/r qt9911.pdf).

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hold out that the New York-law governed bonds contained, produced no ex ante pricing benefits to the issuer. Drawing from the foregoing, the authors concluded that shifting to contract provisions that provided less of an ability to hold out would not cause borrowing costs to increase (which had been the concern of sovereigns who were reluctant to alter their contracts). Other scholars, however, found that there was a tradeoff between flexibility and commitment – where the markets valued unanimity provisions from certain nations (ones that were at greater risk of default), but not as much from others (that were on more solid financial ground).¹⁷ The implication of this second set of studies was that the market recognized holdout rights and, depending on the nature of the sovereign, valued those rights either positively or negatively. Interviews with the market actors involved in the debate suggested significant skepticism that the pricing studies could yield useful results; interviewees said that the markets did not price bonds at the level of detail of individual contract clauses.¹⁸

Using a different tack, Bradley, Cox and Gulati attempted to test the pricing impact of a different clause, the “pari passu” or “equal ranking” provision.¹⁹ In late 2000, in the *Elliott v. Peru* case, a commercial court in Brussels ruled that one particular version of the clause (that used the word “payment” in conjunction with the “equal ranking” language) was vulnerable to attack by investors asserting that the clause did not allow the sovereign to pay certain investors before it did others. This ruling came as a surprise to the market and marked an increase in the holdout risk faced by the entire sovereign market. Examining the impact of this case on sovereign yields across the market, therefore, should have provided a sense of whether bond yields were responsive to changes in holdout risks. If an increase in holdout risk were bad for the market – that is, raised the cost of restructurings, but did not provide much in the way of ex ante benefits – there should have been an overall increase in the costs of sovereign borrowing. Bradley, Cox and Gulati did find the foregoing effect, suggesting that a blanket increase in holdout rights that resulted from the case might have caused harm to the market generally.²⁰ Again, however, interviews with market actors about the same events suggested skepticism

¹⁷ See Barry Eichengreen and Ashoka Mody, *Would Collective Action Clauses Raise Borrowing Costs? An Update and Additional Results*. University of California – Berkeley Working Paper (2000); *Do Collective Action Clauses raise Borrowing Costs?* 114 *Economic Journal*, 247 (2004).

¹⁸ See Anna Gelpern and Mitu Gulati, *Public Symbol in Private Contract: A Case Study*. 84 *Washington University Law Quarterly* 1627 (2007).

¹⁹ See Michael Bradley, James D. Cox and Mitu Gulati, *The Market Reaction to Legal Shocks and Their Antidotes*, 39 *Journal of Legal Studies* 289 (2010).

²⁰ *Id.*

about whether the markets really priced the terms in question, and particularly to the degree that Bradley and his coauthors suggested.²¹ Finally, also attempting to get at the roughly the same question, Ahmed, Maurer and Alfaro looked at whether yields on sovereign bonds had changed as a result of *Elliott v. Peru* and a sister case that preceded it.²² Using a different dataset and examining the timing of the unexpected court decision somewhat differently than Bradley, Cox and Gulati, they did not find any pricing effects.²³

To summarize, there appears to be a high degree of confidence in the research on domestic corporate bonds that bonds covenants are priced, but the magnitude of the pricing differences is hard to determine. In the sovereign area, the empirical literature is thinner and less conclusive in terms of the degree to which contract terms are priced.

3. The Greek Bonds, Holdouts, and our Hypothesis

3.1. Key Aspects of the Greek Bonds

The hypotheses that we set forth are based on differences in contract terms between the Greek bonds governed by local (Greek) law and those governed by foreign (English) law. In this section, we report on the salient differences between the terms in sets of bonds. The key difference, as we explain below, is the governing law. There are some other differences as well, such as those relating to grants of security interests, that could also have implications for how investors might value the two categories of bonds.

The Greek Debt Stock

First, some background on the Greek debt stock. As of the end of April 2010, Greece's total debt was around €319 billion. The major portion of that debt – roughly €294 billion -- was in the form of bonds, with another €8.6 issued as Treasury bills. Almost all of this debt stock

²¹ Robert Scott and Mitu Gulati, *Three and a Half Minutes* (2011; manuscript on file with authors).

²² Faisal Ahmed, Laura Alfaro and Noel Maurer, *Gunboats and Vultures: Market Reaction to the "Enforcement" of Sovereign Debt* (2007 draft) (available at http://www.crei.cat/activities/sc_conferences/32/Papers/Maurer.pdf).

²³ Attempting to get at this pricing question from yet another direction, but finding little pricing impact, is Sonke Haseler, *Individual Enforcement Rights in International Sovereign Bonds* (2008 draft) (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1299114).

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was denominated in euros. Only a small portion (less than 2% of the total) was denominated in U.S. dollars, Japanese yen and Swiss francs.²⁴

We have limited information about the holders of Greek bonds. Press reports suggest that, during the early portions of the crisis, French, German and Greek banks had heavy exposures.²⁵ Undoubtedly, mutual funds, pension funds, hedge funds and other categories of investors also had some holdings of Greek bonds. Significantly, the extent of retail (non-institutional) ownership appeared to be small. Also, it seems safe to assume that significant portions of the holdings of the Greek debt sit in the hands of investors located outside of Greece (that is, investors not likely to vote in Greek elections and with little influence over Greek politicians).

The precise makeup of the investor base for Greek debt, however, constitutes something of a moving target. As of January 2011, the European Central Bank, thanks to its attempts to bolster the market for Eurozone periphery sovereign debt, is probably one of the largest holders of Greek bonds. The implications of this change in ownership pattern, which began in May 2010, are potentially important for purposes of any future restructuring.²⁶ We return to the implications of the European Central Bank's (ECB) involvement in developing our final hypothesis.

Greek-Law versus English-Law Greek bonds

The key feature of the Greek debt stock that we exploit is the difference in governing law. Approximately, 90% of the total debt stock of Greece is governed by local law. Only about €25 billion of the bond debt was issued under the law of another jurisdiction; the major portion of that under English law. As we will explain below, the Greek-law governed bonds provide investors with a significantly lower ability (near zero) to hold out from any proposed restructuring than do the English-law governed bonds.

We obtained information on the contract provisions in these bonds from the prospectuses and offering circulars for Greece that are available on the Thomson One Banker

²⁴ Lee Buchheit and Mitu Gulati, *Restructuring a Nation's Debt* 29 International Financial Law Review 46 (June 2010).

²⁵ James Wilson, *Worries Persist on Exposure to Greece*, Financial Times, April 30 (2010).

²⁶ John Dizard, *Eurozone Crisis Averted – For Now*, Financial Times, May 16 (2010).

database. The database does not contain copies of every one of the outstanding Greek bond issuances (we gathered approximately twenty-two different offering documents, in total). From those, we observe certain systematic differences between the bonds issued under Greek and English law. We should note that we do not have access to the actual bond contracts; just to the offering documents that are supposed to report the key provisions in the contracts. We begin with the modification provisions; the terms that govern the conditions under which Greece's payment obligations can be reduced. We conclude with a discussion of the implications of different governing laws

i. Modification Provisions: The bonds issued under local Greek law do not contain provisions allowing for amendments to the payment terms. In effect, that suggests that, absent some procedure specified by the local law, such as a bankruptcy-type proceeding, these bonds do not allow for restructuring.

By contrast, the Greek bonds issued under English law contain Collective Action Clauses (CACs). These come in two types. Those that were issued prior to 2004 contained CACs that allow holders of 66% or more of an issue to modify payment terms in a manner that would bind all other holders. The bonds issued after 2004 require the consent of holders of 75% or more of an issue. Obtaining approvals from between 66% and 75% of the bonds is likely to be difficult (bondholders typically are not eager to agree to reductions in the amounts they are owed), but possible, if the sovereign can make the case that a restructuring can serve the interests of both sides. If all else were equal, the CACs should make English-law bonds easier to restructure, and hence higher risk, than Greek-law bonds. However, as we argue below, the governing law difference likely swamps this difference in modification terms.

ii. Negative Pledge: The Negative Pledge clause governs grants of security interests. To be more specific, it typically restricts the sovereign from granting security interests to future borrowers, unless prior borrowers are secured on an equal basis.

Greece's local-law bonds do not contain a negative pledge clause. By contrast, the English-law bonds do contain one. What this means is that Greece can issue new bonds where it grants the new bondholders a security interest in some of its valued assets – for example, its gold reserves, without violating the terms of its Greek-law bonds. The ability to grant the new bondholders a security interest, without having to grant the same security interest to the vast

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majority of its prior debt, potentially allows Greece a mechanism by which to access cheap credit, even while in financial distress. The grant of preferential access to a valuable piece of collateral to new lenders will not make the old lenders happy, but Greece, in effect, appears to have negotiated for the right to make this move. All else equal, the negative pledge clause should make English-law bonds lower-risk than Greek-law bonds.

iii. Pari Passu: The precise meaning of the *pari passu* clause has been much debated in recent years in the sovereign debt community. In the corporate context, the *pari passu* clause provides that debts ranked *pari passu* will get paid with equal priority in an insolvency distribution. In particular, the *pari passu* clause gives parties the ability to contract around the default rule in certain jurisdictions that gives priority to debts incurred earlier in time. The meaning of the *pari passu* clause in the case of a sovereign that cannot go bankrupt is more ambiguous.

Most controversial has been the assertion that was made in the *Elliott Associates v. Peru* case mentioned earlier, that the *pari passu* clause restricts debtors, and particularly those in default, to making pro rata payments to all creditors protected by the *pari passu* clause. A number of factors cut against this interpretation, including the fact that Official Sector lenders (including the IMF and World Bank) are typically understood to enjoy de facto priority over other lenders.²⁷

Another possible reading of the clause is that it protects creditors against the earmarking of assets for a future lender by a sovereign.²⁸ Put differently, this could be a protection against grants of quasi-security interests by the sovereign that might not be covered under the traditional negative pledge clause, such as where a sovereign might promise favored lenders the streams of payments from certain of its revenue sources. Although it is rare to see sovereigns making such promises today; they were common in the late nineteenth and early twentieth centuries (Greece itself, in its bonds from the early 1900s, made such promises²⁹). Cutting against this reading of the clause as a supplement to the negative pledge clause in the

²⁷ Lee Buchheit and Jeremiah Pam, *The Pari Passu Clause in Sovereign Debt Instruments*, 53 Emory Law Journal 869 (2004).

²⁸ *Id.* at 912-13. We make no contention here that this is the correct reading of the *pari passu* clause. We only observe that some have argued for this reading and thus the pricing of bonds containing the *pari passu* clause may take into account the possibility of this reading.

²⁹ Mark Weidemaier, Robert Scott and Mitu Gulati, *Origin Myths, Contracts and the Hunt for Pari Passu* (2010 draft) (available at ssrn.com).

modern context, however, is that fact that modern negative pledge clauses tend to be worded broadly enough to exclude quasi-security interests.³⁰

Regardless of the precise meaning attributed to it, the fact is that the Greek-law governed bonds lack a *pari passu* clause, whereas the English-law bonds contain one. That in turn means that the English-law bondholders have an additional weapon in their arsenal to attack both favorable payments made to other creditors and grants of quasi-security interests, should the Greek government choose to do either, without compensating them equally. The holders of the Greek-law bonds, however, completely lack this weapon. In sum, all else equal, the *pari passu* clause should make the English-law bonds lower risk than the Greek-law bonds.

iv. Cross Default Clauses: Cross default clauses are an early warning system for bondholders. Most sovereign bonds have these types of clauses and they generally specify that it is an Event of Default allowing for acceleration of all the payments on a bond, if the sovereign defaults on any of its other bonds. Bonds without a cross default clause, therefore, are more vulnerable when sovereign is in trouble. The sovereign can keep making small payments on these bonds, even when it is in deep crisis and its other bonds have been accelerated, and avoid having to deal with these bondholders. In other words, bonds without cross default clauses cannot exit a crisis situation early.

The Greek-law governed bonds we examined do not contain cross default clauses. By contrast, the English-law bonds do have these protections. Because the holders of the English-law bonds will be able to exit a crisis situation (where Greece is beginning to default on some of its bonds) at much earlier stage than the holders of the Greek-law bonds, English-law bonds should be less risky.

v. Governing Law: The most significant difference in the two sets of bonds is their governing law. For bonds governed by Greek law, the law is a variable under the control of the Greek legislature. By contrast, Greece presumably has little ability to induce the English parliament to alter its laws to help reduce Greece's debt burden. Thus, the Greek law bonds give Greece considerable flexibility in the event of a debt crisis, whereas the English-law bonds impose constraints.

³⁰ *Id.*

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With the power to alter its own law, in theory, Greece could simply alter its law to say that all debts of the government were extinguished. But presumably Greece wants to return to the financial markets some day and will not take such drastic measures. Further, there are also legal constraints on the measures Greece can take. A complete expropriation of the asset value of foreign creditors might not be viewed sympathetically by a court in an external jurisdiction. That said, a legislative measure that might be perceived as balanced and proportional in these circumstances would be to enact what amounts to a statutory collective action clause. Local law might be changed, for example, to say that if the overall exchange offer is supported by a majority of affected debtholders (say, 51%), then the terms of any untendered local law bonds would automatically be amended so that their payment terms (maturity profile and interest rate) match those of one of the new instruments being issued in the exchange. Once the majority of creditors is persuaded to support an amendment to the payment terms of the instrument, their decision automatically binds any dissident minority. The question, however, is whether such a change in law could survive legal challenge.³¹

Challenge could come from four directions. The first is Article 17 of the Greek Constitution.³² That Article declares that no one shall be deprived of property “except for public benefit” and conditional upon payment of full compensation corresponding to the value of the expropriated property. The question is whether a mandatory alteration of the payment terms of a local law Greek bond in the context of a generalized debt restructuring could be said to impair the value of that bond; an instrument that, in the absence of a successful restructuring, would have in any event been highly impaired in value. Also of relevance may be Article 106 of the Greek Constitution which gives the State broad powers to “consolidate social peace and protect the general interest.”

A second source of legal concern might lie in the European Convention on Human Rights and its Protocols.³³ Article 1 of Protocol No. 1 protects the right to the “peaceful enjoyment of possessions”. This right may be restricted only in the public interest and only through measures that do not impose an individual and excessive burden on the private party. That said, Article 15 of the Convention permits measures, otherwise inconsistent with the Convention, to deal with a “public emergency threatening the life of the nation”.

³¹ We take the discussion of the potential legal barriers from Buchheit and Gulati, *supra* note 24.

³² *Id.*

³³ *Id.*

Third, foreign holders of local law-governed Greek bonds might look to Greece's Bilateral Investment Treaties for redress.³⁴ BITs generally protect against expropriation without compensation, as well as unfair and inequitable treatment. Greece has signed more than 40 BITs with bilateral partners. Relatedly, customary international law, may also impose limits on actions vis-à-vis foreign creditors that are viewed as expropriatory rather than regulatory.

Finally, courts in foreign jurisdictions, such as the U.S. and the U.K. may not countenance what they view as opportunistic behavior (for example, violations of good faith duties). They are likely to view the Greek government as breaching its implicit obligations if it does things like imposing an unreasonably high haircut on the debt and trying to discriminate against foreign creditors.

To summarize, the English-law bonds appear to have many more protections in the event of a financial crisis than the Greek-law bonds. The latter can be both subordinated and restructured more easily than the former. Indeed, the fact that 90% or so of its debt stock is governed by local law bonds that do not contain negative pledge clauses, *pari passu* clauses, or cross default clauses, means that Greece is probably in a better position to restructure its way out of its crisis than any sovereign debtor on the brink of crisis has been in the modern era. Modern practice in the sovereign debt business over the past two decades, however, suggests that the ability to subordinate existing lenders may be of limited utility. Investors in this market appear to have limited faith in the promises of a sovereign to stay faithful to its promises of priority or security, evidenced both by the facts that almost no modern sovereign bonds contain such promises. By contrast, restructurings of sovereign bonds in the modern era have almost all involved forcing investors to take haircuts on their value of their debts. Prominent examples of such restructurings being those by Ecuador, Uruguay, Belize, Argentina, and the Dominican Republic.³⁵ In none of the aforementioned restructurings, however, has the sovereign debtor had a tool as powerful as the ability to alter its governing law to force a large-scale restructuring. It seems safe, therefore, to assume that any pricing difference that we observe between the Greek debt governed by local law and that governed by English law is largely driven by the difference in governing law.

³⁴ *Id.*

³⁵ Roubini, *supra* note 3.

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A final indicator of the importance of the fact that the majority of Greek bonds are governed by local law versus the fact that these same bonds do not contain negative pledge, *pari passu* and cross default clauses comes from the various discussions that have occurred in recent months among market actors about how a Greek debt restructuring might proceed. In every one of those discussions, the focus has been on the fact that 90% or so of the Greek debt is governed by local law and the flexibility that gives Greece in fashioning its restructuring.³⁶ There has been no mention of the absence of the other contract provisions.

As a practical matter, as of this writing, we know that Greece has not attempted to borrow additional funds by using the option of changing local law to subordinate its Greek-law bonds to some subset of new lenders. Instead, it has borrowed from the IMF and its fellow Eurozone members (which might produce a de facto subordination of the private lenders, but not a de jure one). Had it been business-as-usual in the sovereign restructuring world, with the usual pressures from the IMF, the Paris Club and other Official Sector bodies, bonds with different contract terms would have likely received the same treatment.³⁷ That is our understanding of the practice that was followed in recent restructurings such as the ones for Uruguay and Argentina, both of which involved bonds issued under the laws of multiple jurisdictions. Given this expectation of same treatment, one might ask why we would expect any pricing difference between Greece's Greek-law governed bonds and her English-law governed ones. As noted earlier, the answer has to do with differential abilities to hold out. Owners of the English-law bonds will have a greater ability to hold out (and possibly obtain favorable treatment), as a result of their contractual rights to call cross defaults, accelerate their debt and refuse to agree to a restructuring unless a large fraction of their fellow bondholders also agree. The holders of the Greek-law bonds, by contrast, will have to agree to the terms that are offered. It is these differences that we hypothesize the market will have priced.

3.2. Hypotheses

³⁶ E.g., Citigroup, *Global Economics Report: The Debt of Nations*, January 7, 2011 at 31 (available at <http://www.nber.org/~wbuiter/DoN.pdf>); *Bite the Bullet*, *The Economist*, January 13, 2011; Emerging Markets Traders Association Meeting, *The Eurozone Dilemma: What Can be Learned from Emerging Markets?* – June 2, 2010 (report of discussion available at <http://www.emta.org/template.aspx?id=6097>); Joseph Cotterill, *Eurobonds are Among Us*, *Financial Times* (Alphaville) (available at <http://ftalphaville.ft.com/blog/2010/12/03/417746/eurobonds-are-among-us/>).

³⁷ For a description of the typical processes followed under the auspices of the Paris Club and the requirement of “comparable treatment”, see LEX REIFFEL, *RESTRUCTURING SOVEREIGN DEBT: THE CASE FOR AD HOC MACHINERY* (2003).

News stories about the current Greek debt crisis generally date the debacle as beginning in November 2009, when the markets woke up to the news that Greece was in far worse financial shape than had previously been realized.³⁸

Many things can affect how the market prices bonds. Even if the market generally prices the overall risk of a bond, the market may fail to account for a contract provision that affects the risk of a particular bond compared with other bonds that do not have the contract provision. Particularly when the likelihood of a particular contract provision becoming important is remote, market participants may not wish to expend resources in researching and comparing the specific contract terms inherent in different bonds. The opposing view is that at least some investors may care about specific contract provisions. Assuming that investors were at least minimally aware of the differential implications of having contracts governed by the law of the debtor state versus the law of a foreign jurisdiction, there should have been a spread between the yields on Greek-law governed and English-law governed debt even prior to the inception of the crisis. In the Greek context, at least three categories of investors might have had reason to care more or less about the contract protections. First, more risk adverse investors, may have cared in particular about those provisions that would protect against having to take a severe haircut in a restructuring. Second, more sophisticated investors, who realized that Greece had probably been falsifying its numbers, probably factored in a higher risk of a restructuring. And third, local financial institutions in the Eurozone, who took advantage of the ECB's effective subsidy at the discount window and simultaneously calculated that the Official Sector would likely bail them out, might have discounted the risk of a restructuring, *vis-à-vis* their own holdings. This latter set of institutions may have also had inside information as to what the holdings of Greek debt of the other banks were – and they may have determined that the higher those holdings, the higher the likelihood of a bailout.

In the case of Greece, we hypothesize that investors who cared more about the risk of default were willing to pay for the protections provided through English-law governed bonds. These investors may have been worried that, even if there were to be a bailout, Greece and its Eurozone allies would find a way to exclude them. As commentators have observed, sovereigns often find ways to treat their favored creditors better in a restructuring – and those preferences

³⁸ See Reuters, Timeline: Greece's Economic Crisis (2010) (available at <http://www.reuters.com/article/idUSTRE62230T20100303>).

are frequently unrelated to the contract protections that the different investors have.³⁹ Disfavored creditors, therefore, should value having contract rights – because these rights give them the option to hold out from a restructuring. Alternatively, some creditors might have predicted that, in the event of a financial crisis, there would not be a bailout (not an altogether implausible assumption given the Maastricht Treaty’s no-bailout provision), and that the Greek-law bonds were more likely to be either subordinated or restructured than the foreign-law bonds. This increased willingness to pay should have translated into lower yields for English-law governed bonds compared with Greek-law bonds, all other things being equal. As discussed below, our dataset of Greek bonds provides a set of bonds with highly similar characteristics (e.g., maturity, currency, identity of the debtor) except for a subset of key contract provisions – the most important one being the governing law—allowing for a natural experiment on whether investors price contract provisions. Accordingly, we propose the following hypothesis.

Hypothesis: At all times, the yields on Greek-law bonds should have been higher than those on equivalent English-law bonds.

Because the spread should reflect the relative risk of the two types of bonds, the spread should increase as the risk of default increases. Our hypothesis thus implies that the spread should have:

1. Increased between November 2009 and May 2010, when the Greek sovereign debt crisis began and reached its climax (at least, as of the date of this writing).
2. Decreased beginning in early May 2010, when the bailout was announced.

4. Data and Results

We obtained yield data on 33 Greece-issued sovereign bonds from JPMorgan Chase. The dataset of bonds have maturity dates that range from 2011 to 2040. The 33 bonds are only a subset of sovereign bonds issued by Greece outstanding during the time period of our study. To the best of our knowledge, the selection criteria for the 33 bonds is unrelated to the

³⁹ Anna Gelpern, *Building a Better Seating Chart for Sovereign Restructurings*, 53 Emory Law Journal 1119 (2004); Anna Gelpern and Brad Setser, *Domestic and External Debt: The Doomed Quest for Equal Treatment*, 35 Georgetown Journal of International Law 795 (2004).

contractual provisions of the bonds and thus our sample of bonds does not present selection issues for our hypotheses. The yield data for the 33 bonds is based on the underlying price of the bond as determined by the financial institutions holding them, as required by mark-to-market accounting. While mark-to-market accounting only reflects market valuation (and not a directly negotiated secondary market price), we lack any directly observable secondary market transaction price for such bonds. Further, the fact that the bonds in question are likely all thinly traded, at best, adds to the noise in the data. Caveats aside though, mark-to-market accounting requires an accurate reflection of market valuation.

An important precondition for our tests is that the markets generally price the risk of default in the Greek bonds. If the markets do not price the risk of default generally then it is unlikely that the market will price how specific contract terms will affect the risk of default and therefore the value of the bonds to investors. To assess the validity of this precondition, we test whether the market generally priced the risk of default for the Greek bonds. In particular, bonds with different maturity dates, and thus different risks of default, should be priced differently in the marketplace. Moreover, we test whether the markets reacted as new information on Greece's fiscal situation became public. Almost all of our bonds are denominated in euros but governed by Greek law (the Greek-law bonds). We divide these bonds into three categories based on maturity date: short-term (with maturity dates from 2011 to 2013), mid-term (with maturity dates from 2014 to 2017), and long-term (with maturity dates in 2018 and beyond). Our data suggest that despite the different maturity dates, the Greek-law bonds are all governed by the basically same covenants with respect to default and debt restructuring. Our comparison of the different maturity Greek-law bonds allows us to assess the importance of maturity and pricing during the period of the Greece fiscal crisis.

Table 1 reports our breakdown of the study period based on important events relating to Greece's fiscal crisis. We start from June 1, 2009, well before any indication of the fiscal crisis. We finish with the ECB's program of purchasing Greek and other Eurozone periphery sovereign debt and the announcement of an emergency \$1 trillion financial safety net for Greece, both of which were announced and began having an impact roughly around the 10th of May, 2010 (yields are grouped for the period from May 10 to May 28, 2010). Table 2 reports the average yields for short, mid, and long-term Greek-law bonds (and Figure 1 depicts the yields over time graphically). In the pre-crisis period from June 1, 2009 to November 4, 2009, the

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market priced bonds with varying maturity dates differently. Short-term bonds had an average yield of 2.55% during the pre-crisis time period. In contrast, long-term bonds had an average yield of 4.63% or 208 basis points higher. Before the Greek crisis, the market priced differences in maturities for bonds with similar legal protections, with longer maturities receiving the greatest yields in compensation for their correspondingly greater risk. That pattern is consistent with the familiar logic that long term yields are higher because there are more things that can potentially go wrong over the long term.

We next examine how the Greek crisis affected the relationship of maturity and yields. Looking at Table 2, we observe that the credit rating agency downgrades of Greece's sovereign debt during the December 8, 2009 to December 22, 2009 period corresponded to an increase in the yield for Greek-law governed bonds of all maturities. The biggest increase is for those bonds closest to maturity (that normally would present the lowest risk of default). From the time period immediately before the downgrades (November 5, 2009 to December 7, 2009) to the period immediately after the downgrades (December 23, 2010 to January 13, 2010), the yield for those bonds closest to maturity increased on average by 125 basis points. In contrast, those bonds with the longest maturity only experienced a yield increase on average of 72 basis points. The prospect of near-term default had the greatest impact on the yields of those bonds that, prior to the information on the fiscal crisis, were considered the safest due to their relatively close maturity date. In other words, the normal patterns of risk calculation got turned upside down in the crisis.

We also observe that the credit rating agency downgrades did not provide the full story on the extent of the Greek fiscal crisis. Instead, new information became public from December 23, 2010 (after the credit rating downgrades) up until the announcement of the \$1 trillion rescue package on May 10, 2010. This information resulted in both a series of increases in the yields for the different maturity Greek-law governed bonds, peaking at 11.21% yield for those bonds closest in maturity during the April 19, 2010 to May 7, 2010 period. This supports the hypothesis that the market priced the risk of default generally and was responsive to changes in the risk of default over the time period of our study.

The yield curves for short-term and long-term Greek-law bonds during the April 19, 2010 to May 7, 2010 period flips, with those bonds closest to maturity averaging the highest yields (at 11.21%) and those bonds with the longest maturity averaging the lowest yields (at

8.37%). While bonds closer to maturity generally represent a lower risk for investors, all other things being equal, this is not the case when default appears imminent. When default is imminent, the sovereign is likely to impose the most pain on those bonds closest in maturity. Such bonds—because they must be paid off closest in time—present the greatest cash flow problems for the sovereign and thus present the greatest target for restructuring the maturity date. In contrast, bonds that are farther off in maturity only pose a cash flow problem to the extent of their interest payment. The further off maturity date also allows for the possibility that the financial condition of the issuer may change for the better, obviating any need for a restructuring of the principal payment or maturity date. The greater risk of restructuring for bonds closest to maturity arguably led to the flip in the yield curve in the April 19, 2010 to May 7, 2010 time period.

An important point to keep in mind here is that the foregoing inversion in the yield curve would not always occur for an imminent sovereign default. In cases where the majority of a sovereign's bonds contained cross default provisions, a default on any individual issuance of bonds would constitute an Event of Default on the entire outstanding debt stock, thereby making the entire debt stock due immediately. In other words, the maturities would effectively converge. Hence, ordinarily, one should expect to see the yields on the various bonds converge as the crisis gets to the point where it looks like a restructuring is going to be necessary. However, one of the unusual characteristics of the Greek-law governed debt stock that we discussed earlier, is that there are no cross default provisions. That, in turn, in theory, allowed Greece the option of picking and choosing which debt instruments to restructure or default on, without having to trigger defaults on the remainder of the debt stock. Examination of solely the Greek-law bonds themselves, therefore, supports our assumption that the market generally priced differences in risk among the bonds.

We now turn to testing our hypotheses on whether legal differences matter for how bonds are priced. Our dataset includes a single English-law governed bond (GGB EUR 1.027 11-Apr-2016 LON Mid Yield). To control for maturity date, we compare our single English-law bond with a single Greek-law bond closest in maturity date to the English-law bond (GGB EUR 3.600 20-Jul-2016 LON Mid Yield) (termed the "comparison bond"). Our lack of data on English-law governed bonds, combined with the likely noise in the mark-to-market data for a thinly traded bond, prevents us from making conclusive findings on the accuracy of pricing and the role of law

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in this pricing for English-law governed bonds. Nonetheless, our single English-law bond provides a starting point in assessing these relationships. Table 3 reports the average yields for the different time periods in our study for the English-law and comparison Greek-law bonds (and Figure 2 depicts the spread between Greek-law and English-law governed bonds over time).

As reported in Table 3, we observe first that in the pre-crisis period prior to November 5, 2009, the market priced differences between English-law and Greek-law governed bonds consistent with our hypothesis. The yield for our English-law governed bond is on average 212.7 basis points lower than the comparison Greek law governed bond in the pre-November 5, 2009 time period. The yield difference stays relatively stable at 211.5 basis points on average in the period between November 5, 2009 and just before the first ratings downgrade (up to December 7, 2009). To provide context, the spread between Greek 10-year bonds and equivalent German bunds in December-January 2010 was in the 200-230 basis point range.⁴⁰ It strikes us as unlikely that the market was treating English-law governed Greek bonds as the equivalent of German bonds, in turn suggesting that our mark-to-market data on the English-law bonds is noisy and overstating the yield spread. However, even assuming noise, the directionality of the spread suggests that prior to the initial announcements relating to Greece's fiscal problems, investors accepted a lower yield for English-law governed bonds compared with Greek-law governed bonds. Given the similar maturities between the English-law and comparison Greek-law comparison bond, the difference in yield is likely due to the greater default protection afforded through the English-law governed terms.

After the credit rating agency downgrades in the December 8, 2009 to December 22, 2009 period, while the Greek-law comparison bond yields increased, the English-law bond yields did not increase, leading to an increase in the spread between the two bonds. While the credit rating agencies did not distinguish between English-law and Greek-law governed bonds, downgrading Greek debt generally, the market priced a greater chance of default affecting Greek-law governed bonds compared with English-law governed bonds at least in the initial periods of the Greek crisis. The spread peaked in the January 14, 2010 to April 9, 2010 period at

⁴⁰ Reuters, *10-yr Greek/Bund Yield Spread Tightest Since Mid-Dec (2010)* (available <http://www.reuters.com/article/idUSLDE60411Z20100105>).

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402.6 basis points, 191.1 basis points higher than in the pre-crisis period. To assess the significance of the change in the spread, we computed the standard deviation of spread between the English law and comparison Greek law bonds from June 1, 2009 to October 31, 2009, the pre-crisis period. The spread had a standard deviation of 51.1 basis points during the pre-crisis period. The 191.1 basis point increase in the spread therefore represented over three times the standard deviation and thus a change unlikely due to chance. Again, a caution here is that the mark-to-market data on the English-law bonds is likely both noisy and sluggish in responding to market information. However, the direction of the increase in the spreads is again what is suggestive.

The increase in the spread between the Greek-law and English-law governed bonds was short-lived. As the heads of the Eurozone nations and the ECB began suggesting that they were not going to allow Greece to default and that a bailout was in the offing (roughly during April 12, 2010 - April 16, 2010 period), the yields on the English-law bond increased, dropping the spread between the English-law and the Greek-law comparison bond to only 95.5 basis points. That said, given that it was unclear as to whether the bailout would be enough, the markets remained in turmoil even after the bailout announcements (during the April 19, 2010 to May 7, 2010). As a result, the yields during this time period experienced great fluctuation—particularly for the Greek-law governed bonds that offered the least default protection. Eventually, once Greece received a commitment for a \$1 trillion emergency bailout package, the yield fluctuation diminished. In the May 12 and beyond period, the yield difference was equal to 171.5 basis points. Note that this differential is actually lower than the over 200 basis point differential prior to the Greek crisis before November 2009. We suspect that the lower spread between Greek-law bonds and English-law bonds during this period (as compared to the pre November 2009 period) was the result of the ECB's buyback program. The reason the ECB's large debt holdings are important to the story is that the power to hold out is limited by the fact that, even in the English-law bonds, there exists a mechanism to quash the holdout. Specifically, a large enough fraction of the holders (between 66% and 75% of the bonds in principal amount) can collectively choose to cram down a restructuring on the holdouts. We do not know precisely what fraction of the various English-law bonds the ECB holds. But presumably it is a non-trivial amount, leading the bondholders who might be contemplating holding out, to be concerned that the ECB might use its votes to force a deal on them.

Our examination of the pattern of yields over time for the English-law and Greek-law governed bonds supports the hypothesis that the market priced in the legal covenants that affected the risk of default for bondholders during our study time period. Not only was there a price differential right at the outset, but that premium increased as the likelihood of the crisis increased. However, as the likelihood of being able to hold out diminished as the ECB accumulated Greek debt, the premium diminished.

As an aside, there is also some indication that the much maligned credit rating agencies provided valuable information to the market on the risk of default. However, they were not fully informative with respect to the risk of default in the case of Greece. Even after the credit rating agencies downgraded Greece's sovereign debt rating in December 2009, the yields continued to increase as new information on the risk of default became public over the first several months of 2010.

5. Conclusion and Implications

Two related sets of implications emerge from our study.

First, we find indications that the markets do price differences in contract terms – or at least packages of terms relating to the ability of debtors (in our case sovereigns) to restructure their debt, such as the terms that we describe. Consistently with the Costly Contracting Hypothesis from the classic Smith and Warner (1979) paper, the markets seem to recognize the greater vulnerability of local-law governed bonds to debtor misbehavior as compared to bonds governed by foreign law. The evidence shows that Greek bonds governed by different laws were priced differently even prior to the crisis. The onset of the crisis should have increased the importance of the differences in the contract terms between the sets of bonds, and that is what we observe. Subsequently, as a bailout package was put together and the ECB began to intervene, the differential pricing should have dampened and, again, that is what we observe.

In the sovereign debt context, because unsecured bonds with different contract terms (other than their maturity and yield) are generally treated the same in a restructuring, our results seem puzzling. Why should bonds governed by different laws be priced differently if they will be treated the same in a restructuring? The answer is that the contract protections are

valuable to the subset of bondholders who plan to hold out from the restructuring. We find that a holdout premium existed for those bonds offering the greatest legal protection for a holdout—the English-law governed Greek issued bonds. This premium was present at the outset (before the crisis), and became greater as the crisis worsened. This in turn means that holdout creditors have to pay to obtain their contractual rights to hold out (and the price they pay reflects the value of this holdout ability). Presumably, Greece was able to raise more money from a subset of its creditors by selling them the right to hold out, should there ever be a need to restructure. At least in this context then, the behavior of the vulture funds in holding out does not seem quite as unprincipled and in need of legal constraint as many of the proponents of sovereign bankruptcy schemes suggest. Just as a private creditor restricted from issuing a security interest would suffer a higher cost of capital, sovereigns such as Greece would also face higher capital costs if they were unable to grant holdout-related contractual protections to subsets of investors who desire such protections. A caveat here is that we cannot conclude from the fact that there is a holdout premium that the market estimates that holdout premium *accurately*. We can only say that important contract differences appear to be priced.

Our results have implications for a Greek restructuring, should it happen under the auspices of the ECRM or any related mechanism. The pricing differences suggest that an element in the production of the crisis was the ECB's subsidy for Greek-law governed debt purchased by Eurozone banks. These purchasers took advantage of the higher yields on this risky debt. Other investors took lower yields in exchange for lower risk (or greater holdout rights). In a hypothetical world without Official Sector intervention, if Greece were trying to figure out how to deal with its crisis itself, it would have to look at the contract terms in its various bonds and decide how to proceed. Examining those terms would have told it that it could perhaps use a reform of local law to make a restructuring easier or subordinate its Greek-law bonds by granting security interests to new lenders or delay its defaults on much of the later-maturing Greek debt. The English-law governed debt, however, would contain provisions—such as the governing law, negative pledge and cross default clauses—that made these strategies difficult to use. As a result, Greece would have had to pay its English-law governed debt off early and, most likely, at a higher price than it would eventually pay the Greek-law bonds. The prospect of favorable treatment for English-law governed debt, *ex ante* would then lead investor to demand a lower interest rate when purchasing such debt in the first place, lowering Greece's cost of capital. Supposedly, this hypothetical universe, where countries

Pricing Boilerplate

can work their way out of their own sovereign debt problems by negotiating appropriate contracts, ex ante, is what the richer countries in the Eurozone (and especially Germany) ultimately want.

As things stand today, if and when Greece does have to restructure, it is likely to be one of the first nations to test the new ECRM or whatever equivalent reform mechanism is put into place. In the past, in the restructurings that the Official Sector has guided via the Paris Club and IMF pressures and incentives, the general practice has been that the multilaterals get paid first and in full. After that, the bilaterals work out a deal in the Paris Club and then require that the private creditors take comparable haircuts. More specifically, and relevant for our purposes, this “comparability” has translated into private creditors (with adjustments for maturity and yield) getting the same treatment regardless of their contract protections (unless they hold out). Our suggestion is that the private debt should not all be treated equally. Instead, those with better contract terms, such as the holders of the English-law bonds, should be given better treatment.⁴¹ If the goal is to protect against the need for future sovereign bailouts in the Eurozone, and to get the markets to solve their own problems, creditors have to be given incentives to evaluate debtors carefully and negotiate appropriate contract terms. To treat the Greek-law bonds and English-law bonds equivalently would subsidize those creditors who had taken higher risks at the expense of those who had been more careful. And that would set up the wrong incentives for the future.

⁴¹ Cf. Bolton, Patrick and David A. Skeel, Jr., *Inside the Black Box: How Should a Sovereign Bankruptcy Framework Be Structured?* 53 Emory Law Journal 763 (2004) (arguing for a system of absolute priority).

Table 1

Greek Crisis Time Periods

Time Period	Description
June 1, 2009 to November 4, 2009	Pre-Crisis
November 5, 2009 to Dec 7, 2009	Nov 5 – Greece announces plan to cut budget deficit by 12.7 percent of GDP
December 8, 2009 to Dec 22, 2009	Dec 8 – Fitch cuts rating to Dec 22 – Moody’s cuts ratings
Dec 23, 2010 to Jan 13, 2010	Period before Greece unveils stability program. Union announces planned strikes.
Jan 14, 2010 to April 9, 2010	Jan 14—Greece unveils stability program
April 12, 2010 to April 16, 2010	Period when various bailout plans announced for Greece
April 19, 2010 to May 7, 2010	Post-announcement of bailouts
May 10 to May 28, 2010	Global policymakers install an emergency \$1 trillion financial safety net

Table 2

Greek-Law Governed Bonds

	Greek-Law Short Term	Greek-Law Mid-Term	Greek-Law Long-Term
June 1, 2009 to November 4, 2009	2.55	3.50	4.63
November 5, 2009 to Dec 7, 2009	2.33	3.35	4.74
December 8, 2009 to Dec 22, 2009	3.61	4.17	5.33
Dec 23, 2010 to Jan 13, 2010	3.57	4.36	5.46
Jan 14, 2010 to April 9, 2010	5.04	5.30	5.95
April 12, 2010 to April 16, 2010	6.07	6.05	6.55
April 19, 2010 to May 11, 2010	10.72	9.24	8.25
May 12 to May 28, 2010	6.92	7.37	7.62

Table 3

English-Law and Comparison Greek-Law Bonds

	English Law Bond	Comparison Greek Law Bond	Difference in Basis Points
June 1, 2009 to November 4, 2009	1.82	3.95	212.7
November 5, 2009 to Dec 7, 2009	1.89	4.11	211.5
December 8, 2009 to Dec 22, 2009	1.90	5.12	321.5
Dec 23, 2010 to Jan 13, 2010	1.91	5.14	323.3
Jan 14, 2010 to April 9, 2010	1.99	6.02	402.6
April 12, 2010 to April 16, 2010	6.07	7.02	95.5
April 19, 2010 to May 11, 2010	6.10	9.85	374.8
May 12 to May 28, 2010	6.15	7.87	171.5

Figure 1

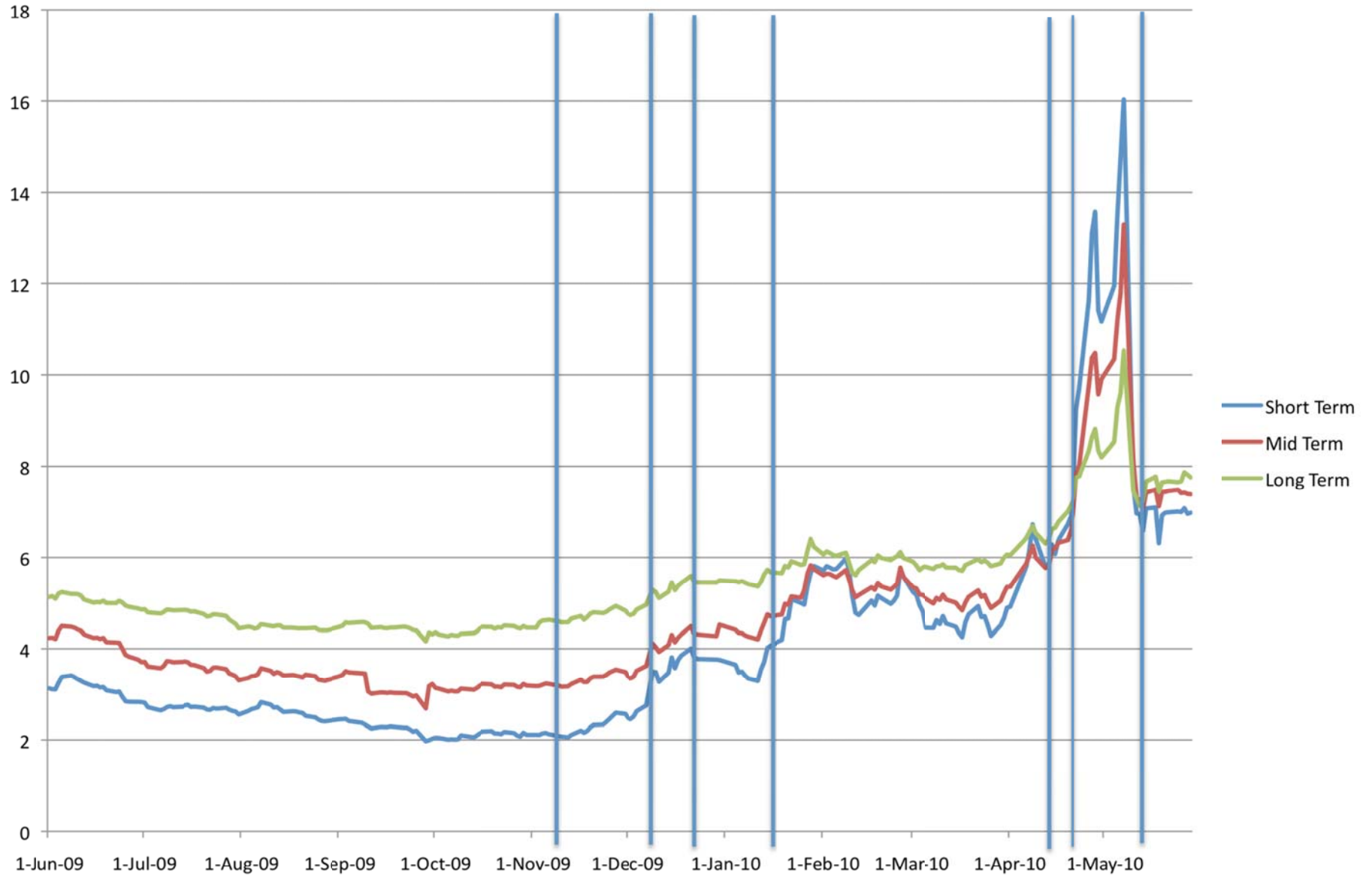


Figure 2
Spread Between Greek Law and English Law Governed Bonds

