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THE DYNAMICS OF CONTRACT EVOLUTION

STEPHEN J. CHOI,* MITU GULATI† & ERIC A. POSNER‡

Contract scholarship has given little attention to the production process for contracts. The usual assumption is that the parties will construct the contract ex nihilo, choosing all the terms so that they will maximize the surplus from the contract. In fact, parties draft most contracts by slightly modifying the terms of contracts that they have used in the past, or that other parties have used in related transactions. A small literature on boilerplate recognizes this phenomenon, but little empirical work examines the process. This Article provides an empirical analysis by drawing on a dataset of sovereign bonds. We show that exogenous factors are key determinants in the evolution of these contracts. We find an evolutionary pattern that roughly separates into three stages: stage one when a particular standard form dominates in the absence of external shocks; stage two when there are external shocks and marginal players experimenting with deviations from the standard form; and stage three when a new standard emerges. We find that more marginal law firms are likely to be leaders in innovation at early stages of the innovation cycle but that dominant law firms are leaders at later stages.

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* Murray and Kathleen Bring Professor of Law, New York University School of Law.

† Professor of Law, Duke University School of Law.

‡ Kirkland & Ellis Distinguished Service Professor of Law, University of Chicago Law School. For their comments, thanks to Michael Bradley, Kevin Davis, Anna Gelpert, Florencia Marotta-Wurgler, Un Kyung Park, Arti Rai, Barak Richman, Robert Scott, David Skeel, Mark Weidemaier, David Willard, and the participants at the New York University School of Law Conference on Contractual Innovation. Guangya Liu provided invaluable assistance with constructing the models and analyzing the data. Keegan Drake and Tori Simmons helped construct the dataset. Copyright © 2013 by Stephen J. Choi, Mitu Gulati, and Eric A. Posner.

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INTRODUCTION

The literature on the evolution or production of contracts is sparse. Scholars frequently assume that parties draft bespoke contracts that serve the needs of specific transactions.¹ But this assumption does not reflect the reality of the contract production process.

Contracts are more like commodities than custom-made items. They are mass-produced by law firms, which typically serve large numbers of clients with divergent interests.² Like any other mass producer seeking to serve a broad client base, law firms sell products that help serve the needs of clients. The client typically wishes to consum-

¹ See Barak Richman, *Contracts Meet Henry Ford*, 40 HOFSTRA L. REV. 77, 77 (2011) (“Legal scholars and legal educators . . . view contracts as a welfare-maximizing (or optimal risk-allocating) device for two or more parties.”).

² See *id.* at 79.

mate a deal—not to produce the perfect contract.³ The economics of the production process then results in a method where lawyers produce “good enough” contracts, and where the majority of these contracts are modifications of existing templates, including older contracts or forms that have been developed by trade associations.

Barak Richman explains that “[t]he paradigmatic question each attorney asks regarding a new legal product is, ‘Has this worked before?’ not ‘How can we make this work best?’ or even ‘What is it that we are making?’”⁴ Contract drafters are more like inventors than authors: They take existing products and try to improve them so that they can meet the clients’ needs at hand. As a result, contract production is path-dependent, giving rise to the phenomenon of boilerplate.⁵ Boilerplate has an odd dual quality: It is thought to be necessary (which is why it is left in the contract), but parties often do not know why it is important. Judicial opinions reflect this confusion, with many courts expressing skepticism about boilerplate even while they frequently enforce it.⁶

Boilerplate is sticky but not static. We know that boilerplate and form contracts generally change over time. But we know little about *how* these contracts change. In a prior article, we examined the evolution of sovereign debt contracts over a roughly fifty-year period.⁷ We found that changes did not occur on a deal-to-deal basis as assumed by the conventional model. Rather, contracts generally changed on an industry-wide basis, in response to major events, such as global financial crises.⁸ Individualized change also tended to show up in response to shocks or significant events, but the events in question were signifi-

³ These are what might be called “satisficing contracts.” For a discussion on the dynamics that can produce such contracts, see Richman, *supra* note 1, 79–81. Richman explains: “[T]he creation of mass-produced [contracts] that do not ideally meet consumer demands should come as no surprise. This is not the consequence of agency costs or a lack of attorneys’ fidelity to their clients; it merely illustrates the limits—and, indirectly, the strengths—of large organizations.” *Id.* at 79; see also Patrick Bolton & Antoine Faure-Grimaud, *Satisficing Contracts*, 77 REV. ECON. STUD. 937 (2010) (modeling why agents facing deliberation costs rationally choose to prepare incomplete contracts).

⁴ Richman, *supra* note 1, at 81.

⁵ For a discussion of the literature on contract boilerplate and stickiness, see MITU GULATI & ROBERT E. SCOTT, *THE THREE AND A HALF MINUTE TRANSACTION: BOILERPLATE AND THE LIMITS OF CONTRACT DESIGN* (2012).

⁶ *Compare* Rissman v. Rissman, 213 F.3d 381, 385 (7th Cir. 2000) (making the point that boilerplate can be useful), *with* Henningsen v. Bloomfield Motors, 161 A.2d 69, 95 (N.J. 1960) (refusing to enforce a boilerplate liability waiver clause in a situation of “grossly disproportionate bargaining power”).

⁷ Stephen J. Choi, Mitu Gulati & Eric A. Posner, *The Evolution of Contractual Terms in Sovereign Bonds*, 4 J. LEGAL ANALYSIS 131 (2012), available at <http://jla.oxfordjournals.org/content/early/2012/05/31/jla.las004.full>.

⁸ *Id.* at 152.

cant for particular actors and not the market as a whole. In the case of sovereign debtors, individual defaults, rather than regional or global crises, provide the spark to alter boilerplate and form contracts.⁹

In this article, we extend our prior research to analyze the internal dynamics of these periods of clustered change and assess how boilerplate terms shift to a new standard. The industry we use in our analysis is the sovereign bond market for foreign-law governed bonds. These bonds are typically purchased by cross-border investors and are largely governed by either the laws of New York or England. The parties in this market—such as states, banks, mutual funds, pension funds, and hedge funds—tend to be sophisticated. Regulation is sparse; after all, the key actors are the states themselves. The basic economic problem in the transaction has remained the same over centuries: States borrow money from foreign investors, but it is hard to force the states to pay the money back if the states decide they would rather not. States nonetheless have an economic incentive to give investors some confidence in getting repaid in order to convince the investors to lend to the states in the first place. The stability of this basic economic transaction over time is important because it enables us to test our evolutionary model over a long period of time.

We focus on a particular shift in the boilerplate sovereign bond contract for those issuances governed under New York law: the shift toward collective action clauses (or “CACs”) from unanimity action clauses (or “UACs”) governing changes to payment-related terms. The shift to CACs was a watershed event in the history of sovereign bond covenants.¹⁰ It significantly increased the ability of bondholders and issuers to engage in debt restructurings.¹¹ Our interest is not only

⁹ *Id.*

¹⁰ There is now a large literature discussing this debate and the eventual shift to CACs in the New York market. See, e.g., JOHN B. TAYLOR, *GLOBAL FINANCIAL WARRIORS: THE UNTOLD STORY OF INTERNATIONAL FINANCE IN THE POST-9/11 WORLD* 111–32 (2007) (describing the development and rollout of CACs from the perspective of the U.S. government from 2001 to 2005); Sean Hagan, *Designing a Legal Framework to Restructure Sovereign Debt*, 36 *Geo. J. Int'l L.* 299, 317–24 (2005) (providing an overview of the reasons for and development of CACs, and discussing the possibility of establishing a new global sovereign debt restructuring mechanism); Randal Quarles, *Herding Cats: Collective Action-Clauses in Sovereign Debt—The Genesis of the Project to Change Market Practice in 2001 Through 2003*, 73 *LAW & CONTEMP. PROBS.* 29 (2010) (exploring the thinkings of U.S. Treasury Department officials as they encouraged emerging-market sovereigns to include CACs in their debt instruments); David A. Skeel, Jr., *Can Majority Voting Provisions Do It All?*, 52 *EMORY L.J.* 417 (2003) (discussing the history of collective action provisions in sovereign bonds and advocating a sovereign bankruptcy framework as a more complete solution to sovereign debt problems).

¹¹ For a discussion on the impact of these CACs, see Michael Bradley & Mitu Gulati, *Collective Action Clauses for the Eurozone: An Empirical Analysis* (May 7, 2012) (unpublished manuscript), available at <http://ssrn.com/abstract=1948534> (reviewing and testing

with how and when New York-law governed contracts shifted from UACs to CACs for payment terms but also the process of change for a number of other CAC-related terms, including the vote threshold for non-payment terms as well as disenfranchisement, mandatory meeting, and aggregation clauses (we define these later). Together, particular combinations of these terms form the model that applies in any particular sovereign bond contract. In discussing the evolution of this model, we will occasionally describe innovations as major and minor. Consistent with the policy debates over CACs, we label the shift away from the requirement of unanimous approval from all bondholders to alter payment terms as the major shift and the changes in other terms as minor shifts.

Shocks to the sovereign debt market, in the form of Mexico's crisis in 1995, the Asian financial crisis in 1997–1998, and Argentina's default in 2001, represented triggers for the changes in the contract model. We report on the types of contract innovations that took place with the start of these shocks and the market participants associated with these changes. Importantly, a shift towards the CAC model as the new standard did not occur overnight. Instead, there was a period of time after Mexico's crisis in 1995 through Argentina's default in 2001 during which the use of CACs was infrequent and only associated with more marginal market participants.¹²

After this initial period, a tipping point occurred—driven by the cumulative effect of the default shocks as well as vocal public sector pressure—at which point top market participants changed from supporting the old standard to competing actively with one another to generate the new standard. At this tipping point, the usage of the old standard dropped rapidly and the incidence of the new CACs increased dramatically—giving an X pattern at the point where their usage percentages in the market crossed. Our study shows that once this tipping point—the X point—is reached, subsequent CAC innovations, largely involving CAC-related terms such as the aggregation

hypotheses about the effects of CACs on the sovereign bond market, and finding that borrowing costs for the financially weakest issuers declined when they incorporated CACs into their bond offerings). The actual importance of these CACs is a matter of continuing debate. But the basic point that a bond with a unanimity requirement to alter payment terms is harder to restructure than one with a supermajority one is not at issue. Cf. Ugo Panizza, Federico Sturzenegger & Jeromin Zettelmeyer, *The Economics and Law of Sovereign Debt and Default*, 47 J. ECON. LITERATURE 651, 672–73 (2009) (expressing skepticism regarding whether there were collective action problems for creditors in the debt crises of the 1990s).

¹² For a description of the debate over CACs, starting with Mexico in 1995 and proceeding up to the Argentine default in 2001, see Sönke Häsel, *Collective Action Clauses in International Sovereign Bond Contracts—Whence the Opposition?*, 23 J. ECON. SURV. 882 (2009).

clause, are driven by the top market participants competing to control the new CAC standard. This competition eventually led to a new standard—Mexico’s version of the CAC first used in 2003—and a gradual slowing of growth in the adoption of the CAC model in the market as CACs saturated the market. This slow initial experimentation, then rapid acceleration of adoption, followed lastly by a slower growth rate of market adoption as the CAC became dominant, roughly takes the shape of an S curve.¹³

In Part I, we survey the literature on contract innovation. We draw from this literature to set up our hypotheses regarding the process of boilerplate contract evolution. We also describe our sovereign bond dataset, including the key CAC clauses, and the shocks to the sovereign bond market during the time period of our dataset that we use in our empirical tests. These shocks primarily affected issuers using New York-law governed bonds, and that was the market segment from which the impetus for innovation arose. Part II presents evidence from the New York-law governed portion of our sovereign bond dataset on the process of contract change. Part III extends our analysis to the parallel contractual change that occurred in the CACs within the English-law governed sovereign bond market. We use differences in how contract innovation occurred in this separate market to illuminate what distinguishes the initial stages of contract innovation from later stages of new contract standardization. In particular, the presence of external calls for change (in our case, from the public sector) is an important factor in determining when top market participants shift from defending the existing standard to competing in order to generate the new standard.

I

BACKGROUND RESEARCH AND DATA DESCRIPTION

A. *The Innovation-to-Standardization Cycle*

Conceptualizing standard form contracts as products is not new.¹⁴ However, contract scholars have not asked—as is frequently done in

¹³ The S-shaped adoption curve is often discussed in the technological innovation literature. See, e.g., Ashish Sood & Gerard J. Tellis, *Technological Evolution and Radical Innovation*, 69 J. MARKETING 152, 153–54 (2005) (describing the three stages of the S curve: introduction, growth, and maturity).

¹⁴ Although the exception in contracts scholarship, a handful of scholars have urged the conceptualization of contracts as commodities, consumer products, and social artifacts. See John J. A. Burke, *Contract as Commodity: A Nonfiction Approach*, 24 SETON HALL LEGIS. J. 285, 287 (2000) (analyzing various approaches to regulating standard form contracts since existing legal paradigms have been “at odds with the commercial reality”); Henry T. Greely, *Contracts as Commodities: The Influence of Secondary Purchasers on the Form of Contracts*, 42 VAND. L. REV. 133 (1989) (exploring the effects of secondary purchasers on

the technological innovation literature—how the cycle of innovation to market dominance occurs with contract terms.¹⁵ We call this the innovation-to-standardization cycle because incorporating a contract term into the standard form or boilerplate is the equivalent of achieving a dominant design in the technology innovation field.

While the cycle has not been examined empirically in the context of contract evolution, portions of it have been studied. For example, scholars have examined what factors induce shifts in the boilerplate, using models built on assumptions about strong network effects.¹⁶ Network effects and the inherent difficulty of capturing returns from contract innovation (due to the difficulty of patenting an innovation and the ease of copying it) lead to contract stickiness.¹⁷ When contracting parties abandon a standard and adopt a new form contract, they take the risk that courts will interpret their terms in an unpredictable way. At the same time, if their new form works well and is interpreted consistently by courts, then other parties can imitate it. Thus, the earlier adopters confer a positive externality while internalizing all the risk. Accordingly, one expects that firms will undersupply innovation of boilerplate or form contracts.

Using a model of network effects and stickiness in contract change, Kahan and Klausner predicted, and found, that high-volume intermediaries would be associated with changes in boilerplate provisions in corporate bond contracts.¹⁸ Research by two of the authors of this piece on sovereign debt contracts found that roughly similar high-volume intermediaries were key change agents (the two models had

the standardization of form contracts); Mark C. Suchman, *The Contract as Social Artifact*, 37 LAW & SOC'Y REV. 91 (2003) (proposing treating contract documents as social artifacts to study how actors construct and employ contracts, and to recognize the larger social processes involved).

¹⁵ An exception is Barak Richman's recent work, in which he explains innovation in contract terms by drawing from the literatures on organizational economics and technological change. "During an era of incremental technological change, firms are often well-served by rigid structures, but . . . 'technological discontinuities' or market shocks dramatically alter the market environment Often, only new or entrant firms can organize their routines around the new technology or market environment" Richman, *supra* note 1, at 83 (internal citations omitted).

¹⁶ Network effects occur in circumstances when the user of a product obtains additional benefits as a function of the number of others users of the product. A simple example is the telephone; the value of having a telephone increases as a function of how many others have telephones. See generally DAVID EASLEY & JON KLEINBERG, NETWORKS, CROWDS, AND MARKETS: REASONING ABOUT A HIGHLY CONNECTED WORLD (2010).

¹⁷ For an overview of legal literature on network effects, see Clayton P. Gillette, *Standard Form Contracts* 5 (N.Y. Univ. Law & Econ., Working Paper No. 184, 2009), available at http://lsr.nellco.org/nyu_lewp/181/.

¹⁸ Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting* (or "The Economics of Boilerplate"), 83 VA. L. REV. 713, 753–60 (1997).

different change agents, but the basic idea was the same).¹⁹ We theorize that in markets with strong network effects, there are costs associated with deviating from the boilerplate. Higher-volume intermediaries such as investment banks or law firms are more willing to change boilerplate language than their lower-volume competitors, because the higher-volume intermediaries have the scale both to ensure the adoption of a new standard and to garner the benefits of moving to an improved product design, at least in the short term. Furthermore, being at the forefront of innovation can confirm the status of these high-volume intermediaries as market leaders.²⁰ More generally, scholars studying financial product innovation have found that strong network effects can give first-mover advantages to innovations by large investment banks.²¹

However, recent research suggests that deviations from the boilerplate or standard form occur more often than the strong network-effects model might predict.²² In the context of boilerplate financial contracts among sophisticated parties, research has found that contract innovations arise not only from high-volume intermediaries but also from marginal players.²³ The reason may be that marginal players

¹⁹ See Stephen J. Choi & Mitu Gulati, *Innovation in Boilerplate Contracts: An Empirical Examination of Sovereign Debt Contracts*, 53 EMORY L.J. 929, 971–76 (2004) (finding that the presence of attorneys who handle a high volume of debt issuances can shift contract language).

²⁰ E.g., Damon J. Phillips & Ezra W. Zuckerman, *Middle-Status Conformity: Theoretical Restatement and Empirical Demonstration in Two Markets*, 107 AM. J. SOC. 379, 379–80 (2001) (suggesting that innovation typically arises from either those at the top of the status hierarchy who are confident of their status, or those at the bottom who defy accepted practice because they are excluded from the hierarchy regardless of behavior).

²¹ See Peter Tufano, *Financial Innovation*, in HANDBOOK OF THE ECONOMICS OF FINANCE 307, 325 (George M. Constantinides et al. eds., 2003) (finding that innovators initially earn higher market share but as the number of rivals increases, profits decline). See generally W. Scott Frame & Lawrence J. White, *Empirical Studies of Financial Innovation: Lots of Talk, Little Action?*, 42 J. ECON. LITERATURE 116 (2004) (explaining the motivations and conditions necessary for financial innovation).

²² The studies discussed *supra* notes 18–21 examined financial contracts with sophisticated lawyers on both sides. Mass-produced, take-it-or-leave-it consumer contracts, where only one side has counsel, are a different kettle of fish. Examining this context, Marotta-Wurgler and Taylor found more frequent changes in contract language than did the prior studies. They also found that innovations were more likely to emanate from younger, larger, and faster-growing firms. Florencia Marotta-Wurgler & Robert Taylor, *Set in Stone? Change and Innovation in Consumer Standard Form Contracts*, 88 NYU L. REV. 240 (2013).

²³ See, e.g., GULATI & SCOTT, *supra* note 5; W. Mark C. Weidemaier, *Disputing Boilerplate*, 82 TEMP. L. REV. 1, 50–53 (2009); W. Mark C. Weidemaier, *Reforming Sovereign Lending Practices: Modern Initiatives in Historical Context*, in SOVEREIGN FINANCING AND INTERNATIONAL LAW: THE UNCTAD PRINCIPLES ON RESPONSIBLE SOVEREIGN LENDING AND BORROWING (Carlos Esposito et al. eds., Oxford Univ. Press, forthcoming June 2013) [hereinafter Weidemaier, *Reforming Practices*]; W. Mark C. Weidemaier, Robert E. Scott & Mitu Gulati, *Origin Myths, Contracts and the Hunt for Pari Passu*, LAW & SOC. INQUIRY,

believe that they can best compete with established players by innovating, while established players have no reason to risk negative outcomes from contractual innovation if they can rely on returning customers or their reputation for satisfactory legal work. Indeed, in the context of technological innovations, researchers have found that small firms often act ahead of their larger counterparts.²⁴ In any event, the contractual innovations by marginal players do not always receive high levels of attention in the literature, perhaps because the innovations in question often do not receive wide adoption.²⁵

To reconcile these two lines of research, one might hypothesize that there are two distinct periods to the standardization process. During the initial period there are innovations or deviations from the standard form, but they do not necessarily garner widespread adoption. These innovations or deviations can come from a wide range of parties. We conjecture that market participants at the margins, without a vested interest in maintaining the existing standard, will be the most likely to promote innovation in the initial period. The dominant players, being the primary users of, and experts in, the existing standard, will be less likely to innovate in this first period. The next period, in which a particular innovation becomes widely adopted, occurs when high-volume or high-status intermediaries play a key role in promulgating the innovation. Approval of an innovation by official actors—in the sovereign debt context, a key industry group or the International Monetary Fund (“IMF”) may be such actors—might also have an impact on whether the innovation gains wide adoption.²⁶

To summarize, the literature suggests two points. First, deviations away from the boilerplate can and do occur. But early versions of

Apr. 25, 2012, available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1747-4469.2012.01313.x/abstract>.

²⁴ See Clayton M. Christensen & Richard S. Rosenbloom, *Explaining the Attacker's Advantage: Technological Paradigms, Organizational Dynamics, and the Value Network*, 24 RESEARCH POL'Y 233, 234–35 (1995) (noting that established firms are more likely to undertake incremental innovations and “frequently lag behind aggressive entrants” when faced with “radically different technologies”); Richman, *supra* note 1, at 83 (citing a case study in the chemicals industry in RICHARD N. FOSTER, INNOVATION: THE ATTACKER'S ADVANTAGE 116–21 (1986)).

²⁵ See Ann Gelpern & Mitu Gulati, *Innovation After the Revolution: Foreign Sovereign Bond Contracts Since 2003*, 4 CAPITAL MKTS. L.J. 85, 89–90 (2009) (explaining that few took notice when marginal issuers started using CACs even though later, larger issuers like Mexico were viewed as innovators); Mark Gugliatti & Anthony J. Richards, *The Use of Collective Action Clauses in New York Law Bonds of Sovereign Borrowers*, 35 GEO. J. INT'L L. 815 (2004).

²⁶ See Anna Gelpern & Mitu Gulati, *Public Symbol in Private Contract: A Case Study*, 84 WASH. U. L. REV. 1627, 1644–1706 (2006) (explaining how different institutional and governmental organizations influenced the inclusion of CACs in Mexico's 2003 bond offering).

these innovations often receive little notice; it can be decades before an innovation is widely adopted. Second, deviations from the standard form do occasionally displace the old boilerplate, and those displacements frequently correlate with the adoption of the deviation by high-volume players in a market.

Accordingly, using our data on sovereign bond contracts, we first hypothesize that prior to a shock, the existing boilerplate standard will dominate with little to no innovation; standards have inertia and are costly to change. Without any shock to move even marginal market participants away from the standard, we expect the pre-existing standard to prevail in the market. We refer to this as “stage one.” Second, once shocks commence, we predict a period of experimentation by more marginal players in the market (referred to as “stage two”). Third, with enough shocks and possibly external pressure, we predict that the shift to a new standard will accelerate, particularly once a shift to a new standard is viewed as likely in the marketplace, then eventually slow as the new standard saturates the market (referred to as “stage three”). The combination of these three stages takes the rough shape of an S, as shown in Part II.D. We predict that top market participants that derive value from the specific contract language (such as attorneys selling their services in part as contractual experts) will take the lead in innovation once it is clear that the market will shift away from the old standard.

B. The Dataset: Clauses, Agents, and Shocks

We use a dataset covering roughly twenty years of sovereign bond issuances. This is the era of the modern cross-border sovereign bond markets. Although there were a small number of sovereign bonds issued prior to 1990, much of the lending in the pre-1990 period was in the form of syndicated loans.²⁷ The bond market began growing significantly in the wake of the Latin American debt crisis of the late 1970s and early 1980s.²⁸ Our dataset includes bonds available on the Thomson One Banker database—one of the largest collections of contemporary sovereign bonds. It contains over 700 separate bond issues

²⁷ The data on sovereign bonds is described in GULATI & SCOTT, *supra* note 5, at 53–72. For additional detail on the sovereign debt market and defaults, see FREDERICO STURZENEGGER & JEROMIN ZETTELMEYER, *DEBT DEFAULTS AND LESSONS FROM A DECADE OF CRISES* 3–31 (2006).

²⁸ For information on the shift from syndicated loans to bonds, see Graciela L. Kaminsky, *Crises and Sudden Stops: Evidence from International Bond and Syndicated-Loan Markets* (Inst. for Monetary & Econ. Studies, Discussion Paper No. 2008-E-10, 2008), available at <http://www.imes.boj.or.jp/research/papers/english/08-E-10.pdf>.

by roughly seventy-five sovereigns between January 1, 1990 and July 1, 2011.

Our data on contract terms is based on the summary of terms provided in the offering documents mentioned (prospectuses, prospectus supplements, and offering circulars), which are available in the Thomson One databases mentioned above. While we have only a limited subset of the actual contracts (roughly thirty), we have no reason to think that the offering documents contain inaccurate descriptions of the underlying contract provisions. Further, our comparisons of the actual contracts with the disclosures in the offering documents provided an exact match on the provisions we examined.

For our analysis of the evolutionary process of contract terms, we take as our starting point a period of relative calm in the international lending markets, the early 1990s. In this period, both the New York– and English-law markets had developed rather stable, albeit different, boilerplate contracts that evolved out of the Latin American debt crisis experience.²⁹ From that period of stability, we trace changes in contract terms as they occur before and after subsequent shocks to the sovereign market. We define “shocks” as events that, according to press accounts and policy discussions at the time, caused key actors to question the efficacy of the prevailing boilerplate. The shocks that we discuss have been extensively described in the substantial literature relating to CACs.³⁰

1. *The Clauses*

As noted earlier, the clauses we examine were at the center of reform debates relating to the New York–law market for sovereign bonds, from 1995–2003.³¹ This is the set of terms referred to as CACs. A sovereign bond is a multi-creditor contract. Typically, a single bond issuance will govern hundreds of bondholders (which, today, is often in the billions of dollars or euros). Prior to 1990, for the most part, if the sovereign debtor needed to request debt relief, it needed to conclude a debt reduction agreement with each of the individual bondholders under the prevailing UAC. However, as the number of bondholders and their level of dispersion across the globe expanded—a product of the expansion of the bond market and the shift away from syndicated loans—the coordination problem became increasingly difficult to solve under UACs. In particular, individual bond-

²⁹ For a discussion on the differences in drafting styles in the two markets, with regards to CACs in particular, see Lee C. Buchheit & G. Mitu Gulati, *Sovereign Bonds and the Collective Will*, 51 EMORY L.J. 1317, 1324–31 (2002).

³⁰ See sources cited *infra* note 44.

³¹ See Gelpert & Gulati, *supra* note 26, at 1638–39, 1648–1705.

holders, despite their small holdings, held up any collective attempt to renegotiate the debt. This holdout problem worsened with the emergence of hedge funds that used their deep pockets to pay for high-quality litigators and to avoid liquidity problems that might cause small bondholders to settle. In response to the holdout problem, policy and industry experts proposed that contracts should bind holdouts to a restructuring, so long as some significant fraction of the creditors agreed to the reform.³²

In this study, we examine the evolution of CACs from the time when the dominant model in the market required unanimous consent for modification of terms, to the time when the new dominant model required less than unanimous consent. A large literature on CACs already exists.³³ Because much of the existing literature on CACs is from either economics or finance, the focus has been on the economic impact of adopting CACs—that is, the impact on the cost of capital for sovereign debtors.³⁴ By contrast, we are interested in how and why these clauses evolve. Much of the existing research assumes that these bonds meaningfully differ along only a single dimension: the vote that they require for the alteration of terms of payment (by which we mean principal, interest, maturity, and currency).³⁵ Indeed, this research generally assumes that there are only two types of relevant provisions, UACs (requiring unanimity to alter payment terms) and CACs (requiring a 75% vote to alter payment terms). An examination of the contracts, however, reveals that these CACs differ along a

³² For discussions of this collective action problem in sovereign debt, see, for example, Sergio J. Galvis & Angel L. Saad, *Collective Action Clauses: Recent Progress and Challenges Ahead*, 35 GEO. J. INT'L L. 713, 713–29 (2004), which describes the rise of collective action clauses as a remedy for various sovereign debt financing issues; Robert Gray, *Collective Action Clauses: Theory and Practice*, 35 GEO. J. INT'L L. 693, 693–96 (2004), which describes the private sector support for collective action clauses; and Quarles, *supra* note 10, at 30–38, which outlines the difficulties of building consensus around collective action clauses.

³³ See Torbjörn Becker, Anthony Richards & Yunyong Thaicharoen, *Bond Restructuring and Moral Hazard: Are Collective Action Clauses Costly?*, 61 J. INT'L ECON. 127 (2003); Liz Dixon & David Wall, *Collective Action Problems and Collective Action Clauses*, FIN. STABILITY REV. 142 (2000); Barry Eichengreen & Ashoka Mody, *Do Collective Action Clauses Raise Borrowing Costs?*, 114 ECON. J. 247 (2004); Häselser, *supra* note 12; Anthony Richards & Mark Gugliatti, *Do Collective Action Clauses Influence Bond Yields?: New Evidence from Emerging Markets*, 6 INT'L FIN. 415 (2003); Bradley & Gulati, *supra* note 11.

³⁴ See, e.g., Richards & Gugliatti, *supra* note 33; Federico Weinschelbaum & José Wynne, *Renegotiation, Collective Action Clauses and Sovereign Debt Markets*, 67 J. INT'L ECON. 47 (2005).

³⁵ See, e.g., Eichengreen & Mody, *supra* note 33, at 249; Richards & Gugliatti, *supra* note 33, at 418; Weinschelbaum & Wynne, *supra* note 34, at 47–48.

number of important dimensions other than the raw vote required to modify payment terms.

For readers interested in a sense of how the actual clauses (termed “Modification” provisions in the typical bond) have evolved over time, Appendix B provides examples of the CACs used over three decades for one sovereign issuer, Greece, in its English-law bonds. Appendix B shows how these clauses have evolved from a short and simple one-paragraph clause in 1994 to a complex multi-page animal in 2012.

Below, we describe five dimensions along which we measure these CAC provisions.

i. Vote Requirement—Payment Term Modification: CACs vary in terms of the vote percent required to modify payment terms. For each bond, we calculate the *lowest percent of vote* required to alter payment terms. This calculation is made as a function of features in the contract such as quorum and adjourned meeting provisions.³⁶ Some bonds, for example, allow for the required vote to be reduced at the adjourned meeting if a quorum is not satisfied at the initial bondholder meeting. For the bonds in our dataset, the vote requirements range from a high of 100% (unanimity) to a low of 18.75%.³⁷ Because this is the most important dimension, we code the models in terms of all of their variations. The models in New York and England have a minimum vote required to alter payment terms (*Min Mod Vote*) equal to either 1, 0.85, 0.75, 0.375, 0.25 or 0.1875.

ii. Vote Requirement—Modification of Other Key Terms: While research on CACs primarily has focused on the vote required to alter payment terms, the ability to alter non-payment terms can also be important to sovereign issuers seeking to restructure their bonds.³⁸

³⁶ If there is a meeting or quorum requirement, we compute the vote requirement as equal to the percent of required votes at the meeting. If there is no meeting requirement, then we compute the vote requirement as a fraction of outstanding bonds. Note that often the vote requirement excludes those bonds owned and controlled by the issuer.

³⁷ The 0.1875 vote requirement can be misleading in that it suggests a much lower vote requirement than operates in actuality. That vote requirement typically comes hand-in-hand with a requirement of a mandatory meeting with diminishing quora. What we calculate for this variable is the minimum vote required to alter payment terms (*Min Mod Vote*). For the bonds that we code as requiring 0.1875, the typical vote requirement at the first meeting is 75% of those present at the first meeting (in principal amount) so long as there is a 50% quorum. If that 50% quorum at the first meeting is not met, the quorum required for the next meeting is reduced to 25%. That then translates into a minimum required vote of 75% of 25%, which is 18.75%.

³⁸ In particular, non-payment terms become important when the “Exit Exchange” restructuring technique is used. See Lee C. Buchheit & G. Mitu Gulati, *Exit Consents in Sovereign Bond Exchanges*, 48 UCLA L. REV. 59 (2000) (proposing alterations of non-payment terms as a means of encouraging prospective holdouts to participate in exit exchanges); Stephen J. Choi & Mitu Gulati, *Why Lawyers Need to Take a Closer Look at*

Crucial non-payment terms include the negative pledge clauses, cross default provisions, acceleration provisions, and governing law clauses. A sovereign seeking bond restructuring can threaten the alteration of key non-payment terms, assuming it has enough creditor support, in order to incentivize a restructuring. Because the ability to alter non-payment terms is less important than the ability to alter payment terms, we consolidate the variation into three categories (high, medium, and low). We do this in order to limit the number of moving parts in our analysis to fewer than a dozen different CAC models. Specifically, what we have in the data is that *Other Vote* is equal to 1, 0.33, 0.5, 0.67, or 0.75. For the sake of simplicity, and because there are relatively few bonds with *Other Vote* equal to 0.33 or 0.67 (all of which show up in the same period (stage two) as the 0.5 value shows up), we fold those two into the 0.5 variable. That gives us variation between the old standard (1), the intermediate standard (0.5), and the most recent standard (0.75).³⁹

iii. Disenfranchisement: If there is voting where a supermajority of voters can potentially outvote a minority holder and force her to suffer a haircut, the voters might want safeguards to make sure that the debtor is not able to manipulate the vote. However, this is not always the case. Some bondholders are willing to give the issuer wide leeway in terms of who may vote on the Modification CAC. Others, by contrast, restrict the voting to those bondholders who are not “owned or controlled” by the issuer. We code this variable, *disenfranchisement*, as taking two forms: 0 (no disenfranchisement provision) and 1 (a restriction on the issuer voting bonds it “owns or controls”). There are a handful of additional variations in the data, such as whether central banks are allowed to vote. We do not consider those.⁴⁰

iv. Mandatory Meetings: Some bonds require that any vote on whether to activate a Modification CAC must occur at a physical meeting of the bondholders. The requirement of a meeting typically

Exit Consents, 32 INT'L FIN. L. REV. 15 (2003) (same). As of this writing, the use of this “Exit Exchange” technique has come into question in the English-law context. See *Assénagon Asset Mgmt. S.A. v. Irish Bank Resolution Corp.*, [2012] EWHC (Ch) 2090, [2012] W.L.R. 243.

³⁹ The degree of variation in the *Other Vote* variable could be increased further if we included the effects of diminishing quorum requirements in the English-law models. However, if we were to allow full variation in the *Other Vote* variable, we would have an unmanageable number of models, with much of the variation occurring on a variable of secondary importance as compared to *Min Mod Vote*.

⁴⁰ For a more comprehensive description of the relevance of disenfranchisement provisions, see Keegan Drake, *Disenfranchisement in Sovereign Bonds* (unpublished manuscript) (Feb. 17, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2007294.

has two effects, which pull in opposite directions: one, making it harder to restructure; the other, making it easier. On the one hand, a physical meeting of the bondholders allows them to coordinate, and that means that they might coordinate to block the intentions of the debtor. On the other hand, because meetings typically come with quorum requirements (and diminishing quorum requirements if the quorum is not satisfied at the first meeting), the actual vote required at a meeting is generally lower than that required in the absence of a meeting requirement. This lower vote requirement, in theory, makes it easier to apply Modification CACs to bonds with a meeting requirement than to those without one. We code the *Mand Meet* variable as coming in two types: 0 (no meeting required) and 1 (meeting required).

v. *Aggregation*: The typical CAC operates within an individual bond. Any restructuring therefore has to be conducted bond-by-bond, which is a difficult and tedious exercise when a sovereign has hundreds of bonds outstanding, as can sometimes be the case. To solve this problem, some bonds use aggregation clauses that functionally operate as an approval vote across all of the sovereign's bond issuances (typically, a vote that is higher than the requirement in an individual bond issuance).⁴¹ Because there was only one type of aggregation provision that was used up to 2011 (requiring an aggregated vote of 85% across the bonds, so long as individual bonds reached at least a 67% vote of the outstanding principal amount), we code the *Agg* variable as either 0 (no aggregation across bonds; each bond has to vote and approve the change individually) or 1 (aggregation across bonds is allowed).

We treat any particular combination of these five dimensions as our contract "model." Our empirical tests focus on who introduces new models into the marketplace and when this introduction takes place.

2. *The Agents*

As part of our examination of the contract evolutionary model, a goal for us is to identify the key change agents—that is, the leaders in the innovation to standardization cycle. To be able to do this, we coded data for each bond for both the contract terms mentioned above as well as the identities of the key agents working on the deals. The agents include the issuer's lawyers, the underwriter's lawyers, and

⁴¹ See Lee C. Buchheit & Mitu Gulati, *Drafting a Model Collective Action Clause for Eurozone Sovereign Bonds*, 6 CAP. MARKET L.J. 317 (2011) (discussing aggregation clauses).

the lead investment bank. With respect to the applicable counsel, we coded for the law firm in the legal jurisdiction of issue. In other words, if the issue was under New York law, we coded for the New York-based law firm that would presumably have had responsibility for crafting provisions that would work with the background New York law. When the transaction in question was a restructuring, as opposed to a regular issuance, we also coded that fact since the lawyers and bankers who tend to work on restructurings are often different from those who work on offerings. There are other agents involved in these deals, such as the local counsel (for example, the local counsel in South Africa on an issuance by the Republic of South Africa in New York under New York law) and the secondary investment banks (the banks with comparatively smaller shares of the issue). Our understanding is that these actors play minimal roles in the contract drafting process. Hence, we did not collect data on their identities. Finally, since the lawyers and bankers on any deal are ultimately hired by the sovereign issuer, we coded for the identities of the issuers as possible architects of change.

Figures A1 through A6 in Appendix A depict the population distributions by the total number of deals during our study's 1990–2011 time period for issuers, issuer counsel, and underwriter counsel for bonds governed by both New York and English law. The figures illustrate the dominance of a relatively small number of firms in the New York- and English-law sovereign bond markets, while many others only perform a handful of deals each over a twenty-year period. For example, in the New York-law market, Cleary Gottlieb has more than 25% of the market as issuer counsel and Sullivan & Cromwell has more than 25% as underwriter counsel. We define these firms with more than 25% of the market as high-volume intermediaries. For the purpose of our analysis below, we break down the data on potential change agents into quartiles based on the total number of deals those agents have performed. We label the top quartile as “quartile 1,” where we put the players who comprise the top quarter of players, and so on.

The data on investment bankers does not show the same degree of skew as that on the lawyers. No single bank, in either the New York or English markets, dominates the market. Reported in a different paper, the data show a great deal of variation in bankers in that the same issuer will frequently change its lead bankers from deal to deal

(most likely because the deals are put to an auction).⁴² By contrast, the lawyers are long-term players. Further, while the bankers change, the lawyers for the bankers and the lawyers for the issuers appear to come in pairs since these lawyers have long-term relationships with the issuer.⁴³

3. *The Shocks*

We argued earlier that innovation occurs in response to external shocks that call into question the standard model or the boilerplate. The shocks that we use as the basis for our investigation are the shocks that the international press widely reported as having caused a rethinking of the existing terms in sovereign bonds. In our two-market system, we assume that shocks that directly impact one market will be felt with a reduced influence in the other market. So a shock in one market that produces a change to the boilerplate might be felt only with diminished impact in a second market.

We identified the three shocks that hit during our period of study: the Mexican “Tequila” crisis, which resulted in a bailout from the United States (1995); the Asian financial crisis, which resulted in a number of IMF bailouts (1997–1998); and the Argentine default, which entailed IMF funding followed by a default (2001).⁴⁴ These episodes constituted the shocks that produced calls for reform, particularly in terms of the need to implement mechanisms that would preempt a constant need for bailouts. Thus the time period we study effectively has three sub-periods. First, there was the pre-shock period of calm of 1990–1994 (stage one). Then, there was the 1995–2002 period during which multiple large shocks impacted the global sovereign debt markets (stage two). Finally, there was the post-shock period of 2002–2011 (stage three). The three shocks mentioned above primarily hit the sovereign debt markets in New York—the sovereigns in question primarily used the New York market and the New York-style boilerplate (with Russia being an exception). Any impact

⁴² See Michael Bradley, Irving De Lira Salvatierra & Mitu Gulati, *Lawyers: Gatekeepers of the Sovereign Debt Market?* (Nov. 18, 2012) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2178487.

⁴³ *Id.*

⁴⁴ Many scholars have discussed these crises, the bailouts, and the resulting push towards CACs. See TAYLOR, *supra* note 10, at 118–30 (providing a first-hand account); Barry Eichengreen, *Restructuring Sovereign Debt*, 17 J. ECON. PERSP. 75 (2003) (surveying proposed mechanisms with which to address crises once they have occurred); Gelpern & Gulati, *supra* note 26 (discussing the shift generally); Häselser, *supra* note 12 (evaluating motives behind the shift); John B. Taylor, *Defining Systemic Risk Operationally*, in ENDING GOVERNMENT BAILOUTS AS WE KNOW THEM 52–55 (Kenneth E. Scott et al. eds., 2007) (proposing framework for a shift away from bailouts).

of the shocks, therefore, should appear more acutely in the New York market.

As of this writing in February 2013, the sovereign markets have been hit by a new shock, the Eurozone crisis. This shock has precipitated fresh calls for standard sovereign bond contract terms to be revised. Specifically, the call for reform has been with respect to the CACs used in the European markets.⁴⁵ Our data, however, only reaches up to the beginning of the Eurozone crisis.

II

EVIDENCE OF INNOVATION IN THE NEW YORK MODELS

Based on the five CAC-related dimensions described in the prior section, we find that a total of ten different CAC models were used during the 1990–2011 period. In this section, we do two things. First, we examine the evolution of these different models over the periods of 1990–1994 (pre-shock period of stability); 1995–2001 (multi-shock and initial innovation period); and 2002–2011 (post-shock and standardization period). We hypothesize that these three periods, as demarcated by shocks, correspond to the three stages of our innovation cycle analysis. Stage one is the pre-shock period of stability where little to no innovation occurs; stage two is the period during which marginal players commence innovations under the shadow cast by the dominant UAC standard; stage three is the post-shock and standardization period when dominant players commit to the new CAC-centered standard. For each stage, we document those models in use that continue from the past, as well as new models that appear. Second, we unpack the data to identify the types of agents associated with new model innovation during the different stages.

We focus on the timing of the introduction of new CAC models and the market participants associated with the innovation. We define a new model as the use of a new combination of the five CAC-related terms. Just as a bicycle model can vary from a prior model by changing one aspect of the bicycle, say the type of brake, we treat a particular contract as using a new model if any one of the five CAC-related terms change from any pre-existing model. For clarity, we give each model the name of the nation that first began using it. Since some of the models in our first stage arise pre-1990, we had to utilize a supplemental dataset (for naming purposes only). Thomson One Banker, our primary source for the 1990–2011 period, has relatively little data

⁴⁵ Emmanuel Jarry & Helen Massy-Beresford, *Eurozone Deal Sees Collective Action Clauses from 2013-Elysee*, REUTERS, Nov. 28, 2010, available at <http://www.reuters.com/article/2010/11/28/eurozone-crisis-france-idUSPISQME61D20101128>.

for the prior period, 1950–1990. To examine the origins of the models during this period, we used data collected from the archives at the U.S. Library of Congress.⁴⁶

A. Stage One (Pre-shock Period)

To assess the introduction of new models in stage one, we start with three models that were already in use prior to stage one: Belgian Congo 1958,⁴⁷ Ireland 1967, and Indonesia 1983. The Belgian Congo 1958 model is what one might call the full unanimity model, requiring 100% creditor approval to change either payment or non-payment terms. The Belgian Congo 1958 model dominated all through the 1800s and the 1900–1980 period, which essentially had no CACs (*Min Mod Vote* = 1 and *Other Vote* = 1).⁴⁸ The Ireland 1967 model allows for some modification, requiring 100% approval for payment term changes, but relaxing that requirement for non-payment terms (to 50%). Finally, the Indonesian 1983 model appears to be an early version of the modern CAC (the one that dominates the 2002–2011 period). However, we cannot tell for sure because the prospectus, while saying that modifications are permitted, does not provide specifics as to what the vote requirements are. All three of these models predate stage one—that is, the 1990–1994 period in our dataset. As shown in Table 1, no new models were introduced during stage one.

TABLE 1: NEW YORK MODELS IN STAGE ONE (1990–1994)

<u>Model Name</u>	<u>Min Mod Vote</u>	<u>Other Vote</u>	<u>Disenfran- chisement</u>	<u>Mandatory Meeting</u>	<u>Aggre- gation</u>	<u>Market Share</u>
<i>Pre-Existing Models</i>						
Belgian Congo 1958	1	1	0	0	0	17%
Ireland 1967	1	0.5	0	0	0	80%
Indonesia 1983	n.a.	n.a.	0	0	0	3%

Note: 35 issues. n.a. = not available.

As suggested in Table 1, stage one is a period of calm. All three of the models in use during this period (1990–1994) represent carry-overs from the prior period (Belgian Congo 1958; Ireland 1967;

⁴⁶ Thanks to Mark Weidemaier for collaborating with us on collecting the Library of Congress data.

⁴⁷ We name the model “Belgian Congo 1958” because a 1958 bond issued by the then-Belgian Congo (now the Democratic Republic of the Congo) is the first New York–law bond from the post–World War II period in our Library of Congress dataset.

⁴⁸ Cf. Weidemaier, *Reforming Practices*, *supra* note 23, at 9 (examining 380 sovereign bond issues between 1930 and 1985 and finding that an extremely small number included any form of CAC).

Indonesia 1983). The Belgian Congo 1958 is from three decades prior to the stage one period; the Ireland 1967 is from two decades prior. The models are also all two-dimensional: Only two of the five dimensions we tabulate appear in the stage one models.

Among these three models, a single model dominates: Ireland 1967. For the 35 sovereign bond issuances for which we have data for this period, the Ireland 1967 model was used in 80% percent of the issuances. By contrast, the Belgian Congo 1958 model was used in roughly 17% percent of the issuances, and the Indonesia 1983 model was used only in a single issuance (Indonesia's own issuance in 1983). Indonesia itself, by the end of the stage one period, switched to the Ireland 1967 model. The data confirms our hypothesis that there was no innovation or experimentation with CACs during stage one.

B. Stage Two (Multi-shock Period)

Stage two begins with a shock: The Mexican debt crisis in 1995 and the subsequent U.S. bailout resulted in a widespread discussion of the need to reform the unanimity model that dominated the New York-law market in stage one.⁴⁹ The subsequent financial crises in Asia (1997–1998) and Argentina (2001) and the resulting bailouts from the IMF were shocks that added to concerns about the existing unanimity model and the need to move away from the bailout model.⁵⁰ Table 2 reports on the CAC models in use in stage two.

TABLE 2: NEW YORK MODELS IN STAGE TWO (1995–2001)

<u>Model Name</u>	<u>Min Mod Vote</u>	<u>Other Vote</u>	<u>Disenfran- chisement</u>	<u>Mandatory Meeting</u>	<u>Aggre- gation</u>	<u>Market Share</u>
<i>Pre-Existing Models</i>						
Belgian Congo 1958	1	1	0	0	0	6%
Ireland 1967	1	0.5	0	0	0	86%
<i>New Models</i>						
Bosnia 1997	1	0.5	1	0	0	2%
Kazakhstan 1997	0.75	0.5	0	0	0	4%
Qatar 1999	0.1875	0.5	0	1	0	1%
Egypt 2001	0.85	0.5	0	0	0	1%

Note: 137 issuances.

⁴⁹ See, e.g., BARRY EICHENGREEN & RICHARD PORTES, CRISIS? WHAT CRISIS? ORDERLY WORKOUTS FOR SOVEREIGN DEBTORS 34–36 (1995) (stating that the Mexican debt crisis instigated discussion on new ways to manage crises in highly leveraged nations and drawing on historical evidence to suggest CACs as one potential solution).

⁵⁰ For discussions on the debt crises in Mexico, Argentina, and Asia, see sources cited *supra* note 44.

As noted in Table 2, states continued to use pre-existing models in stage two. Overall, there were many more issuances during this period (our dataset has 137 bond issuances in stage two, compared to 35 in stage one). The old Belgian Congo 1958 model, the anti-CAC model, was still used in the 1995–2001 period, albeit infrequently (being used by only 6% of the issuances, down from 17% in the prior period). The Ireland 1967 model continued to dominate with roughly 86% of the uses (up from 80% in the prior period).

Importantly, in stage two we see the first new models since 1990 emerge, indicating considerably more innovation than during the prior period. Four different sovereign issuers introduced new models: Bosnia 1997, Kazakhstan 1997, Qatar 1999, and Egypt 2001. The Bosnian innovation was a relatively small one; it introduced a disenfranchisement clause that restricted the issuer from voting bonds that it owns or controls. Qatar's innovation was bigger. It borrowed a model more commonly used in the English-law market—with *Min Mod Vote* of 0.1875 and the requirement of a mandatory meeting. Egypt 2001, by contrast, used a high *Min Mod Vote* of 0.85, with no meeting requirement. Finally, Kazakhstan 1997 used a model close to the modern model, with 0.75 for *Min Mod Vote* and 0.5 for *Other Vote*. A year later in 1998, Lebanon adopted the Kazakh 1997 model.⁵¹

In sum, we found that during this period approximately 92% of the issuances fell under the two dominant models from the prior period: Belgian Congo 1957 (close to 6%) and Ireland 1967 (around 86%). The other models (all new)—Bosnia 1997, Kazakhstan 1997, Qatar 1999, and Egypt 2001—only garnered a handful of adherents. But these marginal models experimented with CACs on multiple dimensions in addition to the two dimensions (*Min Mod Vote* and *Other Vote*) in use in the stage one models—with new disenfranchisement and mandatory meeting clauses in addition to varying percentages for alterations to payment and non-payment terms.

We next examine whether those market participants associated with the innovations in stage two are themselves marginal participants. We hypothesize that larger market participants will not shift away from the existing standard until it becomes evident that a shift to

⁵¹ Lebanon's 1998 issuance is the first one that we identify in our analysis because we limit our analysis to the bonds available off the Thomson One Banker dataset. The Perfect Information database, however, has a handful of additional bonds that are not in the Thomson dataset, including a couple for Lebanon in 1997. Taking those bonds into consideration, however, would not alter our results. We did not have access to the Perfect Information data at the time of our analysis, but were able to see the Lebanese bonds thanks to a trial examination of the data that we were allowed in July 2012.

a new standard is clearly underway. In Table 3 below, we set out these new entrants in terms of who their lawyers and bankers are. In reporting the characteristics of these new entrants, we break down the lawyer, banker, and issuer characteristics based on whether they are in the first, second, third, or fourth quartiles in terms of the number of sovereign bond issuances for the 1990–2011 period. That is, if the issuer’s counsel for Kazakhstan is in the top 25% of issuers, by volume, it gets a rank of 1 in the issuer’s counsel box.⁵²

TABLE 3: MARKET RANK ASSOCIATED WITH NEW MODELS IN STAGE TWO (1995–2001)

Issuer Name	Issuer Counsel Quartile	Issuer Counsel Quartile	Investment Bank Counsel Quartile	Investment Bank Quartile
Bosnia 1997	4	4	n.a.	n.a.
Kazakhstan 1997	4	4	4	1
Qatar 1999	4	4	4	1
Egypt 2001	4	4	4	1

Note: 137 issuances; n.a. = not available (Bosnia 1997 employed a type of restructuring where typically only one set of lawyers was involved.)

Issuers like Bosnia, Kazakhstan, Qatar, and Egypt were not big players in the sovereign debt market in stage two. However, while the issuers easily are considered marginal participants, major law firms might have represented them in the sovereign debt business, using these obscure issuers to test out new innovations. Table 3 shows that that is not the case. The innovations in stage two all came from minor players—minor in terms of the issuers and in terms of their lawyers. The issuers, issuers’ counsel, and underwriters’ counsel are all in the bottom quartile for each of these new models that show up in stage two.⁵³

⁵² Quartiles could also be organized in terms of the dollar (or euro) value of deals. Our results remain the same when we define quartiles based on total dollar value of deals during the time period of our dataset. The results also remain largely the same if we use breakdowns in terms of the top 10%, next 10%, and so on.

⁵³ A question we have been asked on occasion is why minor issuers utilize minor law firms. After all, given the enormous stakes, would one not expect minor issuers to seek top law firms to represent them? As best as we can tell from conversations with practitioners, costs seem to matter a great deal in this market. Government bonds are generally seen as low-risk issuances and government debt offices tend to be reluctant to spend large sums on expensive London or New York counsel, particularly if they are only doing occasional issuances.

The only column in which we do not see the quartiles at the fourth level is that of the investment banks. Unlike the issuer counsel and investment bank counsel who have a vested interest in maintaining a particular contract with which they maintain their dominance, investment banks are less tied to the language of any particular contract. Instead, investment banks compete along other dimensions, including the size of the underwriter's discount. The higher rank (issuances quartile) of the investment banks associated with the contract model innovations in stage two compared with the other intermediaries who compete more directly based on contract language is consistent with the different dimensions along which investment banks compete. In comparison to the lawyers on these deals, who tend to have long-term relationships with the issuer, the investment banks tend to be promiscuous, changing issuers frequently.⁵⁴

C. Stage Three (Post-shock Period)

Stage three starts in 2002, after the Argentine default in late 2001. The Argentine default is significant because it is the last major shock for sovereigns that issued under New York law during the period of our study. We conjecture that the cumulative effect of the Mexican, Asian financial, and Argentine shocks, as well as public sector responses to these shocks, led market participants to expect changes in the Ireland 1967 standard. After the Argentine default in late 2001 and the increase in the decibel level of complaints regarding the old contract models, it gradually became clear that there would be a new model. One of the key indicators here was the IMF's 2001 proposal for an alternative to CACs: a sovereign bankruptcy court or a sovereign debt restructuring mechanism (SDRM).⁵⁵ Prior to that development, the leading players in the market, such as Mexico's and Brazil's finance ministries, had been openly skeptical about CACs. However, the prospect of SDRM, along with the release of a G-20 draft of proposed new clauses, and the endorsement of CACs by the U.S.

⁵⁴ The empirical evidence on this point is reported in Bradley et al., *supra* note 42, at 25. More generally, for a discussion on the diminished role of investment banks as reputational intermediaries in the sovereign bond market in the modern era, see Marc Flandreau et al., *The Changing Role of Global Financial Brands in the Underwriting of Foreign Government Debt (1815–2010)* 29–30 (Graduate Inst. of Int'l and Dev. Studies, Working Paper No. 15, 2011), available at http://repec.graduateinstitute.ch/pdfs/Working_papers/HE_IDWP15-2011.pdf.

⁵⁵ For details on the evolution of the sovereign debt restructuring mechanism (SDRM) idea, see Hagan, *supra* note 10, at 335–41; Anne O. Krueger & Sean Hagan, *Sovereign Workouts: An IMF Perspective*, 6 CHI. J. INT'L L. 203, 214–17 (2005).

Treasury, created a sense that CACs would materialize.⁵⁶ But the question was: Who would design the model that would be the new dominant design?

While no additional shocks occurred for New York-law governed bond issuances from 2002 to 2011 (hence, we refer to this period as one of stability), the realization that the boilerplate standard would change precipitated a rapid transformation in both the amount of contract innovation and the type of market participants involved in these changes. Table 4 reports on the types of pre-existing and new CAC models used in stage three.

TABLE 4: NEW YORK MODELS IN STAGE THREE (2002–2011)

<u>Model Name</u>	<u>Min Mod Vote</u>	<u>Other Vote</u>	<u>Disenfran- chisement</u>	<u>Mandatory Meeting</u>	<u>Aggre- gation</u>	<u>Market Share</u>
<i>Pre-Existing Models</i>						
Belgian Congo 1958	1	1	0	0	0	1%
Ireland 1967	1	0.5	0	0	0	17%
Bosnia 1997	1	0.5	1	0	0	3%
Qatar 1999	0.1875	0.5	0	1	0	1%
<i>New Models</i>						
Brazil 2003	0.85	0.75	1	0	0	2%
Mexico 2003	0.75	0.75	1	0	0	55%
Turkey 2003	0.75	0.75	0	0	0	15%
Uruguay 2003	0.75	0.75	1	0	1	5%
Qatar 2009	0.1875	0.5	1	1	0	1%

Note: 284 issuances.

As depicted in Table 4, we see four new models show up in 2003 during the early part of stage three: Brazil 2003, Mexico 2003, Uruguay 2003, and Turkey 2003.⁵⁷ This means that almost half of all the new models that we see over a twenty-year period appeared in a single year, 2003. (This is a big year for new models in the English-law market as well, as we will see in Part III). The fifth new model during this period is Qatar 2009 (which, as we will see, is qualitatively different from the others).

While the Ireland 1967 model still persisted in stage three, it was far from dominant. Its market share dropped from 86% in stage two

⁵⁶ Gelpern & Gulati, *supra* note 26, at 1642–44, 1648–60 (describing in detail the history of the SDRM).

⁵⁷ There is also a Japan 2004 model that comes not from the sovereign itself, but from issuances by the Japanese Development Bank—a quasi-sovereign. It is a slight variation on the Mexico 2003 model in that it lacks the disenfranchisement provision.

to 17% in stage three. Meanwhile, the even older Belgian Congo 1958 model, which had almost a 100% market share in the pre–World War II period, dropped from a 6% share in stage two to a 1% share in stage three. In the wake of heated debate over the SDRM versus CACs (bankruptcy versus contract) in 2002, the four new models—Mexico 2003, Brazil 2003, Uruguay 2003, and Turkey 2003—quickly began to dominate the scene. Two features of these four new models are interesting. First, they all showed up in 2003. This represents the point at which the dominant Ireland 1967 model exited from the New York market. Second, the models in stage three that appeared in 2003 were from the high-volume issuers and their high-volume lawyers, unlike what we saw in stage two. These four models are, we surmise, the big players competing to be the authors of the new dominant design.⁵⁸ Table 5 reports on the issuers and associated intermediaries that put forward new competing models in stage three.

TABLE 5: MARKET RANK ASSOCIATED WITH NEW MODELS IN STAGE THREE (2002–2011)

Issuer Name	Issuer Quartile	Issuer Counsel Quartile	Investment	Investment
			Bank Counsel Quartile	Bank Counsel Quartile
Mexico 2003	1	1	1	1
Brazil 2003	1	1	1	1
Turkey 2003	1	1	1	1
Uruguay 2003	1	4	n.a.	n.a.
Qatar 2009	4	4	4	1

Note: 284 issuances; n.a. = not available (Uruguay 2003 employed a type of restructuring where typically only one set of lawyers was involved.)

Note from Table 5 that the four issuers that sought to compete over a new CAC standard in 2003 were all in the top quartile in terms of issuances. The attorney intermediaries associated with the four competing models in 2003 were also generally in the top quartile in terms of issuances. The issuer counsel and investment bank counsel for Mexico 2003, Brazil 2003, and Turkey 2003 are all in the top quartile. Not only are these players in the top quartile, they are the very

⁵⁸ The view that the big players like Mexico introduced their innovations because they realized that change was inevitable and wanted to preempt other models from becoming market leaders is consistent with reports from market participants. See NOURIEL ROUBINI & BRAD SETSER, BAILOUTS OR BAIL-INS: RESPONDING TO FINANCIAL CRISES IN EMERGING ECONOMIES 309 n.25, 313 (2004); Gelpert & Gulati, *supra* note 26, at 1694–98.

top issuers and law firms, including Sullivan & Cromwell, Cleary Gottlieb, and Arnold & Porter. The only 2003 model that does not have a top issuer counsel is Uruguay 2003, where the issuer counsel was in the bottom quartile. Nonetheless, Uruguay would have received all first quartile scores if we had looked at any of its offerings other than its first one in 2003, which was a restructuring and therefore had a special set of lawyers (that is, restructuring lawyers) and had no investment banker counsel. Ultimately, unlike what we saw in stage two, the issuer, issuer counsel, and investment bank counsel associated with the new models that were introduced immediately after it became clear that a change in the standard would occur comprised the top market participants. Active participation of the top market participants is consistent with the view that these participants have an economic stake in controlling the contract standard. Attorneys who control the standard have a competitive advantage when selling their services to future sovereigns seeking to issue under the prevailing market standard.

In sum, what we find in stage three is that the new models quickly took over. In our dataset of 284 bonds for stage three (2002–2011), over half of the sovereign bond issuances used the Mexico 2003 CAC model (55%). Ireland 1967, the holdover model from the prior period, retained 17% of the market, followed by Turkey with 15% and Uruguay with 5%. In some ways, Mexico 2003, the model that won out, also had the most illustrious pedigree. Not only did its issuer counsel and investment bank counsel show up in the top quartile, but they were each the leaders within their quartiles (Cleary Gottlieb and Sullivan & Cromwell being the top issuer and underwriter counsel, respectively).

One other point to note concerns the Qatar 2009 model. While a new model in stage three, Qatar 2009 is notable in that the issuer, issuer counsel, and investment bank counsel were all in the bottom quartile in terms of issuances. Importantly, by 2009, the Mexico 2003 model was securely in place as the dominant standard, leaving little room for competition. The Qatar 2009 model was thus more akin to the innovations by marginal players that occurred in stage two rather than the 2003 standard seeking models created by top market participants. Furthermore, if we look closely at Qatar 2009 versus the 2003 innovators, we see that the Qatar innovation was relatively minor (the addition of a disenfranchisement clause to its 1999 model), whereas the 2003 innovators (Mexico, Brazil, Turkey, and Uruguay) were innovating along the most important dimension—the vote required to modify payment terms.

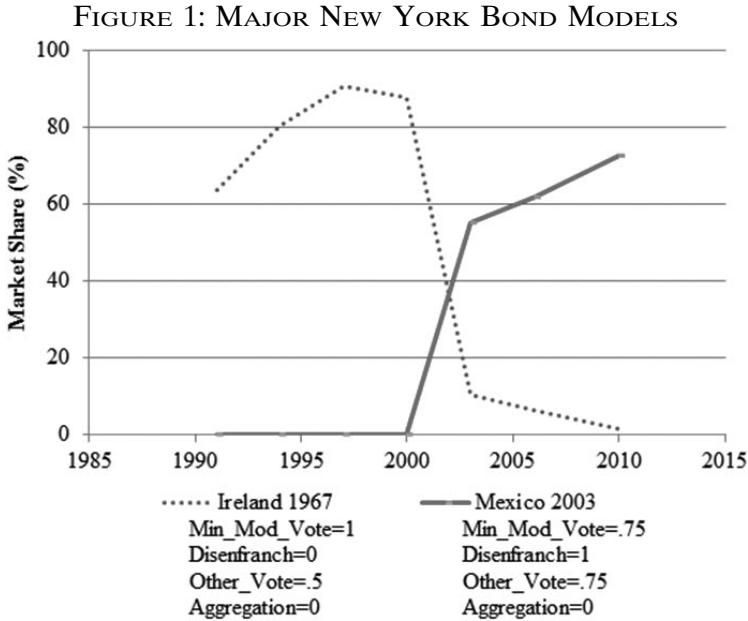
That said, the new models of stage three, despite being from the big players, are all small variations on the innovations that showed up earlier in stage two. Smaller players like Egypt 2001 and Kazakhstan 1997 already demonstrated that the shift from unanimity to something less worked (*Min Mod Vote* of 85% for Egypt and 75% for Kazakhstan). In stage three, the Mexico 2003 and Brazil 2003 models used the same vote thresholds as in Kazakhstan 1997 and Egypt 2001. In other words, the key dimension—the vote required to change payment terms—remained the same in the stage three new models. We believe that knowledge of how this dimension played out in sovereign bond deals in stage two, including how deals were priced, allowed stage three's new models to incorporate these changes at low cost. What changed in stage three was the addition of ancillary terms, including disenfranchisement provisions, higher vote thresholds for *Other Vote*, and aggregation. This transition was analogous to Steve Jobs taking Xerox's mouse in the early 1980s (at the time a marginal innovation much like the CAC payment-related term in the stage two new models of our analysis) and making it more acceptable to the wider market (with the addition of important ancillary features).⁵⁹ No one remembers Xerox's mouse anymore. Jobs's mouse, in contrast, became and continues to be one of the dominant designs on the market.

D. Summary

We find that shifts in boilerplate contract terms do not occur without some initial shock. Absent a shock, boilerplate standards persist. During stage one, we report no new model innovations. Instead, all contracts used one of the three pre-existing CAC models, and most used the dominant Ireland 1967 standard. A series of shocks in turn induced a change in the market standard. An initial shock (the Tequila crisis in 1995) spurred marginal players in the market to commence experimentation, reducing but not eliminating the dominance of a pre-existing standard (corresponding with stage two of our model). Eventually, the cumulative effect of the crises in Mexico in 1995, Asia in 1997–1998, and Argentina in 2001, accompanied by public sector pressure, produced a loud call for change to some CAC models in New York—law governed bonds. Once market participants expect a change in the contract standard, the bigger players join the competition to set the market standard and changes in market practices take place rapidly (stage three of our model).

⁵⁹ See Malcolm Gladwell, *Creation Myth*, THE NEW YORKER, May 16, 2011, at 44.

Figure 1 below depicts the percentage market shares of the two dominant New York bond CAC standards in effect during the time period of our study: Ireland 1967 and Mexico 2003. Note from Figure 1 that a rapid although not universal shift to the new Mexican model occurred after Mexico’s 2003 issuance.

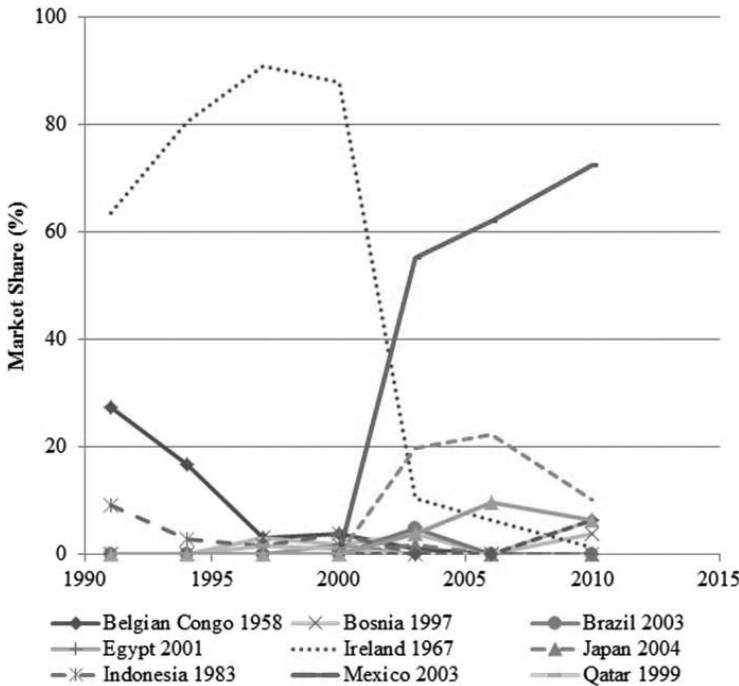


Importantly, the shift to the Mexico 2003 standard did not occur in isolation. Figure 2 reports on the market shares of other competing models during our sample time period.

Figure 2 depicts the more marginal competing models prior to the Mexico 2003 shift. During stage two of our analysis, we observed new models from Bosnia 1997, Kazakhstan 1997, Qatar 1999, and Egypt 2001. Not only were these issuers in the bottom quartile in term of issuances, but the intermediaries most concerned about the contract language (the issuer counsel and the underwriter counsel) were also in the bottom quartile in terms of issuances.

In contrast, once it becomes clear that a new standard will emerge in the market, such as the moment when Mexico 2003 surpassed Ireland 1967 in dominance (shown by the X mark in the chart), the source of innovation in models shifts. During stage three of our analysis, we see new models from Mexico 2003, Brazil 2003, Turkey 2003, and Uruguay 2003. As we report above, these issuers are not only in the top quartile in terms of issuances but the issuer counsel and underwriter counsel are generally in the top quartile as well. This

FIGURE 2: MAJOR AND MARGINAL NEW YORK BOND MODELS



finding is consistent with the hypothesis that once a shift to a new standard becomes clear, the top market participants who compete based on the type of contract they offer will have a strong incentive to take an active role in generating this new standard. The resulting competition among top players results in (a) a delay in the eventual shift to a universal new standard, and (b) a time period during which there are competing standards with more than negligible market share until the universal new standard becomes dominant. In terms of Figure 2, this dynamic led to the S curve of adoption of the Mexico 2003 standard that we observe. This S curve pattern is a familiar one in technological innovation scholarship but has not yet been explored in the contract innovation research.⁶⁰

⁶⁰ For a discussion on the S curve in the innovation area, see, for example, Vijay Mahajan, Eitan Muller & Frank M. Bass, *New Product Diffusion Models in Marketing: A Review and Directions for Research*, 54 J. MARKETING 1 (1990). For a description of the variables affecting the adoption of innovations (and thus, by implication, the S curve), see Barbara Wejnert, *Integrating Models of Diffusion of Innovations: A Conceptual Framework*, 28 ANN. REV. SOC. 297 (2002).

III

AFTERSHOCKS: THE IMPACT ON ENGLISH-LAW BONDS

The sovereign bond market today, and over the period we study (1990–2011), is dominated by issuances out of two locations, New York and London.⁶¹ Over the years, the contract documentation practices in these two markets, under either New York or English law, have developed in different ways. The fact that sovereign issuers themselves, over long periods of time, have shown themselves unlikely to switch between English law and New York law⁶² enables us to examine how and when contract provisions migrate back and forth, independent of movements by the issuers themselves.

In this section, we examine the data on English-law bonds. Notably, the shocks examined in this paper all primarily hit the New York market. Restructurings in the New York market in the 1990s were difficult to conduct because the vast majority of bonds contained unanimity requirements (UACs) to alter payment terms (*Min Mod Vote* = 1). The big change that took place in the New York market was the shift from UACs to CACs (*Min Mod Vote* = 0.75, typically). By contrast, the English market was already using CACs when the New York market shocks occurred. Indeed, innovators in the New York market likely looked to the English market to borrow from models that had experienced success there. One might expect, therefore, that shocks in the New York market would have a small impact on English-law bonds. As we will see below, however, the English-law bonds, despite already containing CACs, did see innovation and experimentation in line with the New York market, albeit with some significant differences.

A. *Stage One (Pre-shock Period)*

Table 6 provides English-law bond data on the models in stage one. What we see in stage one for the English-law data from 1990–1994 is almost identical to what we saw for New York; there were no new models in this period of calm. The English market only used two old models (one from the 1960s and one from the 1970s). One of the old models, Austria 1964, was essentially identical to the Belgian Congo 1958 model that we saw in New York: There was no collective action clause (unanimity is required to alter both payment and non-payment terms). This was a holdover model from the pre–World War II period, when it had nearly 100% of the market. The model that dominated in the 1990–1994 period was Sweden 1977,

⁶¹ See Bradley & Gulati, *supra* note 11, at 35.

⁶² *Id.* (describing this aspect of the data).

which had a 96% market share. Sweden 1977 had a CAC, in that the payment terms could be modified with a less than unanimous vote (*Min Mod Vote* = 0.1875; *Other Vote* = 0.5; *Mand Meet* = 1).

TABLE 6: ENGLISH MODELS IN STAGE ONE (1990–1994)

Model Name	Min Mod Vote	Other Vote	Disenfranchisement	Mandatory Meeting	Aggregation	Market Share
<i>Pre-Existing Models</i>						
Austria 1964	1	1	0	0	0	4%
Sweden 1977	0.1875	0.5	0	1	0	96%

Note: 56 issuances.

B. Stage Two (Multi-shock Period)

Stage two (1995–2001) occurred when the three shocks (the Mexican crisis, the Asian financial crisis, and the Argentine default) hit the New York market. Table 7 reports the contract models employed in the English market in stage two. At first cut, what we see in stage two looks similar to what we saw in the New York market during stage two. Recall that it was in stage two that we saw a number of marginal players innovating in the New York market, turning their UACs into CACs. We see in stage two in the English market that even though there were CACs already, innovation still took place. However, the innovation was small compared to what was occurring in the New York market.

Innovations in the New York market led to a major change: The primary restructuring variable—the vote required to alter payment terms (*Min Mod Vote*)—changed from 100% (a UAC clause) to something less (a CAC clause). It is important to note that when the New York market switched from UACs to CACs, it did not move to the dominant English model (Sweden 1977, where *Min Mod Vote* = 0.1875). Instead, New York moved to a higher *Min Mod Vote* (Mexico 2003 had *Min Mod Vote* = 0.75 compared with the English market, where Sweden 1977 had *Min Mod Vote* = 0.1875). The New York market also moved to higher votes for non-payment terms (Mexico 2003 had 0.75 for *Other Vote* whereas Sweden 1977 had 0.5 for *Other Vote*) and to include a disenfranchisement clause. All of these represented changes to the traditional English CAC model that advocates of CACs in New York had initially used as their basis for a New York

CAC model (one New York issuer, Qatar, had in fact attempted to introduce the traditional English model).⁶³

In contrast, the innovations in the English market were less major than the innovations in the New York market during stage two. As Table 7 shows, all three new models that showed up in stage two in the English market changed the voting thresholds in existing CAC clauses without the addition of entirely new clauses. Denmark 1997 raised *Other Vote* to 0.75 (from 0.5), whereas Greece 1998 and Tunisia 1999 raised *Min Mod Vote* to 0.25 and 0.5, respectively (from 0.1875). Similar to the experience in the New York market in stage two, bond issuers did not widely adopt these new English models in stage two (the market share in each case is very small—1% each). If participants in the market closest to the shocks (New York) do not adopt a new standard, we would expect that participants in the more distant market (English) likewise would also not shift to a new standard. The bulk of the English market share still went to the traditional Sweden 1977 model.

TABLE 7: ENGLISH MODELS IN STAGE TWO (1995–2001)

<u>Model Name</u>	<u>Min Mod Vote</u>	<u>Other Vote</u>	<u>Disenfran- chisement</u>	<u>Mandatory Meeting</u>	<u>Aggre- gation</u>	<u>Market Share</u>
<i>Pre-Existing Models</i>						
Sweden 1977	0.1875	0.5	0	1	0	90%
Iceland 1981	0.1875	0.5	1	1	0	7%
<i>New Models</i>						
Denmark 1997	0.1875	0.75	0	1	0	1%
Greece 1998	0.25	0.5	0	1	0	1%
Tunisia 1999	0.5	0.5	1	1	0	1%

Note: 119 issuances.

Unlike what we saw with the New York market stage two models, Table 8 shows that stage two models in the English market did not all come from marginal players. Greece and Denmark, two of the innovators in stage two, were big issuers. As for issuers' counsel, several high-volume law firms such as Allen & Overy and Freshfields represented issuers in this stage. In other words, unlike with New York, we do not find that innovation in the English market was dominated by

⁶³ For a discussion of the reasons for the move away from the English model of CACs in New York, see BANK FOR INT'L SETTLEMENT, REPORT OF THE G-10 WORKING GROUP ON CONTRACTUAL CLAUSES 3–7 (Sept. 26, 2002), available at <http://www.bis.org/publ/gten08.pdf>.

the smallest (fourth quartile) market participants in stage two. This is inconsistent with our prediction that the marginal players—those seeking to take chances to raise their market share—would drive innovations in stage two. One explanation for this difference with the New York market is that the English market already was using CACs as the standard. Large market participants that already employed CACs may have made minor innovations in order to maintain their standard (and address issuers’ concerns in the midst of the shocks and change in the New York market) without threatening their dominant position.

TABLE 8: MARKET RANK ASSOCIATED WITH NEW MODELS IN STAGE TWO (1995–2001)

Issuer Name	Issuer Quartile	Issuer Counsel Quartile	Investment	
			Bank Counsel Quartile	Investment Bank Quartile
Denmark 1997	1	n.a.	n.a.	2
Greece 1998	1	1	4	1
Tunisia 1999	n.a.	2	1	2

Note: 119 issuances; n.a. = not available because information was not reported on the prospectus.

C. Stage Three (Post-shock Period)

We move next to stage three. In the New York context, stage three occurred when it became clear that a new model would emerge, and the biggest players appeared to compete over which of their models would prove to be dominant. Mexico 2003 emerged victorious, with a 55% share; no other model came close. The English-law data differs. Instead of a new model emerging as clearly dominant, we see a number of models competing across the 2002–2011 period of our study. But, as with the New York market, we do see eventual convergence to a standard in the English market, albeit at a slower pace than in the New York market.

As Table 9 describes, five new models emerged during the 2002–2011 period in the English market: Bahrain 2003, Morocco 2003, Hungary 2004, Finland 2004, and Ukraine 2007. The two 2003 models, Bahrain 2003 and Morocco 2003, were similar to the models that emerged in stage two in that they both moved the voting threshold for existing CAC clauses, raising *Min Mod Vote* (from 0.1875 to 0.25 and 0.375) and raising *Other Vote* slightly (from 0.5 to 0.75 in the Bahrain case). One year later, Hungary 2004 and Finland 2004 brought more

major innovations to the English arena. Finland 2004 did not add new contract dimensions but raised the voting threshold on payment terms (*Min Mod Vote*) well above 0.5 to 0.75, matching the voting threshold in the New York law new models (in particular the Turkey 2003 model). Hungary 2004 not only raised *Min Mod Vote* to 0.75, but also adopted a new clause—disenfranchisement—similar to Mexico 2003.

As discussed in Part II, in New York during stage three, Mexico 2003 quickly emerged dominant with 55% of the market; Turkey 2003 was next with 17%. In the meantime, the previously dominant model in the New York market, Ireland 1967, dropped from an 86% market share to 17% from stage two to three. Shifts in the English market during stage three followed a similar pattern, albeit to a lesser degree. The Hungary 2004 model (the equivalent of the Mexico 2003 model) quickly emerged as a leading model, with the biggest market share of 30%. Finland 2004 (the equivalent of Turkey 2003, in New York) had a 9% share. Together, these New York-style CAC models emerged to take almost 40% of the English market in stage three. Sweden 1977, by contrast, showed a sharp decline and slipped from its over 90% share in stages one and two to a 13% share in stage three. Denmark 1998, which is a cross between the traditional English model and the new dominant New York model, also emerged with a 28% share.

Overall, we see that the old dominant English model was displaced in stage three, just as it was in New York. However, unlike in New York, where one new model was clearly dominant, there was no clear victor in the English market by the end of 2011. We also see a feedback loop in operation. The New York CACs drew their inspiration from the English model, but sought to improve upon it. In turn, the English issuers drew from the improvements made to their model in New York and incorporated some of those features in their models.

In terms of the market position of the innovators, we see that stage three in the English market once again did not show the uniformity of the New York market. In the New York market, the new stage two models came from marginal players and the new stage three models came from dominant players. In the English market, both marginal and dominant players appeared to innovate in both stages two and three, as Tables 8 and 10 show actors from a range of quartiles producing new models. The market positions of the innovating parties, particularly the issuer counsel and investment bank counsel, did seem to increase toward the end of our stage three time period. This may indicate that the expectation that the English market would move to a new standard arose later in the English-law market as compared with the New York-law market. This is consistent with our

TABLE 9: ENGLISH MODELS IN STAGE THREE (2002–2011)

<u>Model Name</u>	<u>Min Mod Vote</u>	<u>Other Vote</u>	<u>Disenfran- chisement</u>	<u>Mandatory Meeting</u>	<u>Aggre- gation</u>	<u>Market Share</u>
<i>Pre-Existing Models</i>						
Sweden 1997	0.1875	0.5	0	1	0	13%
Iceland 1981	0.1875	0.5	1	1	0	4%
Greece 1998	0.1875	0.5	0	1	0	2%
Tunisia 1999	0.5	0.5	1	1	0	4%
Denmark 1998	0.1875	0.75	1	1	0	28%
<i>New Models</i>						
Bahrain 2003	0.25	0.75	0	1	0	8%
Morocco 2003	0.375	0.5	0	1	0	2%
Hungary 2004	0.75	0.75	1	0	0	30%
Finland 2004	0.75	0.75	0	0	0	8%
Ukraine 2007	0.25	0.75	1	1	0	2%

Note: 177 issuances.

conjecture that the sovereign debt shocks affected the English-law market more distantly, at least initially, than the New York market.

TABLE 10: MARKET RANK ASSOCIATED WITH NEW MODELS IN STAGE THREE (2002–2011)

<u>Issuer Name</u>	<u>Issuer Quartile</u>	<u>Investment</u>		
		<u>Issuer Counsel Quartile</u>	<u>Bank Counsel Quartile</u>	<u>Investment Bank Quartile</u>
Bahrain 2003	4	4	3	2
Morocco 2003	4	3	4	1
Hungary 2004	2	n.a.	1	2
Finland 2004	1	n.a.	1	2
Ukraine 2007	4	2	1	1

Note: 177 issuances.

D. Summary

The evolutionary patterns in the English data show similarities to what we saw with New York, even though the shocks hit the English market in a dampened form. Most distinctly, we see that the data on innovations fit a distinct three-stage pattern, with no innovation prior to the shocks (the period of calm), followed by a number of new models emerging in the wake of the shocks (the period of multiple shocks), and concluding with the displacement of the old dominant

model and the emergence of new ones (the post-shock period). What we do not see in the English data, however, are the distinct differences that we saw in stage two and three in New York between the identities of innovators in the two stages. In the New York market, marginal players innovated in stage two; large players competed to set the dominant design in stage three. In the English market, there is not such a clear division between stages two and three. Both marginal and large players innovated in those two periods, and no clear dominant model has emerged as of mid-2011, when our dataset ended. One explanation for this difference is that the English market felt the sovereign debt shocks in the 1990s and early 2000s only distantly, and thus the recognition that a new standard would take hold in the English market occurred much later than in the New York market.

CONCLUSION

Contracting parties rarely draft contracts in a vacuum. Instead, these parties rely on boilerplate terms. The use of boilerplate is well-known, including its ability to change when the benefits from using a new standard outweigh the costs (from network externalities, legal uncertainty, and other sources). What is less understood is the process through which one boilerplate standard gives way to a new standard. If the benefits of using a new standard outweigh the costs of sticking with a boilerplate, do we observe instantaneous shifts to new standards?

Our contribution is to demonstrate that new contract innovations in at least one important contracting context—the sovereign bond market—occur through a pattern similar to what is found in the technology innovation literature. Prior to any shock, existing standards are sticky and innovation is sparse (stage one of our model). External forces can precipitate a change in the standard, such as the shocks in the sovereign bond market that we observe during the time period of our study. Rather than resulting in an immediate shift to a new standard, these shocks lead to an initial period of experimentation by more marginal players (stage two of our model). Top players have a vested interest in supporting the existing standard through which they maintain their competitive dominance.

Stage two continues until market participants come to the conclusion that a shift in the standard will occur (the X tipping point in our analysis). In the sovereign debt context, we conjecture that prior learning from contract innovation in stage two, the cumulative impact of shocks, and public sector pressure led to the tipping point when top market participants abandoned the old standard and started to

compete over the new standard. In other contexts, different combinations of factors, including pressure from the public sector (for example, the IMF) and approval from key industry groups, are likely critical in reaching such a tipping point for a contract term standard.

Once enough market participants expect a shift in the standard, we enter stage three of our model. In stage three, top market participants switch from being defenders of the status quo to promoters of their own individual visions of the anticipated new standard. Competing visions can then lead to multiple new standards in stage three: One competitor can gain market share and become the dominant standard (as is the case for the Mexico 2003 standard), and the old standard suffers a corresponding drop in the market share (in our case the Ireland 1967 standard). Where the market shares of the new standard and old standards cross, or the X point, we conjecture that the incentive to compete for a new standard is at a maximum. It is at this cross point in our dataset that we observe not only the Mexico 2003 model but also the introduction of the Brazil 2003, Uruguay 2003, and Turkey 2003 models.

We also observe that standards may vary across differing market segments. The English-law governed sovereign bonds historically had very different collective action terms compared with the New York-law governed bonds. When standards differ by market segments, innovations in one market, the New York-law market, can have an effect (although indirect) on innovations in another market, the English-law market. This effect nonetheless is muted. The shocks and resulting contract innovations in the New York-law market did spur innovation and experimentation in the English-law market. But opinion leaders in the English-law market did not call for a shift to a new CAC standard during the time period of our study.

As of this writing in February 2013, with the Eurozone sovereign debt markets in turmoil—Greece having just conducted the biggest sovereign debt restructuring in history, and numerous calls for reform—it seems likely that the key participants in the English-law market will soon be competing vigorously to generate a new CAC standard.

APPENDIX A: MARKET SHARES (BY NUMBER OF DEALS) OF THE VARIOUS PARTICIPANTS
 IN SOVEREIGN BOND ISSUANCES
 FIGURE A1: ISSUERS USING NEW YORK LAW (1990–2011)

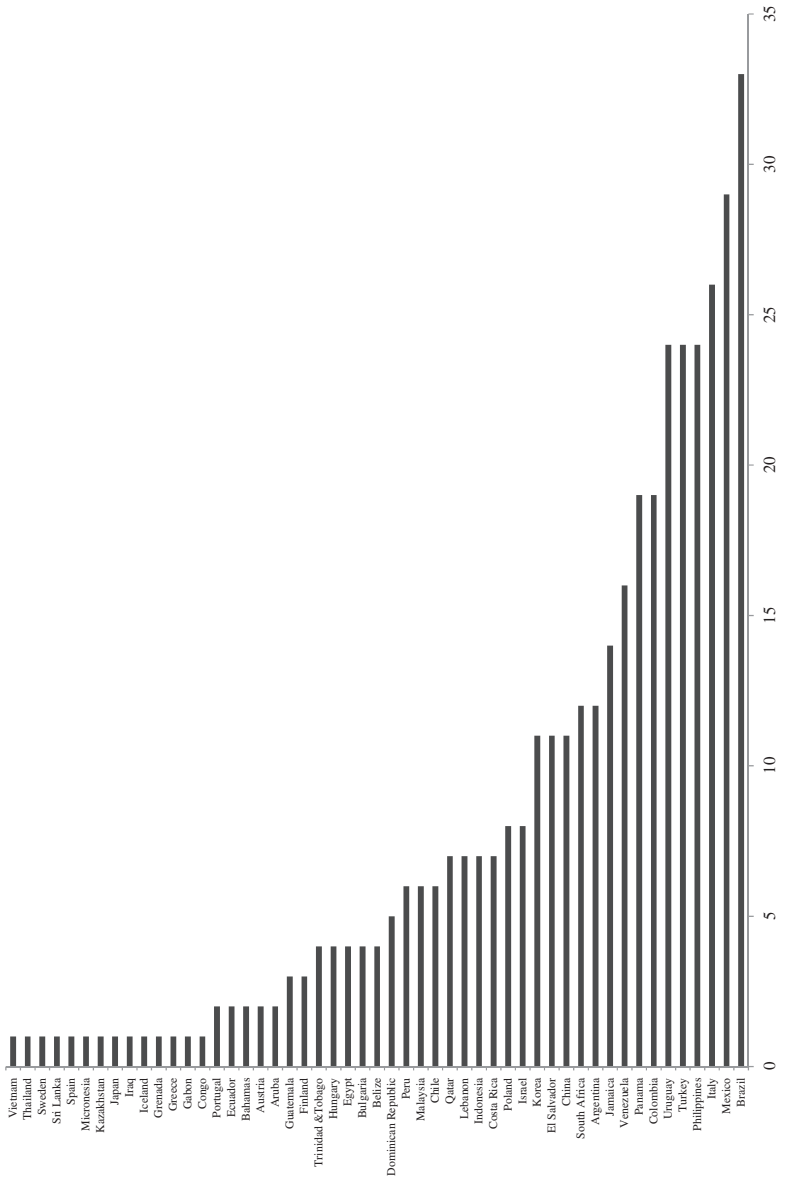


FIGURE A2: ISSUERS USING ENGLISH LAW (1990–2011)

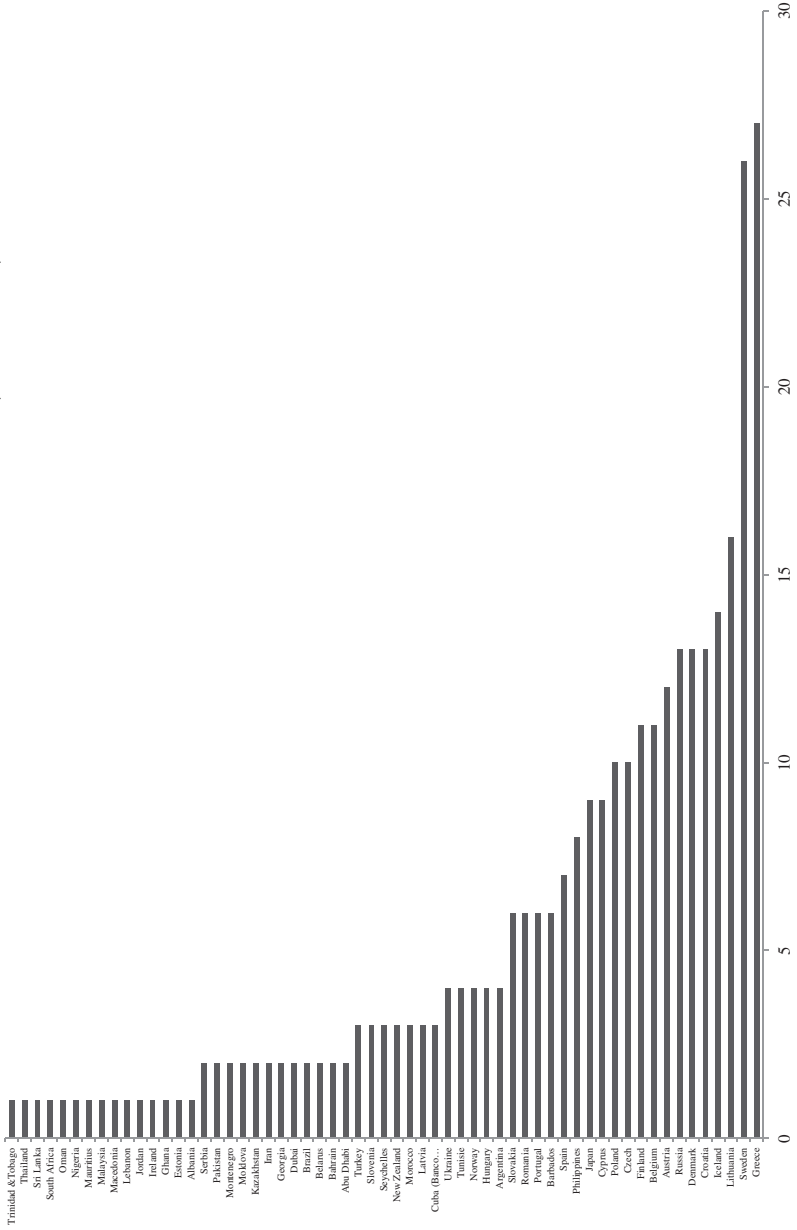


FIGURE A3: ISSUER'S COUNSEL FOR NEW YORK-LAW BONDS (1990-2011)

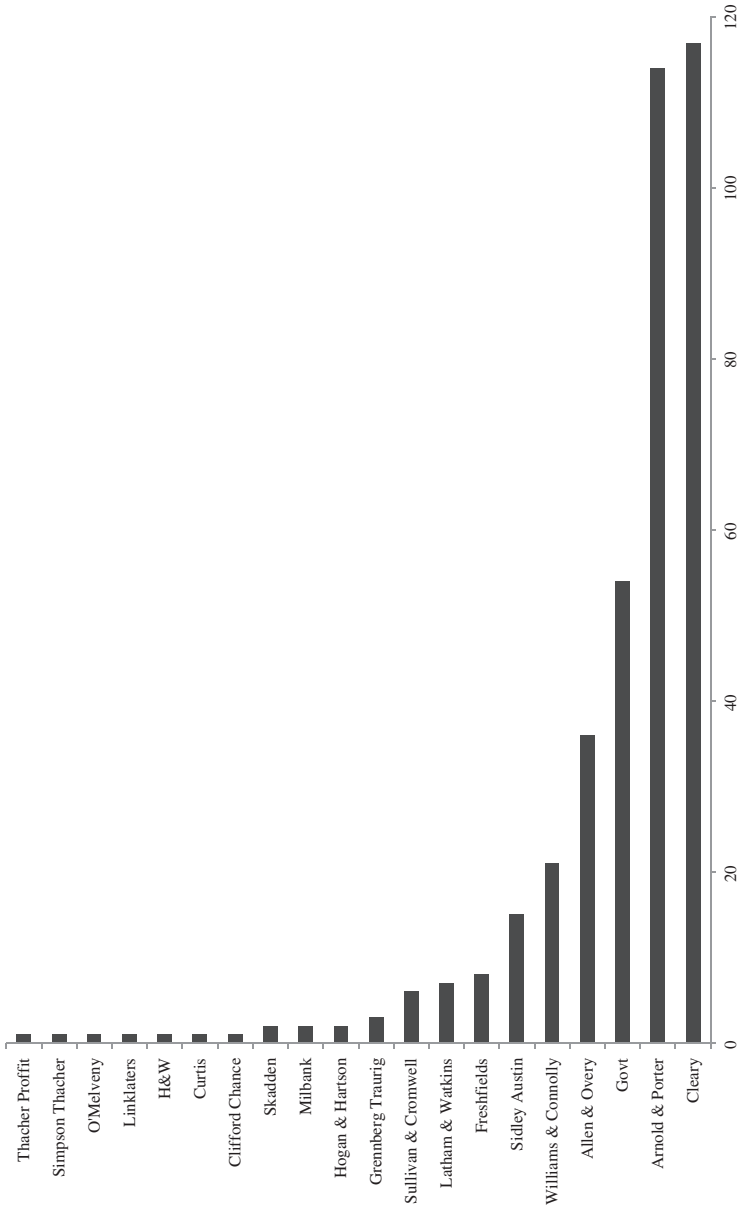


FIGURE A4: ISSUER'S COUNSEL FOR ENGLISH-LAW BONDS (1990-2011)

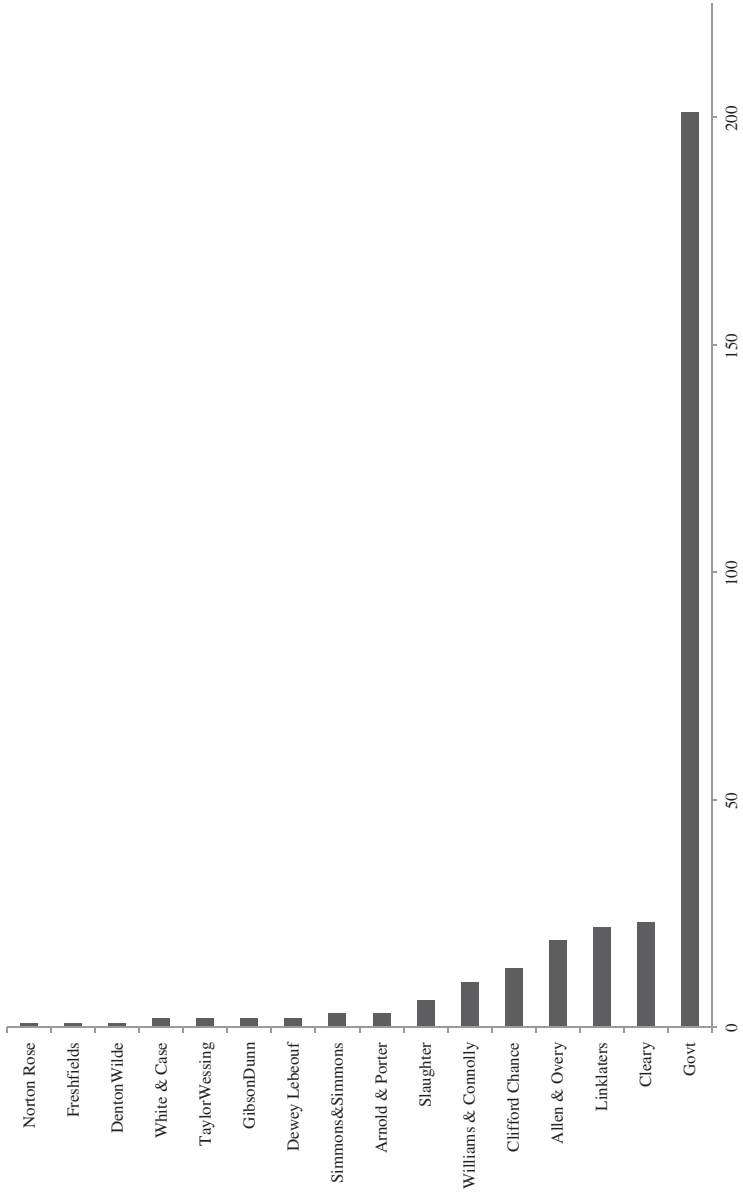


FIGURE A5: UNDERWRITER'S COUNSEL FOR NEW YORK-LAW BONDS (1990-2011)

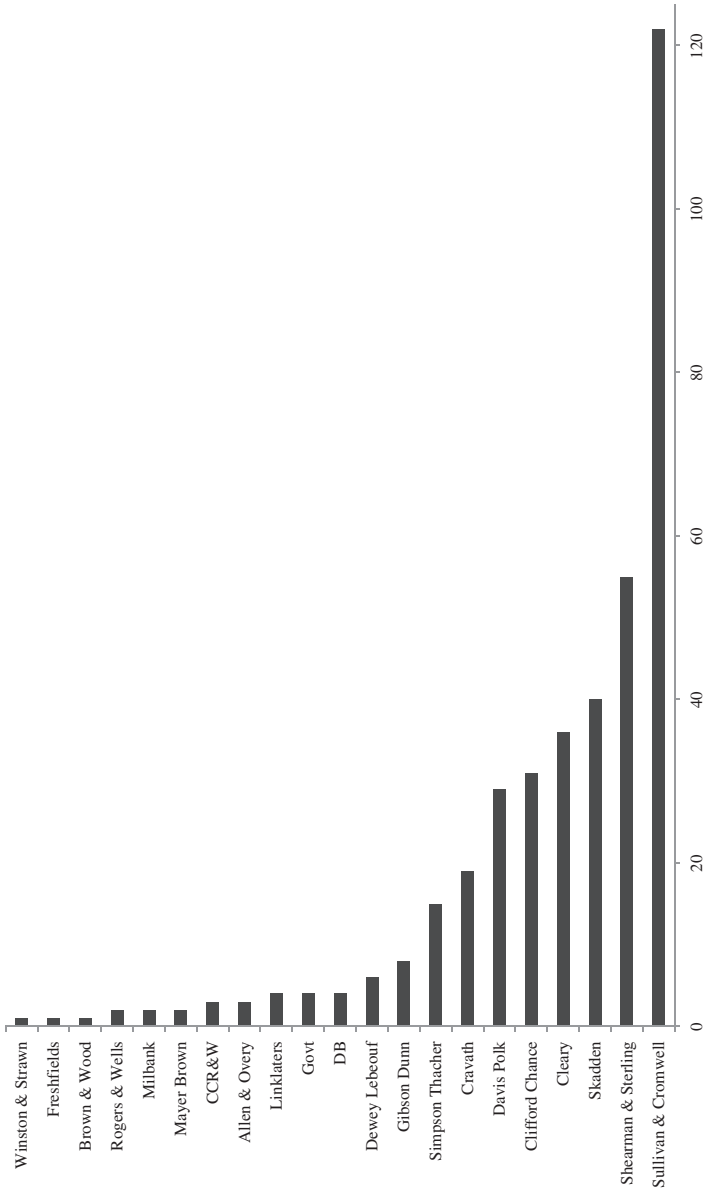
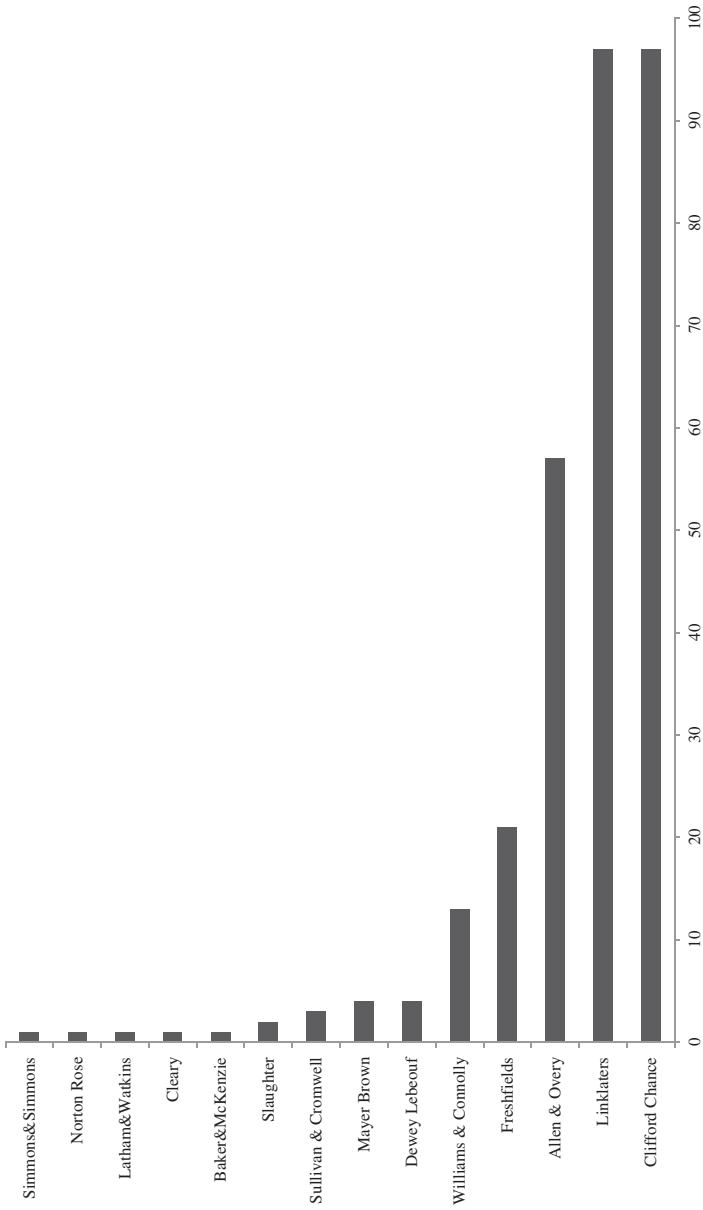


FIGURE A6: UNDERWRITER'S COUNSEL FOR ENGLISH-LAW BONDS (1990-2011)



APPENDIX B: A COMPARISON OF THREE GREEK COLLECTIVE
ACTIONS CLAUSES (1994, 2000, AND 2012)

I. *Hellenic Republic Bond, \$500,000,000, Issued November 17,
1994, Due November 28, 1999*

Modification

Unless otherwise specified in a Prospectus Supplement or Supplements, the Republic may modify any of the terms or provisions contained in the Debt Securities of any series in any way with the written consent of the holders of not less than 66 $\frac{2}{3}$ % in principle amount of the Debt Securities of such series at the time outstanding, provided that; (i) if any such modification would change the terms or currency of payment of the principle amount of or interest or additional amounts, if any, on any Debt Securities of such series or the amounts or time of payment thereof or affect the rights of holders of less than all the Debt Securities of such series at the time outstanding, the consent of the holders of all the Debt Securities of such series affected thereby is required; and (ii) if any such modification would reduce the aforesaid percentage needed for authorization of such modification, the consent of the holders of all outstanding Debt Securities of such series is required.

II. *Hellenic Republic Bond, Euro 200,000,000, Issued April 13,
2000, Due April 14, 2028*

Meetings of Noteholders and Modification

The Agency Agreement contains provisions for convening meetings of the holders of the Notes to consider matters affecting their interests, including modification by Extraordinary Resolution of these Terms and Conditions. The quorum for any meeting convened to consider a resolution proposed as an Extraordinary Resolution shall be one or more persons holding or representing a clear majority in nominal amount of the Notes for the time being outstanding, or at any adjourned such meeting one or more persons being or representing Noteholders whatever the nominal amount of the Notes for the time being outstanding so held or represented, except that at any meeting, the business of which includes, *inter alia*, (i) modification of the Maturity Date or reduction or cancellation of the nominal amount payable upon maturity or otherwise, or variation of the method of calculating the amount of principle payable on maturity or otherwise, (ii) reduction of the amount payable or modification of the payment date in respect of any interest in respect of the Notes or variation of the method of calculating the rate of interest in respect of the Notes,

(iii) modification of the currency in which payments under the Notes and/or the Coupons appertaining thereto are to be made, (iv) modification of the majority required to pass an Extraordinary Resolution or (v) modification of the provisions of the Agency Agreement concerning this exception, the necessary quorum for passing an Extraordinary Resolution will be one or more persons holding or representing not less than 66 per cent., or at any adjourned such meeting not less than 33 per cent., of the nominal amount of the Notes for the time being outstanding. Any Extraordinary Resolution duly passed at any such meeting will be binding on all the Noteholders (whether or not they are present at such meeting) and on all Couponholders.

The Agent may agree, without the consent of the holders of the Notes or Coupons, to any modification to any of the provisions of the Notes which is of a formal, minor or technical nature or is made to correct a manifest error. Any such modification shall be binding on all Noteholders and Couponholders and, if the Agent so requires, shall be notified to Noteholders as soon as practicable thereafter in accordance with Condition 11. Provision is also made in the Agency Agreement for modifications to the Agency Agreement which are not materially prejudicial to the interests of the Noteholders.

*III. Hellenic Republic Exchange Offer, Invitation
Issued February 24, 2012*

Meetings and Modifications

10.1 General

The provisions relating to modifications as set out under Clause 17 of the Trust Deed and for convening meetings of Holders as set out in Schedule 4 of the Trust Deed shall apply to the Bonds, provided that, for the purposes of any proposal relating to, or proposed modification of, the Bonds of this Series or any other Class Securities or any Cross-Series Modification or any Cross-Series Proposals, the Class Securities shall be treated as a single series and all reference to “series” or “Debt Securities” shall be construed accordingly and the definition of “Reserved Matters” shall include a reference to any directions requested by the Trustee from the Holders of the Bonds in connection with any modification to the terms of the Co-Financing Agreement or any action that the Trustee is entitled to take under the Co-Financing Agreement.

For the purposes of Conditions 8.2, 9 and 10, a Bond will be deemed to be not **Outstanding** as set out in Clause 1.1 of the Trust Deed and where the Bond is held by the Republic, by a department, ministry or agency of the Republic, or by a corporation, trust or other

legal entity that is controlled by the Republic or a department, ministry or agency of the Republic and, in the case of a Bond held by any such above-mentioned corporation, trust or other legal entity, the Holder of the Bond does not have autonomy of decision, where:

(x) the Holder of a Bond for these purposes is the entity legally entitled to vote the Bond for or against a proposal and/or proposed modification or, if different, the entity whose consent or instruction is by contract required, directly or indirectly, for the legally entitled Holder to vote the Bond for or against a proposal and/or proposed modification;

(y) a corporation, trust or other legal entity is controlled by the Republic or by a department, ministry or agency of the Republic if the Republic or any department, ministry or agency of the Republic has the power, directly or indirectly, through the ownership of voting securities or other ownership interests, by contract or otherwise, to direct the management of or elect or appoint a majority of the board of directors or other persons performing similar functions in lieu of, or in addition to, the board of directors of that legal entity; and

(z) the Holder of a Bond has autonomy of decision if, under applicable law, rules or regulations and independent of any direct or indirect obligation the Holder may have in relation to the Republic: (i) the Holder may not, directly or indirectly, take instruction from the Republic on how to vote on a proposal and/or proposed modification; or (ii) the Holder, in determining how to vote on a proposal and/or proposed modification, is required to act in accordance with an objective prudential standard, in the interest of all of its stakeholders or in the Holder's own interest; or (iii) the Holder owes a fiduciary or similar duty to vote on a proposal and/or proposed modification in the interest of one or more persons other than a person whose holdings of Bonds (if that person then held any Bonds) would be deemed to be not Outstanding under this definition.

The following paragraphs constitute a summary of the relevant clauses in the Trust Deed and shall be subject to the provisions set out therein as amended by the foregoing paragraphs in this Condition 10.1.

10.2 Convening a meeting of holders

A meeting of holders:

(a) may be convened by the Republic or the Trustee at any time; and

(b) will be convened by the Republic if a meeting is requested in writing by the holders of not less than 10% of the aggregate principal amount of the Class Securities then Outstanding and if the Republic

fails to convene a meeting within 14 days of the request, the same may be convened by the Trustee at the request of any of such holders (subject to it being indemnified, secured and/or pre-funded to its satisfaction by the relevant holders).

10.3 **Quorum**

(a) The quorum at any meeting at which holders will vote on a proposal in relation to, or a proposed modification of:

(i) a Reserved Matter will be one or more persons present or represented at the meeting and holding not less than 66 2/3% of the aggregate principal amount of the Class Securities then Outstanding; and

(ii) a matter other than a Reserved Matter will be one or more persons present or represented at the meeting and holding not less than 50% of the aggregate principal amount of the Class Securities then Outstanding.

(b) The quorum for any adjourned meeting will be one or more persons present or represented at the meeting and holding:

(i) not less than 66 2/3% of the aggregate principal amount of the Class Securities then Outstanding in the case of a proposed Reserved Matter modification or a proposal relating to a Reserved Matter; and

(ii) not less than 25% of the aggregate principal amount of the Class Securities then Outstanding in the case of a non-Reserved Matter modification or a proposal relating to a matter other than a Reserved Matter.

10.4 **Non-Reserved Matters**

Save as otherwise provided in the Trust Deed, any modification in relation to, or proposal relating to, any matter other than a Reserved Matter affecting the terms and conditions of the Bonds and/or any agreement governing the issuance or administration of the Bonds may only be approved, with the consent of the Republic (provided that the consent of the Republic shall not be required in connection with any request by the Trustee for directions from the relevant holders) and:

(a) the affirmative vote of a holder or holders of more than 50% of the aggregate principal amount of the Class Securities then Outstanding represented at a duly called and quorate meeting of holders; or

(b) a written resolution signed by or on behalf of a holder or holders of more than 50% of the aggregate principal amount of the Class Securities then Outstanding.

10.5 **Reserved Matters**

Except as provided by Condition 10.6 below, any modification in relation to, or proposal relating to, a Reserved Matter affecting the terms and conditions of the Bonds and/or any agreement governing the issuance or administration of the Bonds may only be approved, with the consent of the Republic (provided that the consent of the Republic shall not be required in connection with any request by the Trustee for directions from the relevant holders) and:

(a) the affirmative vote of a holder or holders of not less than 75% of the aggregate principal amount of the Class Securities then Outstanding represented at a duly called and quorate meeting of holders; or

(b) a written resolution signed by or on behalf of a holder or holders of not less than 66 2/3% of the aggregate principal amount of the Class Securities then Outstanding.

10.6 **Cross-Series Modifications and Cross-Series Proposals**

In the case of a Cross-Series Modification and/or Cross-Series Proposal, any modification in relation to, or proposal relating to, a Reserved Matter, the terms and conditions of the Class Securities and any other series of Debt Securities (as defined in the Trust Deed but subject to the first paragraph of Condition 10.1), and any agreement governing the issuance or administration of the Class Securities or Debt Securities of such other series may only be approved, with the consent of the Republic (provided that the consent of the Republic shall not be required in connection with any request by the Trustee for directions from the relevant holders) and:

(a)(i) the affirmative vote of not less than 75% of the aggregate principal amount of the Outstanding Debt Securities represented at separate duly called and quorate meetings of the holders of the Debt Securities of all the series (taken in the aggregate) that would be affected by the proposal and/or proposed modification; or

(a)(ii) written resolutions signed by or on behalf of the holders of not less than 66 2/3% of the aggregate principal amount of the Outstanding Debt Securities of all the series (taken in the aggregate) that would be affected by the proposal and/or proposed modification; and

(b)(i) the affirmative vote of more than 66 2/3% of the aggregate principal amount of the Outstanding Debt Securities represented at separate duly called and quorate meetings of the holders of each series of Debt Securities (taken individually) that would be affected by the proposal and/or proposed modification; or

(b)(ii) written resolutions signed by or on behalf of the holders of more than 50% of the aggregate principal amount of the then Outstanding Debt Securities of each series (taken individually) that would be affected by the proposal and/or proposed modification.

For the purposes of this Condition 10.6:

(a) **Debt Security** means any bill, bond, debenture, note or other debt security issued by the Republic in one or more series with an original stated maturity of more than one year, and includes any such obligation, irrespective of its original stated maturity, that formerly constituted a component part of a Debt Security;

(b) **Cross-Series Modification** means a modification involving (i) the Class Securities or any agreement governing the issuance or administration of the Class Securities, and (ii) one or more other series of Debt Securities or any agreement governing the issuance or administration of such other series of Debt Securities;

(c) **Cross-Series Proposal** means a proposal or matter for consideration affecting or concerning (i) the Class Securities or any agreement governing the issuance or administration of the Class Securities, and (ii) one or more other series of Debt Securities or any agreement governing the issuance or administration of such other series of Debt Securities; and

(d) **series** means, unless otherwise specified in the terms and conditions of such Debt Securities, Debt Securities that are (i) identical in all respects except for their date of issuance or first payment date, and (ii) expressed to be consolidated and form a single series, *provided that* the definitions set out immediately above shall be subject to and construed in accordance with Condition 10.1. For the avoidance of doubt, the Class Securities shall be treated as one series of Debt Securities for the purposes of Conditions 10.6(b)(i) and 10.6(b)(ii).

10.7 Written Resolutions

A written resolution signed by or on behalf of holders of the requisite majority of the Class Securities will be valid for all purposes as if it was a resolution passed at a quorate meeting of holders duly convened and held in accordance with these provisions. A written resolution may be set out in one or more documents in like form each signed by or on behalf of one or more holders.

10.8 Binding Effect

A resolution duly passed at a quorate meeting of holders duly convened and held in accordance with the provisions of the Trust

Deed, and a written resolution duly signed by the requisite majority of holders, will be binding on all holders, whether or not the holder was present or represented at the meeting, voted for or against the resolution or signed the written resolution.