

# Does Governing Law Affect Bond Spreads?

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## Abstract

Controlling for bond and issuer characteristics, bond spreads are expected to be equal across different legal jurisdictions, and differences are expected to disappear through arbitrage. However, an analysis of 435 U.S. dollar-denominated bonds issued by 53 emerging market sovereigns during 1990–2015 reveals that after the financial crisis of 2008, the launch spread of sovereign bonds issued under U.K. law has been higher than those issued under U.S. law, by 130 basis points for BB+ bonds and 175 basis points for B- bonds. This effect was not significant for investment grade bonds. On average, bonds issued under U.K.

law had weaker ratings and shorter tenors post-crisis. The post-crisis impact of governing law on sovereign bond spreads is not explained by collective action clauses, or first-time bond issuances. Instead, the difference seems to be related to the perception that U.S. law offers stronger investor protection, and that the investor base for bonds issued under U.S. law is larger than that for bonds issued under U.K. law. The difference in spreads persists in the secondary market even after 180 days, perhaps because of the lack of liquidity, as investors tend to buy and hold these more attractive bonds on a longer term basis.

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# Does Governing Law Affect Bond Spreads?

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## 1. Introduction

This paper explores whether the governing law has any lasting impact on sovereign bond spreads. Foreign currency sovereign bond issuances comprise a significant and vital part of total emerging market (EM) bond issuance. Sovereign bonds are important not only for government finances, but also for providing a benchmark for sub-sovereign borrowings. Conventionally, controlling for bond and issuer characteristics, spreads are expected to be equal across different legal jurisdictions. Differences in spreads, if any, are expected to disappear over time through arbitrage. The main research questions examined in this paper are:

1. What are the stylized facts about sovereign US dollar bonds issued by emerging markets before and after the financial crisis?
2. Are there systematic differences between the spreads of dollar-denominated emerging market sovereign bonds issued under U.K. and U.S. law, after controlling for bond and issuer characteristics?
3. What factors could explain such differences, if any?

Contrary to expectations, an analysis of 435 sovereign U.S. dollar bonds issued by 53 emerging market sovereigns during 1990-2015 reveals that since the global financial crisis in 2008, the governing law seems to affect bond spreads for sub-investment grade bonds. During 2008-2015, the launch spread of sovereign bonds issued under U.K. law has been higher than those issued under U.S. law. While the difference in spreads was not significant for investment grade bonds, it ranged from 130 basis points for BB+ bonds to 175 basis points for B- bonds.<sup>2</sup>

Collective action clauses (CACs) that reduce the possibility of minority investors holding out on a debt settlement with a borrower, which were featured originally in U.K. law but not in U.S. law, are a possible source of differences in bond spreads. But empirical evidence from the literature is inconclusive on this point. CACs are now common in bonds issued under both U.K. and U.S. governing law. Another possible source of spread difference is a first-time bond issuance by a new borrower.

After controlling for bond characteristics such as ratings, tenor, issue size and country growth, plausible explanations such as presence of CACs and first-time issuances do not adequately explain this difference. However, bonds with U.S. SEC registration attract lower spreads. Further, the difference in spreads arises due to lower spreads of U.S. law bonds in the post-crisis period. This may indicate that the increase in risk aversion following the crisis, the greater investor protection brought in by legislations, and consequent flight to the safety of SEC registered bonds increased the value of U.S. law bonds in the perception of investors.

The difference in spreads based on governing law observed may be related to the perception that U.S. law offers stronger investor protection and a higher degree of regulatory enforcement especially. For instance, Jackson (2007) states: “Compared to at least the United Kingdom and Germany, the intensity of securities enforcement actions in the United States appears to be strikingly higher. Not only are there more financial regulators in the United States, but they also carry bigger sticks than their foreign counterparts. While the laws on the books may be converging, the level of enforcement efforts seems to vary widely across national boundaries and even within regions such as Europe.”

There has also been a change in the investor base for emerging market bonds. Post-crisis, the volume of assets managed by mutual funds has increased while hedge fund investment in emerging markets has stagnated (International Monetary Fund 2014). This may imply a greater move towards safer assets. Also the U.S. investor base is much larger. For instance, the volume of international portfolio investment

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<sup>2</sup> The spread difference is found to be broadly unchanged even after 180 days of trading in the secondary market. This adds to the list of observed post-crisis deviations from long-standing theoretical and empirical regularities such as the violation of covered interest rate parity in foreign exchange markets (Borio et al. 2016).

originating from the United States is about 2.5 times that from the U.K. (International Monetary Fund 2015).

There has also been a segregation in terms of bond characteristics between U.S. and U.K. law issues. Besides the noticeable difference in spreads, U.S.-law, dollar-denominated sovereign bond issues tend to have higher ratings and longer tenors indicating that the issuers were more creditworthy and long term oriented. However, these characteristics do not wholly account for the observed spread difference in empirical estimates.

The paper is structured as follows. In the following section, we describe the stylized facts, legal background and relevant literature motivating this study. We document historical trends, focusing on the changes that occurred in this particular market after the crisis.<sup>3</sup> Section 3 describes the data, presents our estimation methodology, benchmark results and its extension to the secondary market. In Section 4 we explore plausible causes of the spread difference, and offer possible explanations to the puzzle. We conclude in Section 5 with policy recommendations and future research directions.

## 2. Stylized facts, legal aspects, and the literature

Emerging market bond issuances during 1990-2015 totaled \$16.8 billion (Figure 1). Of these, public sector issuances accounted for 72 percent (\$11.9 trillion), and central government debt, about one-third (\$5.5 trillion). Out of a total of \$1,300 billion foreign currency sovereign bonds, US\$-denominated sovereign bonds issued under U.K. or U.S. law amounted to just under \$700 billion. The average deal size of the latter was larger, \$844 million, compared to \$395 million for public issuances generally, and \$116 million for private bonds.

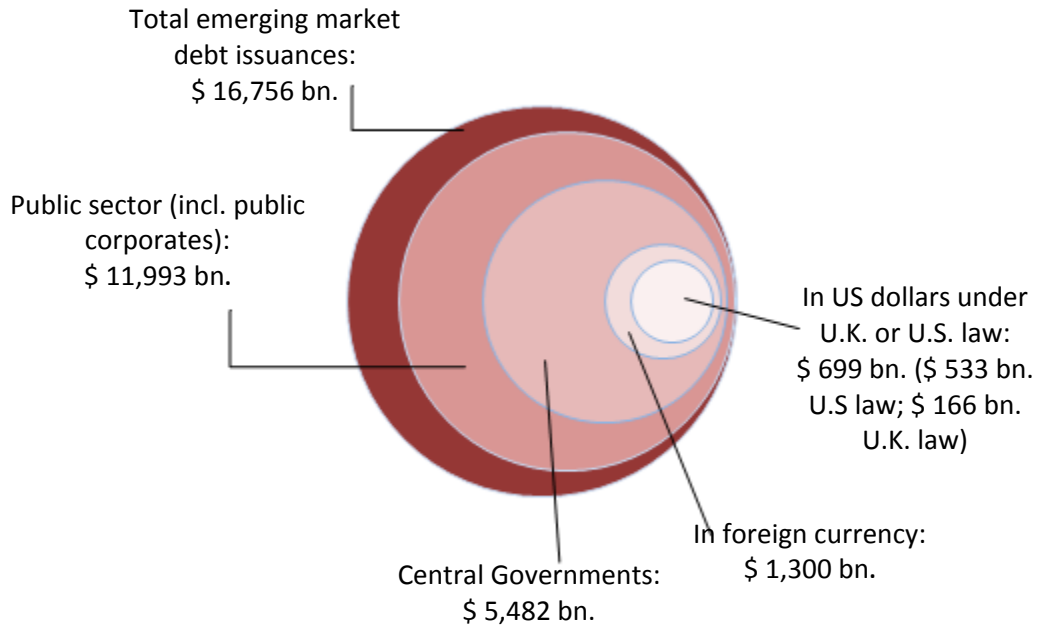
In this context, it becomes important to understand the global significance as well as differences between the United Kingdom and the United States as legal jurisdictions of comparable importance. The rise of London and New York as major financial centers owes much to the explicit backing provided by their respective legal systems. The U.K., for example, has traditionally facilitated the issuance of foreign bonds by allowing contracting parties to select its governing law even when the transaction is listed elsewhere. The United States introduced similar provisions in the 1980s. Consequently, many of these bonds while governed by laws of either jurisdiction, are actually listed elsewhere (often Luxembourg) (see Table 1). This allows flexibility in operations while assuring investors on the viability of contract enforcement. The U.S. Foreign Sovereign Immunities Act of 1976 and the U.K. 1978 State Immunity Act have added other critical elements, such as waivers of sovereign immunity, including immunity from execution of assets.<sup>4</sup>

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<sup>3</sup> The more general trends occurring in sovereign bond markets have already been studied. For example Claessens, Klingebiel and Schmukler (2003) already documented the increased participation of developing countries in international markets, and identified the macroeconomic and institutional determinants of sovereign bond currency composition, as well as the policy motivations for issuing abroad.

<sup>4</sup> Bondware; Allen & Overy (2011, 2012); Bulow (2002); International Law Association (2010); New York City Bar Association (2013); Sturzenegger and Zettelmeyer (2006).

**Figure 1: Total emerging market debt issuances, by issuer type (1990-2015)**

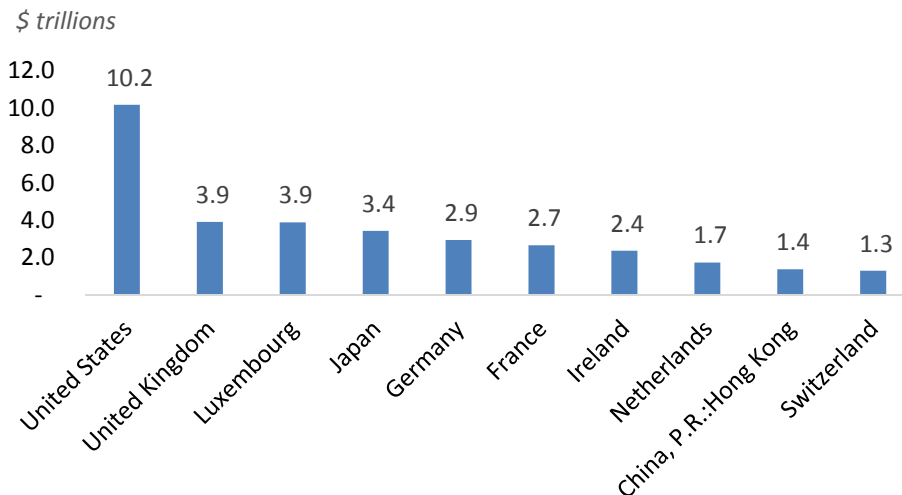


Note: Circle areas represent volume.

Source: Authors' calculations based on Dealogic data.

But the U.S. investor base for international portfolio investments is much larger than that of the U.K. (Figure 2). As of June 2015, U.S. international portfolio investment assets were around 2.5 times those of the U.K. This is also reflected with respect to central-government dollar denominated bonds. Historically, U.S. law issuances formed the dominant part of the volume of dollar-denominated central government bond issuances, barring 2012 when U.K. law issuances briefly overtook U.S. law issuances (Figure 3). In fact, even after the crisis, the cumulative volume of U.S. law issuances exceeds that of U.K. law issuances (Figure 4).

**Figure 2: Total International Portfolio Investment Assets**



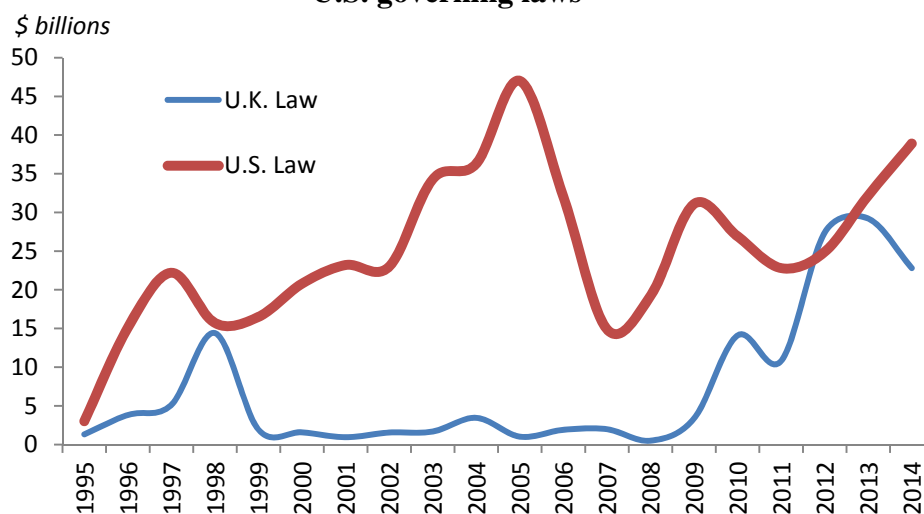
Source: IMF, Coordinated Portfolio Investment Survey, June 2015

**Table 1: Governing law and listing distribution of dollar-denominated emerging market central government debt (1990-2015)**

Listing location		Governing jurisdiction			Total
		U.K. law	US law	Other	
Luxembourg	# of Issues	98	305	32	435
	Volume (\$bn.)	51.9	243.2	34.2	329.3
Luxembourg plus U.S.	# of Issues	1	7	0	8
	Volume (\$bn.)	0.5	8.3	0	8.8
Luxembourg plus others	# of Issues	4	42	4	50
	Volume (\$bn.)	1.3	26.6	1.9	29.8
United States	# of Issues	0	2	0	2
	Volume (\$bn.)	0	0.8	0	0.8
United Kingdom	# of Issues	12	9	0	21
	Volume (\$bn.)	12.9	8.6	0	21.5
Ireland	# of Issues	7	1	1	9
	Volume (\$bn.)	8.5	0.6	0.7	9.8
Singapore	# of Issues	5	16	3	24
	Volume (\$bn.)	2.8	17.9	5.5	26.2
Other countries	# of Issues	2	1	9	12
	Volume (\$bn.)	0.4	0.5	4.9	5.8
Unreported	# of Issues	11	87	13	111
	Volume (\$bn.)	3	54.1	8.1	65.2
<b>Total</b>	# of Issues	140	470	62	672
	Volume (\$bn.)	81.2	360.5	55.2	496.9

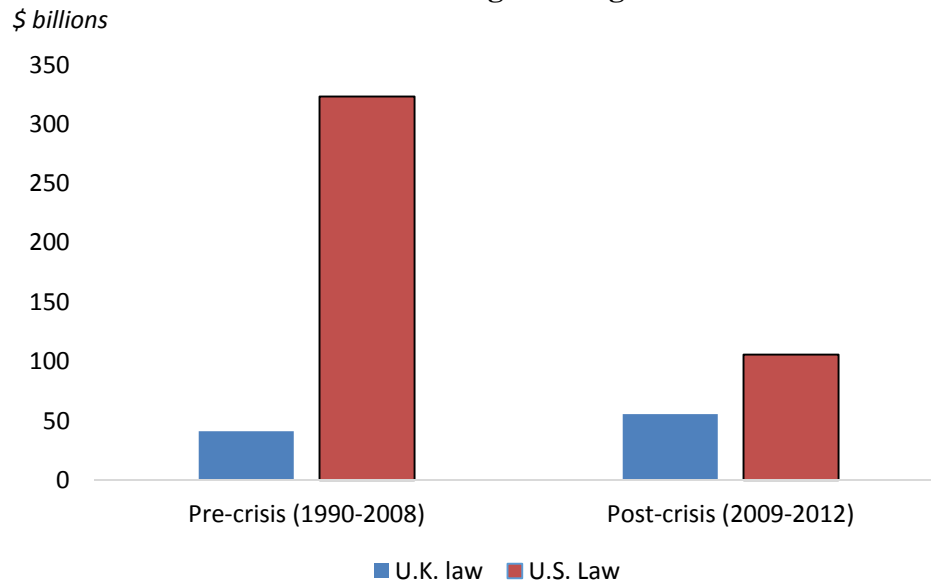
Source: Authors' calculations based on Dealogic data. Excludes bonds issued by tax havens and offshore financial centers.

**Figure 3: Volume of dollar-denominated central government debt issued under U.K. and U.S. governing laws**



Source: Authors' calculations based on Dealogic data.

**Figure 4: Cumulative volume of dollar-denominated central government debt issued under U.K. and U.S. governing laws**



Source: Authors' calculations based on Dealogic data.

Also, there are differences in the evolution of these two jurisdictions in terms of their regulatory stringency. The re-emergence of the U.K. as a major financial center commenced with the rapid deregulation of U.K. financial markets and changes in the London Stock Exchange carried out during the tenure of Margaret Thatcher in 1986.<sup>5</sup> However, it was only in the post-crisis period that the volume of dollar-denominated central government debt issued under U.K. law came close to and at times surpassed that of U.S. law issues (Figure 3). This transition coincided, in part, with major regulatory changes brought about in the United States after the crisis, while Britain continued with its “light touch” regulatory approach. It is possible that the new regulations made U.S. law less attractive for certain bond issuers. Even prior to the crisis, studies have raised concerns that U.S. financial enforcement is more intense with higher costs and more empowered regulators when compared to U.K. or Germany (Jackson 2007). This may attract some investors, but put off potential issuers of various securities (Coffee 2007). The prominent holdout of entities such as Elliott Management Corp. and Aurelius Capital Management LP in the long-drawn Argentine default case has also reinforced the notion that the United States as a legal jurisdiction offers strong investor protection. Equally, it would make sovereigns cautious of issuing under U.S. law given that across the extended period of dispute, Argentina was restricted from borrowing abroad.<sup>6</sup>

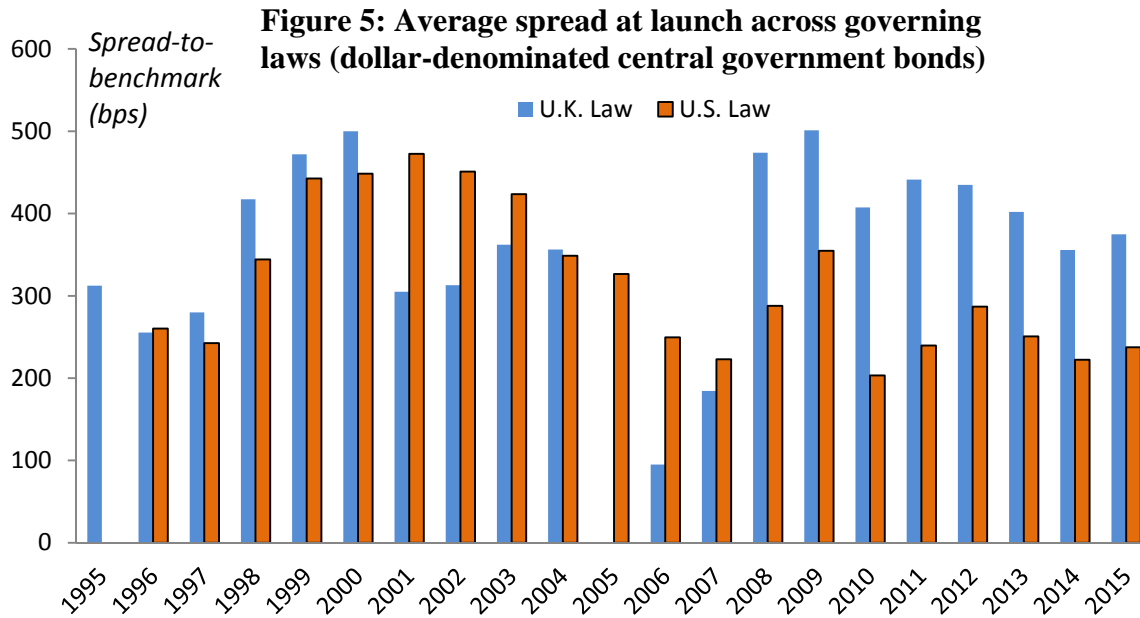
Even though no region (and often not even individual countries) can be fully associated with one or the other jurisdiction, regions concentrate *the majority* of their issuances in a certain market. Eastern European and Sub-Saharan African countries tend to issue bonds under U.K. law, and this tendency became more pronounced after the crisis. Moreover, their share of the emerging markets total and the volumes issued grew after 2008. On the other hand, Latin American and East Asian countries (which overwhelmingly issue under U.S. law) saw their volumes decline.

<sup>5</sup> See ‘Big Bang 20 years on’. *Centre for Policy Studies*. October 2006.

<sup>6</sup> See “Argentina Offers Holdout Creditors \$6.5 Billion”, *Wall Street Journal*, 5 Feb. 2016. <http://www.wsj.com/articles/some-creditors-accept-argentinas-formal-offer-1454711245>.



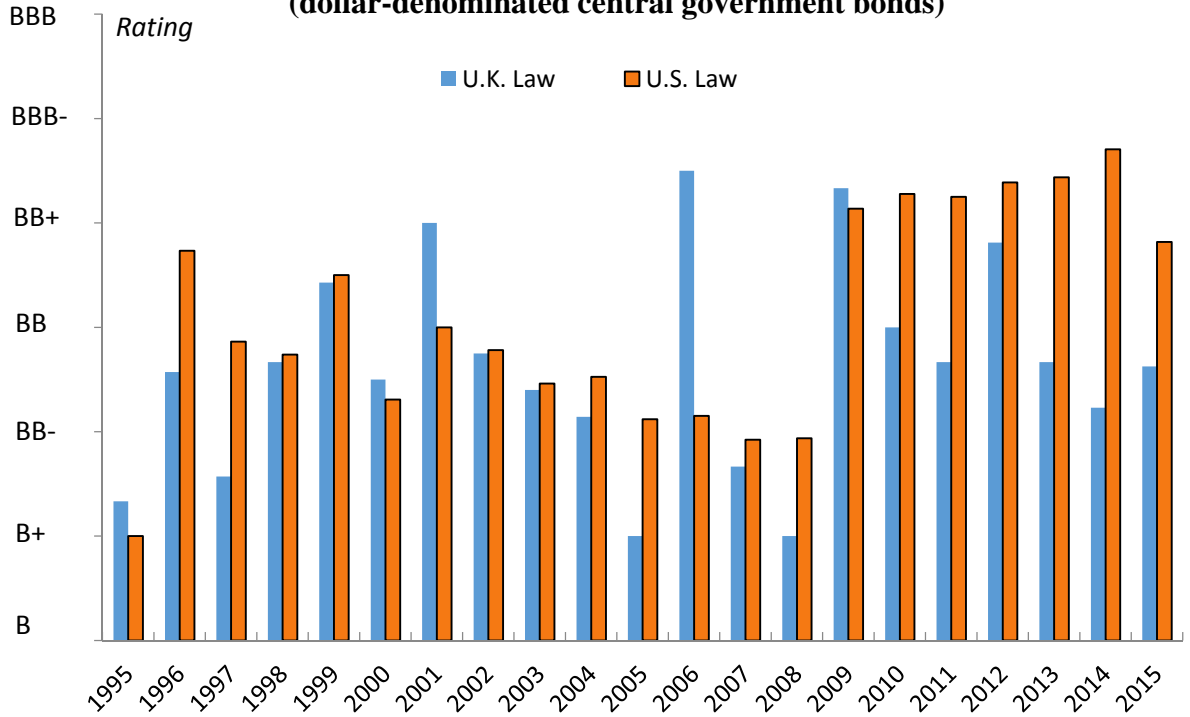
There were also divergences in characteristics of dollar-denominated central government bonds issued across the two jurisdictions. Average spread at launch for bonds issued under U.K. law became distinctly higher after the crisis (Figure 5).



Source: Authors' calculations based on Dealogic data.

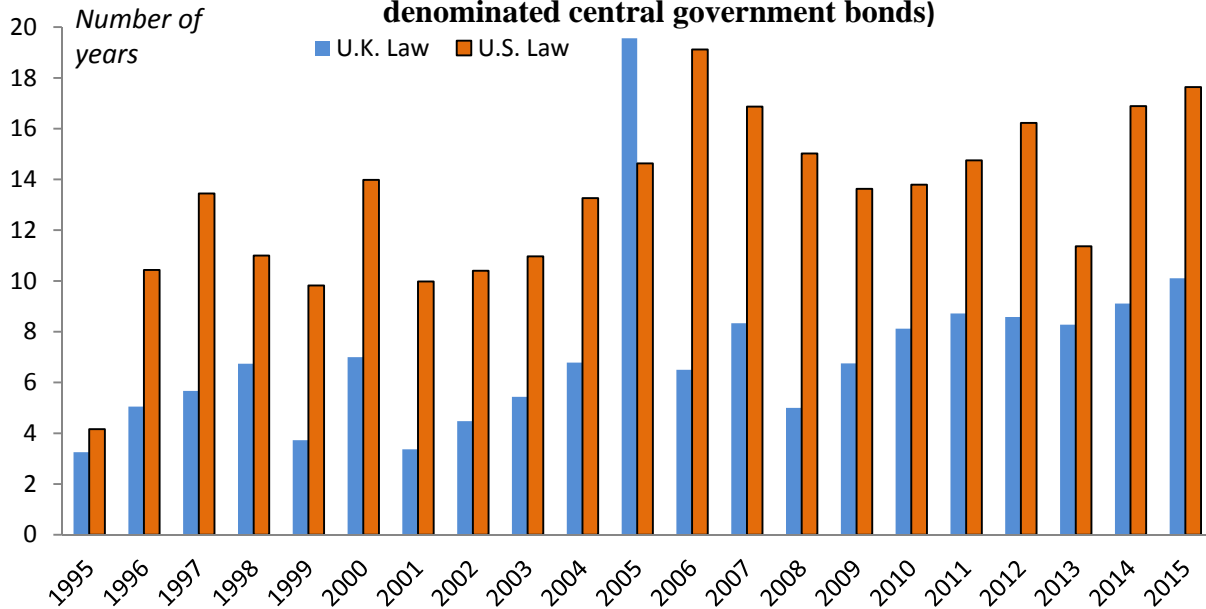
Following Ratha, De and Mohapatra (2011), we also convert the alphabetic ratings into numerical scores with higher scores indicating higher risks and worse ratings (see Table 4). This allows us to analyze average ratings. On average, bonds issued under U.K. law had weaker ratings and shorter tenors post-crisis (Figures 6 and 7). But average deal size was broadly comparable across the jurisdictions (Figure 8). This seems an indication that more established issuers had a tendency to flock to the United States. These observations provide a motivation for the inclusion of control variables, as there may be a number of factors associated with the spread difference. So, in addition to the maturity and size controls already used by some authors (Eichengreen and Mody 2004), we also included in our analysis bond ratings (as in Jaramillo and Tejada 2011) and added regional dummies to account for regional linkages with each jurisdiction. How far controlling for these differences would explain the observed spread difference is something we would empirically explore.

**Figure 6: Average S&P ratings at launch across governing laws (dollar-denominated central government bonds)**



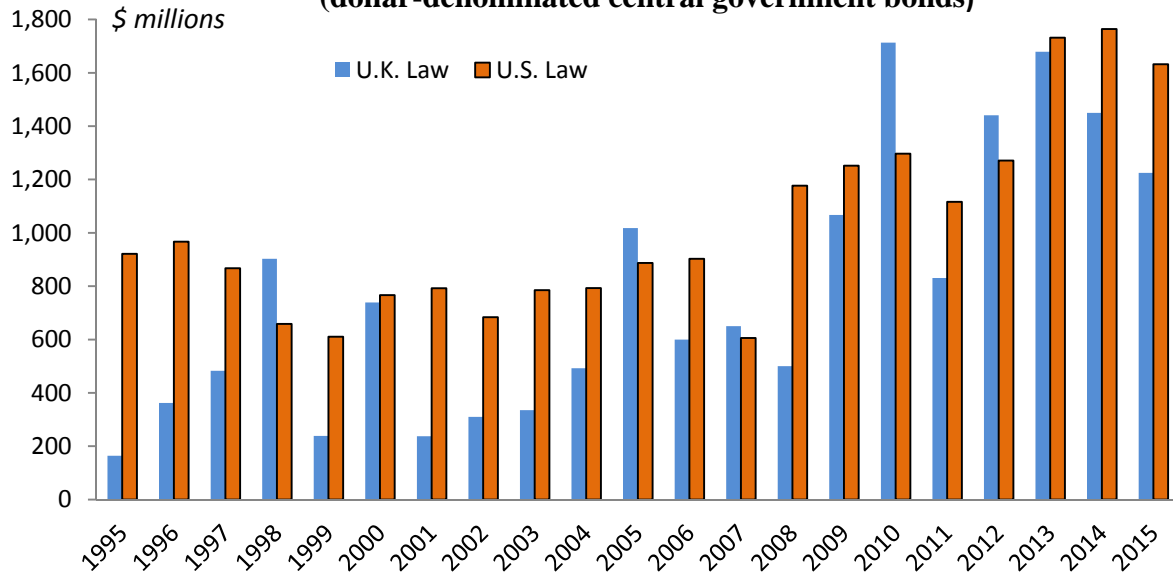
Source: Authors' calculations based on Dealogic data.

**Figure 7: Average maturity across governing laws (dollar-denominated central government bonds)**



Source: Authors' calculations based on Dealogic data.

**Figure 8: Average deal size across governing laws  
(dollar-denominated central government bonds)**



Source: Authors' calculations based on Dealogic data.

There are also legal nuances and issuance trends that merit attention. The first relates to collective action clauses (CACs) that allow a qualified majority of creditors to impose a settlement on a minority of holdouts. Several studies attributed the difference in yields to the different voting requirements (Tsatsaronis 1999, Eichengreen and Mody 2004). However, the sign of the relationship between CACs and yields is ambiguous. Intuitively, one may think that since CACs facilitate orderly resolution of crises, they make bonds more attractive and their yields lower (Kletzer 2003). On the other hand, it would be reasonable to think that CACs drive up yields, because the prospect of orderly restructuring exacerbates moral hazard. As Eichengreen and Mody (2000) noted, the answer to this question is empirical. These authors found one effect or the other to prevail depending on the issuer's creditworthiness. While "renegotiation-friendly loan provisions" reduce borrowing costs for higher-rated issuers (for whom default is a rare event), the opposite is true at the lower end of the rating spectrum (Eichengreen and Mody 2004). Earlier studies (Tsatsaronis 1999, Eichengreen and Mody 2004) normally used the governing law under which debt was issued as a proxy for the inclusion of CACs. In accordance with each jurisdiction's traditional common practice, bonds issued under U.K. governing law were assumed to contain CACs, while those issued under U.S. law were not.<sup>7</sup> But this simplification has now lost its validity since CACs are prevalent in both jurisdictions (Tomz and Wright 2013). Hence, authors have included in their analyses variables that explicitly identify the existence of CACs at the individual bond level (Häseler 2010, Bardozzetti and Dottori 2013). This is also the approach we followed. In fact, we too find that in the post-crisis period CACs are almost as prevalent under U.S. law as under U.K. law (Table 2).

<sup>7</sup> This practice had some historical foundation: CACs have been used in London since 1879, while they were reintroduced in New York governing law only in 2003, after an 80-year absence (Buchheit 2012).

**Table 2: Inclusion of collective action clauses in dollar-denominated emerging market central government bonds, by governing law (2008-2015)**

	With CAC	Without CAC
Under U.S. Law	114	22
Under U.K. Law	56	12

Source: Authors' calculations based on Dealogic data.

The impact of first-time issuances on spreads is also relevant. Governments without a previous history of dollar issuances could incur a relatively higher cost of debt when issuing for the first time. Because of the regional linkages already described, we know that first-time issuers from the same region gravitate to a certain jurisdiction. Specifically, the data show that Eastern European and Sub-Saharan African governments have issued for the first time mostly under U.K. law, while Latin American countries did so under U.S. law (Table 3).

**Table 3: Countries issuing for the first time central government dollar-denominated debt under either U.K. or U.S. law (1990-2015)**

Region	1990-2007	of which: under U.K. law	2008-2015	of which: under U.K. law
East Asia & Pacific	4	50%	2	50%
Europe & Central Asia	13	92%	4	100%
Latin America & Caribbean	10	0%	2	-
Middle East & North Africa	4	50%	1	100%
South Asia	2	100%	0	-
Sub-Saharan Africa	4	50%	7	86%

Source: Authors' calculations based on Dealogic data.

Only a few governments became first-time dollar bond issuers after the crisis, but most of those came from either Eastern Europe or Africa and issued under U.K. governing law. This close connection between the U.K.'s governing law effect and the U.K.'s status as the jurisdiction of choice for first-time sovereign dollar issuances is analyzed more formally in the results section.

The importance of SEC registration also deserves analysis. Firstly, some categories of investors simply exclude non-SEC registered bonds from their eligible universe. For example, it is common for some Exchange-Traded Funds whose investment strategies consist of tracking an underlying index to select only SEC registered bonds. Previous research has also shown that firms that opt out of SEC registration are precisely those that exhibit a deteriorating performance (Leuza, Triantis and Wang 2008). It is then reasonable to ask whether investors could have a negative perception of foreign governments with a reduced commitment to disclosure. The SEC requires that, when selling securities in the United States, foreign governments not only file for the initial registration but also submit an annual report in subsequent years. This filing (form 18-K) must include detailed information regarding the issuing country fiscal position, a description of all categories of bonds outstanding, and relevant economic policy and legal updates. Foreign issuers can nonetheless circumvent the SEC registration process by adhering to Regulation S, as long as their securities are offered and sold outside of the United States. A second reason to examine the effect of SEC registration is its close correlation with the choice of jurisdiction. Most bonds under U.K. law are sold

in the United States under Regulation S and are not SEC-registered. The implications of SEC registration for bond spreads are therefore explored in the empirical analysis.

**Table 4: Ratings conversion from letter to numeric scale**

Standard & Poor's Rating	Numeric Grade
AAA	1
AA+	2
AA	3
AA-	4
A+	5
A	6
A-	7
BBB+	8
BBB	9
BBB-	10
BB+	11
BB	12
BB-	13
B+	14
B	15
B-	16
CCC+	17
CCC	18
CCC-	19
CC	20
C	21

Source: Ratha, De and Mohapatra (2011)

### 3. Data, model specification, and basic results

The sovereign debt data used in our analysis (spread-to-benchmark, bond S&P rating, tranche volume, years to maturity, jurisdiction of issue) were sourced from the Dealogic Bondware database. We consider all countries defined by the World Bank as low, lower-middle and upper-middle income, with the addition of the Republic of Korea and the high-income nations of Latin America, Africa and Eastern Europe, as long as they are not within the group of smaller economies viewed as tax havens. We work with a sample of 53 emerging market governments that issued dollar-denominated debt in these two jurisdictions between 1990 and 2015.<sup>8</sup> Following Ratha, De and Mohapatra (2011) we use a reversed rating scale (with 1 denoting the highest rating and 21 the lowest) to convert the letter S&P rating into a numeric grade (Table 4). Within the converted scale, an investment grade dummy identifies all bonds graded 10 or lesser. More series were added to control for the macroeconomic environment, sourced either from Bloomberg (the VIX CBOE expected volatility index and the bond-level collective action clause indicator) or from the World Bank World Development Indicators (annual GDP growth). For secondary market spreads data from the Bloomberg database are used.

The econometric model has spread to benchmark at launch as the dependent variable. The first set of explanatory variables are bond-specific ones, such as S&P rating, an investment grade dummy, the size of the initial tranche, the maturity, and a dummy identifying bonds issued under U.K. governing law. The next set of variables control for macroeconomic conditions, both global and domestic. We include here the VIX index of stock option implied volatility, and the one-year lagged GDP growth rate. Year dummies capture global macroeconomic conditions not reflected in these variables.<sup>9</sup> In addition, a set of regional dummies is included to capture the effect of long established geographic connections with a particular financial center and other region specific unobservables. Then, for a new bond indexed  $i$  from country  $j$  issued in year  $t$ , the main specification becomes:

$$\begin{aligned} \ln(\text{Spread})_{it} = & \alpha + \beta_1 IG_{it} + \beta_2 S\&P_{it} + \beta_3 \ln(\text{Size})_{it} + \beta_4 \text{Maturity}_{it} \\ & + \beta_5 \text{EnglandLaw}_i + \beta_6 \text{VIX}_t + \beta_7 \text{Growth}_{j,t-1} + \beta_8 \text{Region}_j + \beta_9 \text{Year}_t \\ & + u_{it} \end{aligned} \quad (1)$$

Estimates are obtained by OLS with robust standard errors. The sample used in the estimation exercise covers the period 1990 through 2015. Because the dependent variable refers to a sample of sovereign bonds, the spread to benchmark variable is here identical to spread to treasuries.

In Table 5 we present the estimation results from the benchmark specification (equation 1). Most bond-specific and macroeconomic variables have expected signs. Post-crisis, S&P rating, VIX and governing law are significant. After 2008 the investment grade dummy becomes insignificant. Since we know that some regions have a stronger connection with Britain, we have included regional dummies. Even after controlling for the effect of regional linkages, the governing law dummy coefficient remains large and significant in the post-crisis sample.

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<sup>8</sup> Each observation is a tranche rather than a bond. This creates difficulty since tranches issued after the initial launch do not properly reflect issuance characteristics. Conversely, whenever several tranches are issued at the same time, their characteristics are usually similar, so that multiple records are created for the same bond. We addressed this by including in our sample only the first tranche, and, whenever more than one tranche was issued on the first day, by including the largest one only.

<sup>9</sup> We use standard explanatory variables such as the maturity and size controls (Eichengreen and Mody 2004) and bond ratings (Jaramillo and Tejada 2011).

**Table 5: Regression results: Benchmark specification**

Dependent variable: Log of spread-to-benchmark at launch

	(1)	(2)
	Pre-crisis	Post-crisis
IG dummy	-0.330*** (-3.71)	-0.078 (-0.56)
S&P Rating	0.134*** (6.03)	0.085*** (3.32)
Log(size)	0.058 (1.20)	0.035 (0.69)
Years to Maturity	0.012*** (3.87)	-0.004 (-1.23)
U.K. Law	0.030 (0.32)	0.230*** (3.19)
VIX	0.013** (2.21)	0.024*** (4.79)
GDP growth ( <i>t-1</i> )	-0.009 (-1.26)	-0.013 (-1.07)
EAP	0.175* (1.73)	-0.072 (-0.41)
ECA	0.183* (1.67)	0.252 (1.21)
LAC	0.347*** (4.43)	0.004 (0.03)
SAS	0.368** (2.52)	0.390*** (2.85)
SSA	0.493*** (4.03)	0.347** (2.12)
Observations	328	162
R-squared	0.654	0.663

Robust t-statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

If bonds under U.K. law are indeed mispriced at launch, then it is natural to ask whether the spread difference disappears eventually. In this context, one would expect the coefficient associated with governing law to become insignificant if a similar cross-sectional regression were successively run at 60, 90, 120 and 180 days after launch. The results are shown in Table 6. Using secondary market data from Bloomberg,<sup>10</sup> we tracked each bond spread during the first six months. While some control variables remain constant throughout this period (bond maturity, tranche size, governing law, GDP growth before launch, and year and regional dummies), some change either periodically (S&P ratings) or even daily (VIX). We used the sovereign ratings instead of individual bond ratings on the right-hand side. We can see that the governing law coefficient is not only significant, but also relatively steady. So, the evidence indicates that the initial spread difference is quite persistent.

<sup>10</sup> Bloomberg provides its own calculated mid yield spread to the benchmark bond.

**Table 6: Regression results: Secondary market**

Dependent variable: Log of spread-to-benchmark

	(1)	(2)	(3)	(4)
	After 60 days	After 90 days	After 120 days	After 180 days
IG dummy (Sov. rating)	0.030 (0.22)	0.083 (0.61)	0.090 (0.69)	-0.079 (-0.52)
S&P Sovereign rating	0.119*** (5.81)	0.122*** (4.87)	0.127*** (5.61)	0.101*** (2.83)
Log(size)	0.111* (1.75)	0.067 (1.04)	0.043 (0.67)	0.003 (0.04)
Years to Maturity	-0.015** (-2.62)	-0.013** (-2.19)	-0.012** (-2.03)	-0.005 (-1.16)
U.K. Law	0.307*** (3.71)	0.304*** (3.19)	0.313*** (3.41)	0.325*** (3.34)
VIX	0.019*** (3.55)	0.016*** (4.55)	0.021*** (4.55)	0.017*** (2.94)
GDP growth ( <i>launch-1</i> )	-0.006 (-0.74)	-0.001 (-0.11)	-0.000 (-0.02)	-0.003 (-0.35)
EAP	-0.109 (-0.75)	-0.112 (-0.69)	-0.100 (-0.63)	-0.088 (-0.69)
ECA	0.142 (1.19)	0.134 (1.03)	0.157 (1.24)	0.166 (1.66)
LAC	-0.109 (-0.82)	-0.174 (-1.25)	-0.097 (-0.74)	-0.048 (-0.42)
SAS	0.107 (1.01)	0.106 (0.88)	0.077 (0.64)	0.229** (2.09)
SSA	0.235** (2.18)	0.200* (1.70)	0.183 (1.55)	0.237** (2.38)
Observations	122	122	122	121
R-squared	0.739	0.711	0.725	0.753

Robust t-statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

#### 4. Explaining the difference in launch spreads

In this section we evaluate several plausible explanations of the spread difference. First, we report in Table 7 the results from the addition of a CAC dummy.<sup>11</sup> In the pre-crisis period the CAC dummy turns out to be significant, but the governing law is not. This switches after the crisis, and governing law becomes the key explanatory variable. The results confirm the findings from Table 5, and point to the conclusion that collective action clauses do not lie behind the effect of jurisdiction on spreads. This result is not surprising in view of the fact, already noted, that collective action clauses have become a common feature of issuances

<sup>11</sup> Unfortunately, Bloomberg has CAC information for a somewhat smaller number of bonds than we included in the benchmark regression. Whenever the added explanatory variable restricted the sample, both the benchmark regression and the alternative were run for the full sample, and for the pre and post-crisis periods. In all cases, the benchmark results held before addition of the new variable. These are not reported here for brevity.



under U.S. law. At the same time, Table 7 shows that, before the crisis (i.e. when jurisdiction was insignificant), CACs did indeed affect spreads. This is important because it places our research in the context of the existing literature: even though it is true that CACs increased spreads, their effect disappeared after the crisis.

**Table 7: Regression results with collective-action clause variable**

Dependent variable: Log of spread-to-benchmark at launch

	(1)	(2)
	Pre-crisis	Post-crisis
IG dummy	-0.318*** (-2.77)	-0.193* (-1.81)
S&P Rating	0.128*** (6.08)	0.060*** (3.10)
Log(size)	0.024 (0.64)	0.006 (0.11)
Years to Maturity	0.008** (2.50)	-0.004 (-1.14)
U.K. Law	0.114 (1.00)	0.293*** (4.29)
VIX	0.019*** (2.74)	0.025*** (4.65)
GDP growth ( <i>t-1</i> )	-0.004 (-0.40)	-0.023** (-2.58)
Collective-action clause dummy	0.154** (2.37)	0.018 (0.21)
EAP	0.047 (0.39)	-0.242** (-2.12)
ECA	-0.008 (-0.08)	0.035 (0.35)
LAC	0.101 (0.99)	-0.163 (-1.44)
SAS	0.148 (0.95)	0.269*** (3.04)
SSA	0.194* (1.71)	0.153 (1.56)
Observations	218	147
R-squared	0.691	0.710

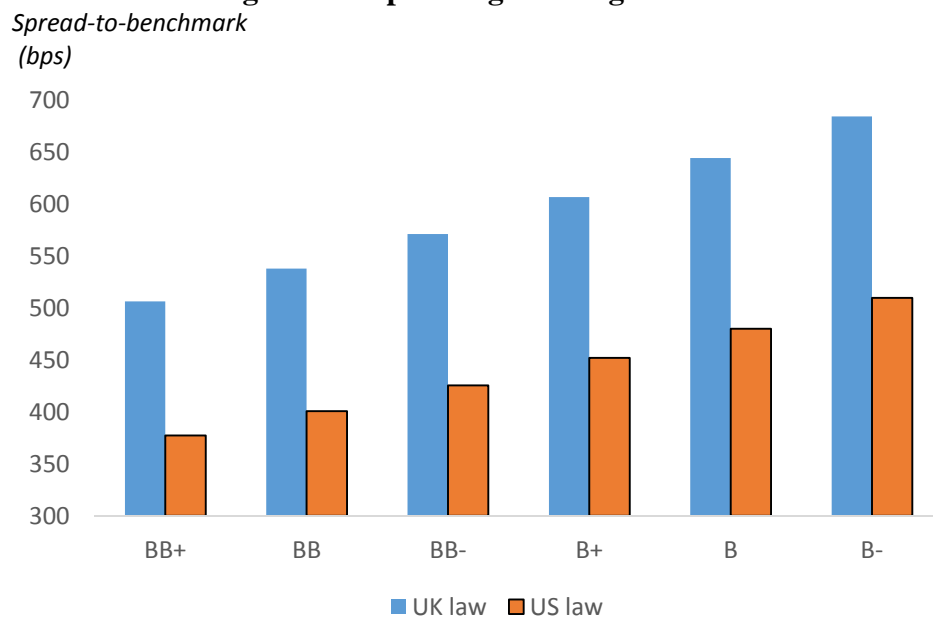
Robust t statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

To better illustrate the impact of the jurisdiction difference, one can use the fitted model to predict the value of the dependent variable. Consider a typical sovereign bond issuance of, say, \$100 million with a seven-year maturity, rated in the speculative or highly speculative range (BB+ to B-). Assuming post-crisis values for the VIX index at 20 and for the issuing country's lagged GDP growth at 3.25 percent, such a bond, if issued by an African emerging-market economy, would command a spread at launch of 377 basis points if it were rated BB+ and under U.S. law. The U.K. Law coefficient from the CAC (post-crisis) regression would result in an about 34 percent spread increase, to 506 basis points. The absolute impact is

higher for lower rated bonds. For instance, for Ghana which is rated B- by S&P (one notch above high default risk), the spread could jump from around 509 basis points if issued under U.S. law to 685 if issued under U.K. law (Figure 9).

**Figure 9: Impact of governing law difference on bond spreads**



Source: Authors' calculations

Next, we turn our attention to first-time issuances. We created a dummy identifying issuances from governments without a history of issuing dollar bonds in these two markets. The results are reported in table 8. The coefficient on the first-time issuer dummy is insignificant in the pre-crisis period and only weakly significant post-crisis. The results confirm the findings from the benchmark specification that U.K. governing law spreads are higher. Also, first-time issuance is not important enough to fully explain the observed spread differences substantially.

**Table 8: Regression results with first-time issuer dummy variable**

Dependent variable: Log of spread-to-benchmark at launch

	(1)	(2)
	Pre-crisis	Post-crisis
IG dummy	-0.329*** (-3.65)	-0.074 (-0.53)
S&P Rating	0.135*** (6.03)	0.084*** (3.28)
Log(size)	0.057 (1.20)	0.052 (1.07)
Years to Maturity	0.012*** (3.88)	-0.003 (-1.00)
U.K. Law	0.025 (0.26)	0.214*** (2.86)
VIX	0.013** (2.17)	0.025*** (4.92)
GDP growth ( $t-1$ )	-0.009 (-1.26)	-0.014 (-1.22)
First-time issuer dummy	0.051 (0.60)	0.207* (1.89)
EAP	0.178* (1.79)	-0.081 (-0.46)
ECA	0.187* (1.72)	0.239 (1.16)
LAC	0.351*** (4.58)	-0.024 (-0.15)
SAS	0.368** (2.53)	0.399*** (2.88)
SSA	0.488*** (4.01)	0.311* (1.94)
Observations	328	162
R-squared	0.654	0.670

Robust t-statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

Finally, we tested the effect of SEC registration on spread differences using a dummy variable. The results in Table 9 offer a possible answer to the puzzle. In the pre-crisis period, neither jurisdiction nor SEC registration affect spreads. After the crisis it is really SEC registration that drives the spread difference. The U.K. law effect is not significant while SEC registration drives down spreads.

**Table 9: Regression results with SEC registration dummy variable**

Dependent variable: Log of spread-to-benchmark at launch

VARIABLES	(1)	(2)
	Pre-crisis	Post-crisis
IG dummy	-0.335*** (-3.69)	-0.022 (-0.15)
S&P Rating	0.136*** (6.19)	0.083*** (3.20)
Log(size)	0.048 (0.94)	0.033 (0.70)
Years to Maturity	0.012*** (3.74)	-0.003 (-0.96)
U.K. Law	0.069 (0.74)	0.057 (0.41)
VIX	0.013** (2.29)	0.027*** (5.24)
GDP growth ( $t-1$ )	-0.009 (-1.18)	-0.010 (-0.83)
EAP	0.136 (1.28)	0.019 (0.10)
ECA	0.141 (1.24)	0.359 (1.56)
LAC	0.316*** (3.75)	0.079 (0.42)
SAS	0.366** (2.50)	0.344*** (2.66)
SSA	0.458*** (3.52)	0.428** (2.33)
SEC registration	0.080 (1.38)	-0.256** (-2.02)
Observations	328	154
R-squared	0.656	0.684

Robust t statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

We also examine whether the spread divergence was caused by higher spreads of U.K. law bonds or lower spreads of U.S. law bonds. For this we split the sample for the full period between U.K. law and U.S. law bonds and used a dummy for post-crisis years (Table 10). The results indicate that there was no significant change in U.K. law spreads post-crisis. But there was a statistically significant lowering of spreads in the U.S. law sub-sample associated with the post-crisis period.

**Table 10: Regression results for split sample with post-crisis dummy variable**

Dependent variable: Log of spread-to-benchmark at launch

	(1)	(2)
VARIABLES	U.K. law	U.S. law
IG dummy	-0.306 (-1.36)	-0.346*** (-4.66)
S&P Rating	0.085** (2.16)	0.107*** (5.25)
Log(size)	0.071 (0.87)	0.082 (1.59)
Years to Maturity	0.013 (0.87)	0.006** (2.51)
Post-crisis	-0.159 (-0.47)	-0.521** (-2.25)
VIX	0.024** (2.41)	0.021*** (3.90)
GDP growth ( $t-1$ )	-0.000 (-0.03)	-0.022*** (-3.13)
EAP	0.090 (0.34)	0.076 (0.81)
ECA	0.506** (2.22)	0.120 (1.15)
LAC	0.857*** (3.06)	0.240*** (3.13)
SAS	0.408* (1.85)	0.341*** (2.92)
SSA	0.528** (2.46)	0.430*** (4.49)
Observations	109	381
R-squared	0.609	0.639

Robust t statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

This leads us to posit some plausible explanations for the observed lower spreads of U.S. governing law dollar-denominated sovereign bonds in the post-crisis period. This could be a consequence of a reduced ability to directly tap U.S. investors for entities that do not register with the SEC. Also it could arise from a combination of self-selection and signaling problems. The post-crisis period saw many hitherto unrated sovereigns issuing bonds (Jaramillo and Tejada 2011). While the first-time issuer exercise and the regional dummies captured impacts associated with those factors, there could be an additional effect in play. Some of these issuers resorted to U.K. law to avoid the higher costs, disclosure requirements, perceived stronger investor protection and regulatory burdens associated with U.S. law (Coffee 2007, Jackson 2007). At the same time, investors chose to take this as an indication of lower transparency and quality. In any event, it is remarkable that investors started holding a negative view of governments that do not have SEC registration or U.S. governing law only after the crisis. This may have arisen due to increased risk-aversion and investor consciousness of the higher stringency of U.S. law in the post-crisis period.

**Table 11: Regression results: Investment and Not Investment Grade**

Dependent variable: Log of spread-to-benchmark

	(1)	(2)	(3)	(4)
	Investment Grade pre-crisis	Investment Grade post-crisis	Not Investment Grade pre-crisis	Not Investment Grade post-crisis
S&P Sovereign rating	0.153*** (4.66)	0.038* (1.72)	0.088*** (3.77)	0.143*** (3.12)
Log (size)	0.169 (1.17)	-0.005 (-0.07)	0.083** (2.57)	0.095 (1.54)
Years to Maturity	0.018* (1.93)	0.004 (1.10)	0.007** (2.42)	-0.015** (-2.15)
U.K. Law	-0.120 (-0.44)	0.125 (1.21)	0.037 (0.49)	0.188* (1.74)
VIX	0.037*** (3.24)	0.039*** (5.41)	0.008 (1.56)	0.016** (2.46)
GDP growth ( <i>launch-1</i> )	-0.026* (-1.74)	-0.031** (-2.12)	-0.010 (-1.20)	0.003 (0.18)
EAP	-0.518*** (-3.01)	-0.429** (-2.54)	0.149 (1.21)	0.123 (0.55)
ECA	-0.634** (-2.46)	0.143 (1.00)	0.263*** (3.29)	0.325 (1.15)
LAC	-0.229 (-1.26)	-0.293* (-1.99)	0.295*** (3.41)	0.424 (1.66)
SAS			0.436** (2.39)	0.313** (2.15)
SSA	-0.046 (-0.19)	0.060 (0.41)	0.449 (1.24)	0.368* (1.87)
Observations	76	76	252	86
R-squared	0.749	0.744	0.545	0.562

Robust t-statistics in parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Year dummies and a constant term were included in all specifications, but not reported. The default region is Middle East & North Africa (MNA); the regional dummies represent East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), South Asia (SAS) and Sub-Saharan Africa (SSA).

We explore whether the governing law impact extended to dollar-denominated bond issuance of investment grade ratings. In the case of investment grade rated bonds, we see no impact of U.K. governing law on spreads both before and after the crisis. In the case of sub-investment grade bonds, while the U.K. law effect is not statistically significant prior to the crisis, it is significant after the crisis (Table 11).<sup>12</sup>

<sup>12</sup> During the period under consideration (1990-2015), some supranational entities, for instance, the African Development Bank, Asian Development Bank, IBRD (World Bank), and IFC issued bonds under both U.S. and U.K. law. Regression results indicate that choice of jurisdiction had no statistically significant impact on spreads of supranational bonds. This adds to the argument that the higher spreads of U.K. law issuances relates to reputation effects and risk-aversion among investors post-crisis. For the World Bank Group sub-sample (IBRD+IFC), the U.K. law effect is not statistically significant.

## 5. Conclusions and policy considerations

This paper explored the phenomenon of higher launch spreads of dollar-denominated sovereign bonds issued under U.K. governing law when compared to those under U.S. governing law. This effect was not evident before the global financial crisis of 2008. Even after controlling for bond characteristics or macroeconomic variables, differences between the United States and U.K.'s legal systems, seem important in explaining bond-pricing differences. The difference in spreads persists in the secondary market even after 180 days.

We tested some plausible explanations for the spread difference between bonds governed by these two legal jurisdictions. Collective action clauses contributed to higher spreads, but only before the crisis. In fact, post-crisis, CACs are almost equally prevalent in both jurisdictions. Also, the difference in spreads arose due to a lowering of spreads of U.S. governing law bonds after the crisis. Furthermore, it is really SEC registration that drives the spread difference. We argue that in the post-crisis period, higher compliance costs and disclosure requirements associated with SEC registration and U.S. law listing may have encouraged some issuers to opt for the U.K. law. On average, bonds issued under U.K. law had weaker ratings and shorter tenors in the post-crisis period, indicating issuers with weaker creditworthiness. At the same time, risk-averse investors valued the greater transparency of SEC registration and more stringent U.S. enforcement. The evidence that investment grade bonds did not face higher spreads when issuing under U.K. law indicates that consciousness of credit quality among investors post-crisis may be driving the spread divergences for sub-investment grade bonds. Also, the investor base of bonds issued under U.S. law is significantly larger and long-term growth-oriented.

The reason why in the secondary market the spread difference continues for up to 180 days may be due to the buy-and-hold investment behavior encouraged by the attractive pricing of sub-investment grade bonds after the crisis.

Our findings hold important messages for policy makers and investors alike. In the case of policy makers, the magnitude of spread difference is large enough to deserve detailed analysis of their effect on public finances and a reexamination of governments' issuing strategies. Governments tend to overlook the fact that, however cumbersome or costly the SEC registration process may appear, it also helps them tap the U.S. investor, signal greater transparency and substantially reduce the cost of debt. Conversely, investors willing to diversify and optimize risks and returns should be aware that bonds with SEC registration offer a lower return than a bonds issued under U.K. law.

More research is needed to reveal the mechanics underlying spread differences arising from governing law jurisdiction. It would be important to ascertain what factors keep sovereigns away from full SEC registration. It would also be useful to further explore why investors suddenly became wary of buying bonds without SEC registration or without U.S. governing law only after the crisis.

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