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 490 U.S. dollar–denominated bonds issued by 53 emerging market sovereigns during 1990–2015 reveals that after the financial crisis of 2008, launch spreads of sovereign bonds issued under U.K. law have 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.

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. The use of governing law of an external jurisdiction other than that of the sovereign issuing debt (very often the U.S. or the U.K.) is a widespread practice especially among emerging market sovereign issuers. This is an attempt to mitigate risks associated with sovereign debt default by negating the possible influence a sovereign may have on its national courts. Yet the role of governing law as a distinguishing feature of a bond has received very little attention in the literature.

The main research questions examined in this paper are:

1. 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?
2. What factors could explain such differences, if any?

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. An analysis of 490 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

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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. 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.

These issues are linked to the literature on law and finance (following Porta et al. (1997, 1998) often referred to as LLSV) which deals with the relationship between legal rules, their origins, enforcement and impact on financial flows. This literature posits that differences in legal protections offered to investors impact the structure, pricing and volume of financial flows. The paper advances and addresses gaps in this literature by:

1. Focusing on the importance of governing law of the jurisdiction under which the bond is issued, rather than the laws of the issuing sovereign.
2. Highlighting differences between the two largest governing law jurisdictions for sovereign bonds, namely, the U.S. and the U.K.
3. Examining the role of SEC registration, first time issuances and investment grade ratings in driving spreads as opposed to the CAC provisions that hitherto attracted more attention.

Much of the current literature explores how a country's legal origins and rules impact financing including bank and syndicated loans (Qian and Strahan, 2007; Godlewski and Weill, 2008). However, these studies focus on laws of the country issuing debt or equity not those of other jurisdictions that may govern such transactions. This is a gap that this paper seeks to address. The observed difference in spreads based on governing law may be related to the perception that U.S. law offers stronger investor protection and greater regulatory enforcement. 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 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.

Another strand in the literature has examined issues related to the economics and law of sovereign debt and default (see Panizza et al. (2009) for a survey of this literature). These include studies examining legal decisions or contractual clauses related to orderly resolution in cases of default (for example Eichengreen and Mody, 2004). 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 the U.K. law but not in the U.S. law, are a possible source of differences in bond spreads. But empirical evidence from the literature is inconclusive on this point. Furthermore, CACs are now common in bonds issued under both U.K. and U.S. governing law. Consequently, this paper examines other possible sources of spread differences such as first-time bond issuance by a new borrower, impact of investment grade ratings and SEC registration.

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.[1] 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 trillion (Fig. 1). Of these, public sector issuances accounted for 72% ($11.9 trillion), and central government debt, about one-third ($5.5 trillion). Out of a total of $1300 billion foreign currency sovereign bonds, US$-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. Dollar-denominated bonds comprise a large chunk of sovereign bond issuances (65% of sovereign foreign currency bond proceeds and 49% of sovereign foreign currency bond issues). Issuers targeting clients are known to issue currency specific bonds adhering to specific governing laws (such as Samurai bonds). But dollar-denominated bonds appeal to a large share of international

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[1] The more general trends occurring in sovereign bond markets have already been studied. For example, Claessens et al. (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.
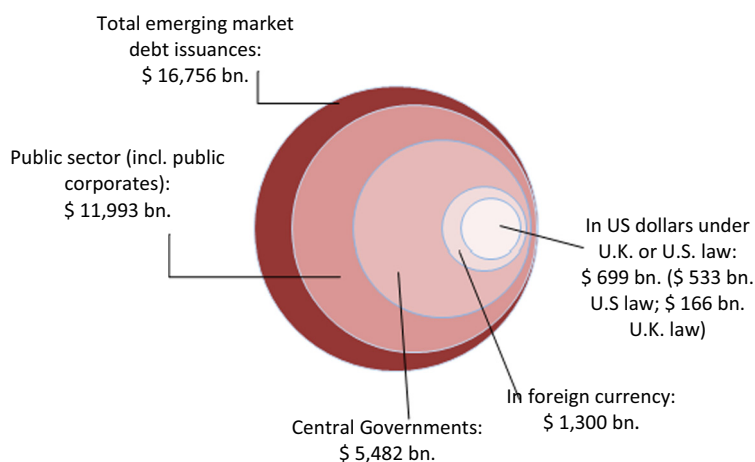
Fig. 1. Total emerging market debt issuances, by issuer type (1990–2015).

Table 1
Governing law and listing distribution of dollar-denominated emerging market central government debt (1990–2015).
Source: Authors' calculations based on Dealogic data. Excludes bonds issued by tax havens and offshore financial centers.

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 ($bn.)	3	54.1	8.1	65.2
Total	# of issues	140	470	62	672
	Volume ($bn.)	81.2	360.5	55.2	496.9

investors including large institutional investors. This may be attributed to the dominance of the dollar as a global reserve and transaction currency. Also, the large dollar-denominated sovereign bonds market is dominated by US and UK governing laws perhaps due to the standing of New York and London as financial centers (see Table 1). It also allows us to abstract away from complications arising due to currency movements.

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.[2]

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[2] Bondware; Allen and Overy (2011, 2012); Bulow (2002); International Law Association (2010); New York City Bar Association (2013); Sturzenegger and Zettelmeyer (2006).
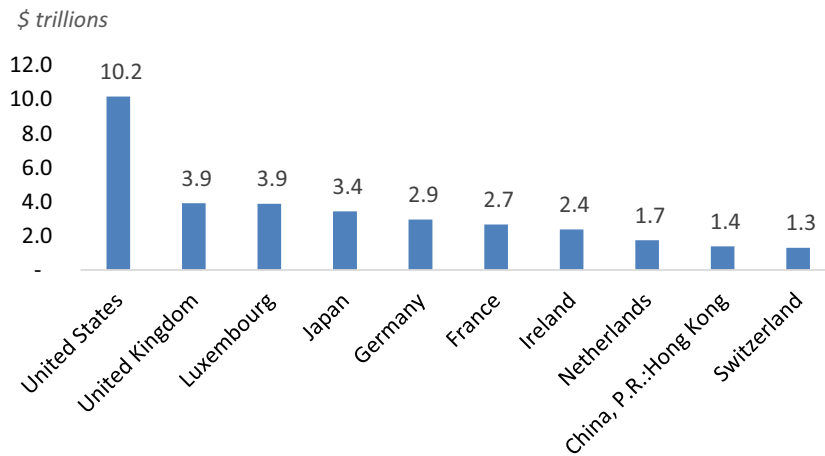
$ trillions

Fig. 2. Total international portfolio investment assets.
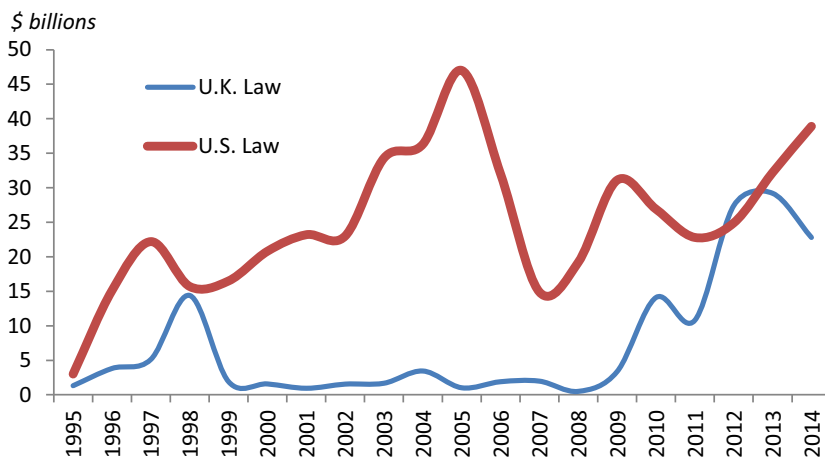
$ billions

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

$ billions
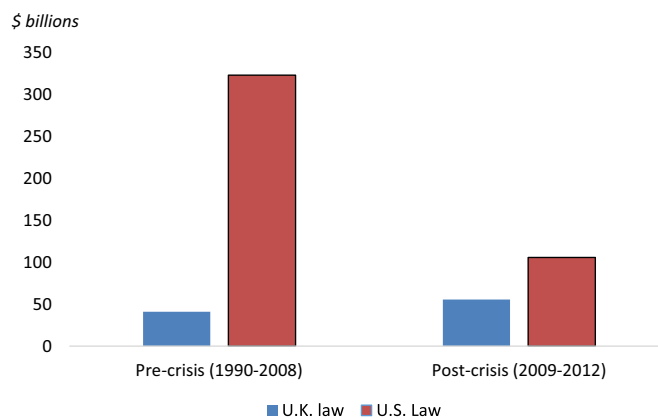
Fig. 4. Cumulative volume of dollar-denominated central government debt issued under U.K. and U.S. governing laws.

But the U.S. investor base for international portfolio investments is much larger than that of the U.K (Fig. 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 (Fig. 3) (Doidge et al., 2009). In fact, even after the crisis, the cumulative volume of U.S. law issuances exceeds that of U.K. law issuances (Fig. 4).

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.[3] 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 (Fig. 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.[4]

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.

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 (Fig. 5).

Following Ratha et al. (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 (Figs. 6 and 7). But average deal size was broadly comparable across the jurisdictions (Fig. 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.

The empirical literature on determinants of sovereign spreads focuses on country fundamentals as well as global factors. Eichengreen and Mody (1998) examining sovereign bond launch spreads find that higher credit quality translates into a higher probability of issue and a lower spread. Arora and Cerisola (2001) find that while country-specific fundamentals are important in explaining fluctuations in country risk, the stance and predictability of U.S. monetary policy are also important. Sy (2002) illustrates that significant disagreements between emerging market bond spreads and rating implied spreads can be used as a signal that further technical and sovereign analysis is warranted. Petrova et al. (2010) find that in the long run, fundamentals are significant determinants of emerging market sovereign bond spreads, while in the short run, financial volatility is a more important determinant of spreads. Baldacci and Kumar (2010) find that higher deficits and public debt lead to a significant increase in long-term interest rates, with the precise magnitude dependent on initial fiscal, institutional and other structural conditions, as well as spillovers from global financial markets. Jahjah et al. (2012) find that countries with less flexible exchange rate regimes pay higher sovereign bond spreads and are less likely to issue bonds. Banerjee et al. (2016) show that there is a two-way feedback effect of risks being transferred from the sovereign to the financial sector and vice-versa. However, these patterns could change due to policy interventions and changes in market perceptions.

Zinna (2014) concludes that countries can benefit from stronger fundamentals in the form of lower exposure of their sovereign spreads to unfavorable regime shifts in global market sentiment. Csontó (2014) finds that cross-country correlation of spreads increases in high-volatility regimes. While country-specific fundamentals are important determinants of spreads, the importance of global financial conditions increases in high-volatility periods. Comelli (2012) finds that during crisis times, good macroeconomic indicators are helpful in containing EM spreads, but less than in non-crisis times, possibly reflecting the impact of extra-economic forces on spreads when a financial crisis occurs. Jaramillo and Weber (2013) examine the yields of domestically issued sovereign bonds of emerging economies. They find that the extent to which fiscal variables affect domestic bond yields in emerging economies depends on the level of global risk aversion. Other factors impacting bond spreads include political news (Vaaler et al., 2005; Moser, 2007) and corruption perceptions (Ciocchini et al., 2003). Baldacci et al. (2008) find that both fiscal and political factors matter for bond spreads for a panel of 30 emerging markets. A number of studies focus on Latin America and Euro area countries (Grandes, 2002; Afonso et al., 2012; Martinez et al., 2013; Bernoth and Erdogan, 2012; Georgoutsos and Migiakis, 2013; Riedel et al., 2013) and often use Emerging Markets Bond Index data which are limited to sovereign bonds that meet certain liquidity requirements.

The literature on law and external finance evolved following the work of Porta et al. (1997). They use a sample of 49 countries to show that countries with poorer investor protection have smaller and narrower capital markets. Porta et al. (1998) find that with

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[3] See 'Big Bang 20 years on'. Centre for Policy Studies. October 2006.

[4] 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. The impact of the Argentine litigation in the US was a significant event and resulted in the IMF issuing a paper in October 2014: "Strengthening the contractual framework to address collective action problems in sovereign debt restructuring." http://www.imf.org/external/np/pp/eng/2014/090214.pdf. It suggests use of a modified *pari passu* clause that explicitly excludes the obligation to pay creditors on a ratable basis and strengthening collective action clauses.
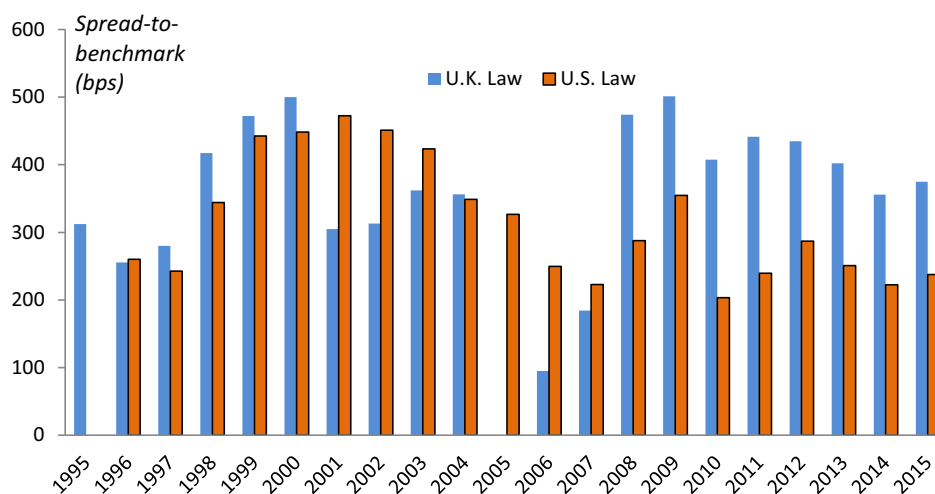
Emerging Markets Review xxx (xxxx) xxx–xxx

Fig. 5. Average spread at launch across governing laws (dollar-denominated central government bonds).
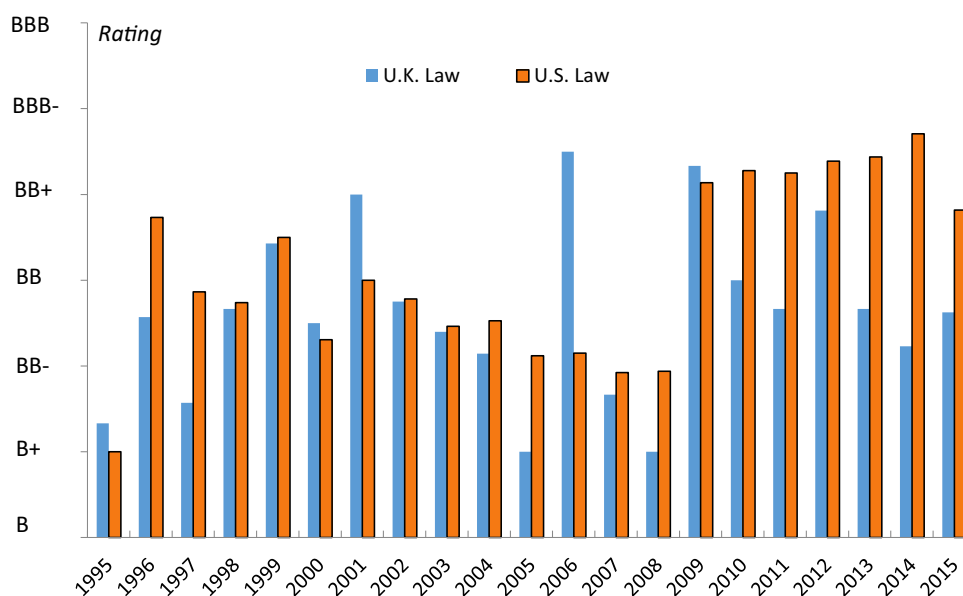

Fig. 6. Average S & P ratings at launch across governing laws (dollar-denominated central government bonds).

regard to protection of corporate shareholders and creditors, common-law countries are the strongest and French-civil-law countries the weakest. Beck et al. (2003) find that legal origins impact financial development because of difference in adaptability. Demirgüç-Kunt and Maksimovic (1998) demonstrate that in countries whose legal systems score high on an efficiency index, a greater proportion of firms use external financing. Qian and Strahan (2007) show that under strong creditor protection, loans have more concentrated ownership, longer maturities and lower interest rates. Godlewski and Weill (2008) analyze determinants of the decision to syndicate a loan for 50 emerging countries and find that loan characteristics, financial development, banking regulation and legal institutions have an impact. Cumming et al. (2015) find that in addition to deal and borrower characteristics, legal and institutional differences impact the probability of having tranches and the structure across tranches of the same loan. Stronger creditor protection leads to a larger syndicated loan market and facilitates tranching. Gong et al. (2017) find that in many emerging markets syndicated loans denominated in foreign currency are charged a lower spread than those in domestic currency. Chaudhry and Kleimeier (2015) delve into the complexities of relationships between different members of the lending syndicate and the borrower. They find that moral hazard is overcome by only the most reputable lead arrangers, while adverse selection arises when low-reputation arrangers lend to opaque borrowers.

Panizza et al. (2009) survey the economics and law of sovereign default and debt. The paper traces the principles protecting sovereign investors and how legal, judicial and contractual provisions evolved to allow creditors recourse during sovereign default. There are also legal nuances and issuance trends that merit attention. The first relates to collective action clauses (CACs) that allow a
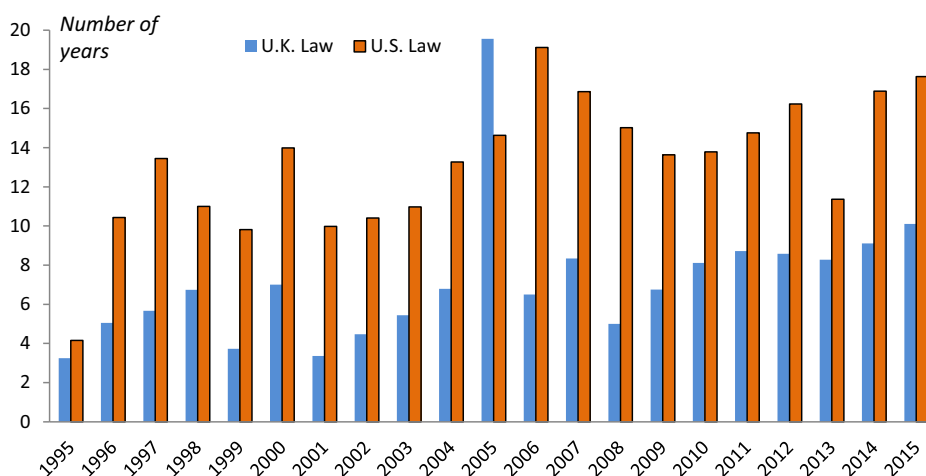
Fig. 7. Average maturity across governing laws (dollar-denominated central government bonds).
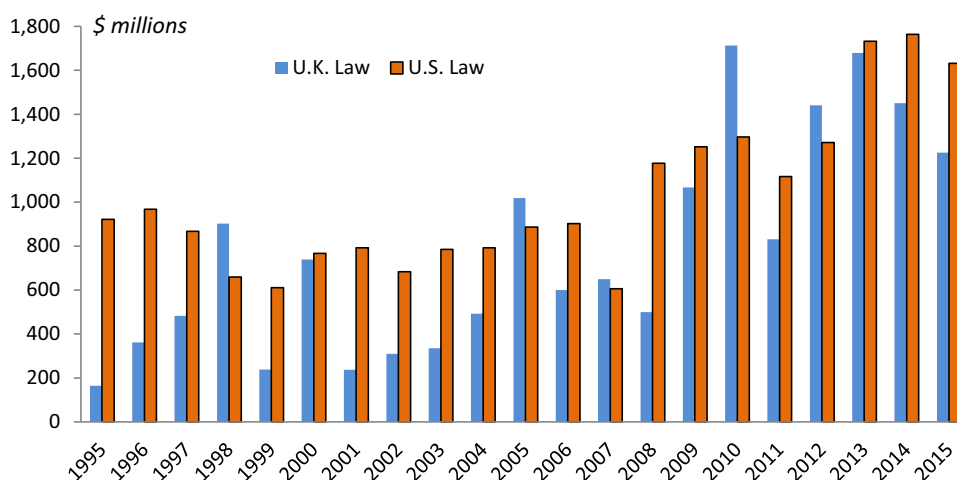
Fig. 8. Average deal size across governing laws (dollar-denominated central government bonds).

qualified majority of creditors to impose a settlement on a minority of holdouts. In particular, the paper implicitly reveals that since 1981 US courts have often favored holdout creditors leading to settlements often balanced by submissions from the US government (Allied Bank International v. Banco Credito Agricola de Cartago, CIBC Bank and Trust Col. Ltd. v. Banco Central do Brazil, Elliot Associates v. Banco de la Nacion (Peru)). In fact, attempts by holdout creditors in other jurisdictions were less successful (*LNC v. Nicaragua* in a Belgian court and *Kensington v. Republic of Congo* in an English court). Eichengreen (2003) posits that US sovereign bond contracts are sketchy and leave much to judicial interpretation. In contrast UK law contracts are well defined including the CACs. 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.[5] 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

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[5] 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).

Source: Authors' calculations based on Dealogic data.

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

Table 3

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

Source: Authors' calculations based on Dealogic data.

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%

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).

While there are to our knowledge no studies comparing UK and US law bond issuances, equity listing and valuation comparisons exist. Doidge et al. (2004) find that even after controlling for firm and country characteristics, US cross-listed shares have higher valuations. They posit that US listing reduces the extent to which controlling shareholders can engage in expropriation and thereby increases the firm's ability to take advantage of growth opportunities. Doidge et al. (2009) find that even after the passage of the Sarbanes-Oxley Act, there is a significant premium for US listings. They state that this is consistent with the theory that New York listing has unique governance benefits for foreign firms.

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).

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 et al., 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.

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,

Table 4
Ratings conversion from letter to numeric scale.
Source: Ratha et al. (2011).

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

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 490 bonds for 53 emerging market governments that issued dollar-denominated debt in these two jurisdictions between 1990 and 2015.[6] Following Ratha et al. (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 (IG) 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.[7] 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 un-observables. Then, for a new bond indexed i from country j issued in year t, the main specification becomes:

$$ln(Spread)_{it} = \alpha + \beta_1 IG_{it} + \beta_2 S\&P_{it} + \beta_3 ln(Size)_{it} + \beta_4 Maturity_{it} + \beta_5 UK Law_i + \beta_6 VIX_t + \beta_7 Growth_{j,t-1} + \beta_8 Region_j + \beta_9 Year_t$$
$$+ u_{it} \tag{1}$$

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 (Eq. (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

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[6] 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. See Cumming et al. (2015) for a discussion on tranching. The list of countries and number of bond issuances are in Table A1 in the Appendix A. We start with 4800 bonds for which all explanatory variables are available. Restricting the sample to first tranches reduces the number to 4188. Further restricting to central government bonds reduces this to 1023. Focusing on issues for which governing law is either US or UK reduces the sample to 755 of which 534 are dollar denominated. Removing tax havens reduces the sample to 505 and taking out other developed countries reduces the sample size to 490.

[7] We use standard explanatory variables such as the maturity and size controls (Eichengreen and Mody, 2004) and bond ratings (Jaramillo and Tejada, 2011). Regarding the issue of exploring the panel aspects of the data, the launch-spreads and bond characteristics are unique for every bond so giving it a panel representation is problematic. For secondary market spreads, we try out the 30-day intervals to explore the time dimension of the effect. Also, year dummies are included to capture time-specific unobservables such as global financial conditions and crisis impacts.

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***	−0.078
	(−3.71)	(−0.56)
S&P rating	0.134***	0.085***
	(6.03)	(3.32)
Log(size)	0.058	0.035
	(1.20)	(0.69)
Years to maturity	0.012***	−0.004
	(3.87)	(−1.23)
U.K. law	0.030	0.230***
	(0.32)	(3.19)
VIX	0.013**	0.024***
	(2.21)	(4.79)
GDP growth $(t-1)$	−0.009	−0.013
	(−1.26)	(−1.07)
EAP	0.175*	−0.072
	(1.73)	(−0.41)
ECA	0.183*	0.252
	(1.67)	(1.21)
LAC	0.347***	0.004
	(4.43)	(0.03)
SAS	0.368**	0.390***
	(2.52)	(2.85)
SSA	0.493***	0.347**
	(4.03)	(2.12)
Observations	328	162
R-squared	0.654	0.663

Robust *t*-statistics in parentheses.

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).

  * Significant at 10%.

  ** Significant at 5%.

  *** Significant at 1%.

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.[8]

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,[9] 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.

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

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[8] We also use an alternative specification with combined data for pre- and post-crisis periods and an interaction between the UK law and post-crisis dummies. As expected, the interaction term shows a significant impact of UK law in the post-crisis period. Pre-crisis we have 49 UK law observations out of 328 (15%), which is sufficient to capture the UK law effect if it existed in that period. The VIF in no case exceeds the rule of thumb benchmark of 10 so multicollinearity is not a major concern. Moreover, as stressed by O'Brien (2007): "Values of the VIF of 10, 20, 40, or even higher do not, by themselves, discount the results of regression analyses." It may be noted that the IG Dummy and S&P rating are standard in modelling emerging market sovereign ratings to capture the observed jump in spreads below the IG threshold (see for example Ratha et al., 2011).

[9] 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	0.083	0.090	−0.079
	(0.22)	(0.61)	(0.69)	(−0.52)
S&P sovereign rating	0.119***	0.122***	0.127***	0.101***
	(5.81)	(4.87)	(5.61)	(2.83)
Log(size)	0.111*	0.067	0.043	0.003
	(1.75)	(1.04)	(0.67)	(0.04)
Years to maturity	−0.015**	−0.013**	−0.012**	−0.005
	(−2.62)	(−2.19)	(−2.03)	(−1.16)
U.K. law	0.307***	0.304***	0.313***	0.325***
	(3.71)	(3.19)	(3.41)	(3.34)
VIX	0.019***	0.016***	0.021***	0.017***
	(3.55)	(4.55)	(4.55)	(2.94)
GDP growth (*launch* − 1)	−0.006	−0.001	−0.000	−0.003
	(−0.74)	(−0.11)	(−0.02)	(−0.35)
EAP	−0.109	−0.112	−0.100	−0.088
	(−0.75)	(−0.69)	(−0.63)	(−0.69)
ECA	0.142	0.134	0.157	0.166
	(1.19)	(1.03)	(1.24)	(1.66)
LAC	−0.109	−0.174	−0.097	−0.048
	(−0.82)	(−1.25)	(−0.74)	(−0.42)
SAS	0.107	0.106	0.077	0.229**
	(1.01)	(0.88)	(0.64)	(2.09)
SSA	0.235**	0.200*	0.183	0.237**
	(2.18)	(1.70)	(1.55)	(2.38)
Observations	122	122	122	121
R-squared	0.739	0.711	0.725	0.753

Robust *t*-statistics in parentheses.

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).

  * Significant at 10%.
  ** Significant at 5%.
  *** Significant at 1%.

addition of a CAC dummy.[10] 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 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. To convincingly show that the result about CAC still holds when controlling for alternative explanations a restricted sample for which all variables are available is used. We first run the model with UK law but without CAC and then with CAC. Adding CAC does not create any statistically significant difference in coefficient for UK law. The coefficient of the CAC dummy for models with and without the UK law dummy are also tested. There is no statistical difference between the coefficients of CAC for the models with and without UK law (both pre- and post-crisis) indicating that the CAC results are not driven by correlation with the UK law dummy (see subsequent discussion and Appendix Table A2).[11]

  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%, 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% spread increase, to 506 basis points. The absolute impact is higher for lower rated bonds. For instance, for Ghana which is rated

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

Robust *t*-statistics in parentheses.

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).

  * Significant at 10%.
  ** Significant at 5%.
  *** Significant at 1%.
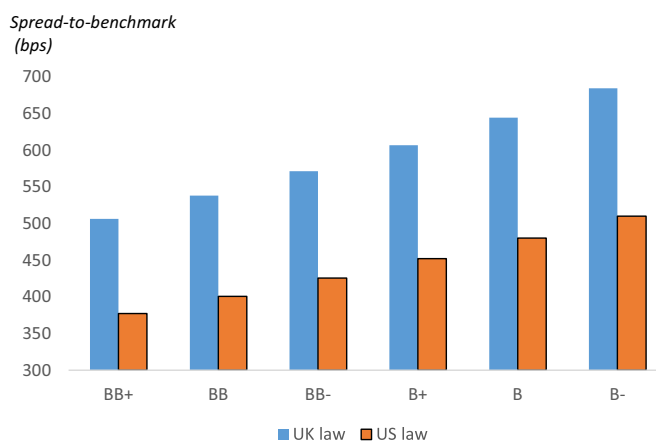
Fig. 9. Impact of governing law difference on bond spreads.

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 (Fig. 9).

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

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

Robust *t*-statistics in parentheses.

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).

  * Significant at 10%.

  ** Significant at 5%.

  *** Significant at 1%.

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.[12]

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 SEC registration that drives the spread difference. While the U.K. law effect is not significant and SEC registration drives down spreads, a joint F-test shows that the variables are jointly significant. To test the robustness of the results, a restricted sample with all variables available is used (Appendix Table A2). This ensures that the results are not driven by changes in sample size and group mean. This is also used to directly test the effect of the UK law variable and the SEC variable in the presence of other explanatory variables (including CAC and first issuance). We first estimate the model with UK law and all variables except SEC for pre- and post-crisis periods (Appendix Table A2, Columns 1 and 2). The result that UK law was not significant pre-crisis but had a positive significant impact on spreads post-crisis holds. At the same time, CACs had a significant impact pre-crisis but not post-crisis. Next, we estimate the model with all variables including SEC for pre- and post-crisis periods (Appendix Table A2, Columns 3 and 4). The impact of UK law is now not significant post-crisis while SEC has a significant negative impact on spreads. Next, we estimate the model with all variables including SEC but excluding UK law for pre- and post-crisis periods (Appendix Table A2, Columns 5 and 6).

The rationale for the whole exercise is to test the robustness of the SEC results and UK law results.[13] We test the significance of the difference for the UK law and SEC variables under different settings. The coefficient of the UK law dummy for models with and

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[12] As with CAC, the coefficients are tested using a Wald test based on Seemingly Unrelated Estimation (Stata (2015) and Clogg et al. (1995)).

[13] As before, Wald tests based on Seemingly Unrelated Estimation are used (see Stata (2015) and Clogg et al. (1995)). These cross-model tests examine the significance of the difference between the coefficients of the variable of interest without and with an additional explanatory variable ($d = b_{yx} - b_{yx.z}$). We thank anonymous reviewers for suggesting these additional robustness checks.

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

Robust *t*-statistics in parentheses.

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).

  * Significant at 10%.

  ** Significant at 5%.

  *** Significant at 1%.

without the SEC dummy are tested. There is no statistical difference between the coefficients of UK law for the models with and without SEC pre-crisis (Columns 1 vs. 3). But post-crisis the UK law coefficient is significantly different for the model with and without SEC (Columns 2 vs. 4). As mentioned before, for the model with SEC, UK law is not statistically significant post-crisis. This demonstrates that SEC registration largely explains the UK law impact. We then examine whether the SEC results are driven by the correlation with UK law. For this we drop UK law and run the regression with all other variables. There is no statistical difference between the coefficients of SEC for the models with and without UK law (both pre- and post-crisis) ((Columns 3 vs. 5, 4 vs. 6)) indicating that the SEC results are not driven by correlation with the UK law dummy.

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.

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.

We explore whether the governing law impact extended to dollar-denominated bond issuance of investment grade ratings. In the

Table 10

Regression results for split sample with post-crisis dummy variable.

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

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

Robust *t*-statistics in parentheses.

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).

* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.

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).[14]

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 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

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[14] 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.

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***	0.038*	0.088***	0.143***
	(4.66)	(1.72)	(3.77)	(3.12)
Log(size)	0.169	−0.005	0.083**	0.095
	(1.17)	(−0.07)	(2.57)	(1.54)
Years to maturity	0.018*	0.004	0.007**	−0.015**
	(1.93)	(1.10)	(2.42)	(−2.15)
U.K. law	−0.120	0.125	0.037	0.188*
	(−0.44)	(1.21)	(0.49)	(1.74)
VIX	0.037***	0.039***	0.008	0.016**
	(3.24)	(5.41)	(1.56)	(2.46)
GDP growth (*launch* − 1)	−0.026*	−0.031**	−0.010	0.003
	(−1.74)	(−2.12)	(−1.20)	(0.18)
EAP	−0.518***	−0.429**	0.149	0.123
	(−3.01)	(−2.54)	(1.21)	(0.55)
ECA	−0.634**	0.143	0.263***	0.325
	(−2.46)	(1.00)	(3.29)	(1.15)
LAC	−0.229	−0.293*	0.295***	0.424
	(−1.26)	(−1.99)	(3.41)	(1.66)
SAS			0.436**	0.313**
			(2.39)	(2.15)
SSA	−0.046	0.060	0.449	0.368*
	(−0.19)	(0.41)	(1.24)	(1.87)
Observations	76	76	252	86
R-squared	0.749	0.744	0.545	0.562

Robust *t*-statistics in parentheses.
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).
  * Significant at 10%.
  ** Significant at 5%.
  *** Significant at 1%.

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. It is also mystifying as to why sovereigns do not issue under U.S. law when the spread difference is so significant. A simple explanation is that they may not be aware of this. To the best of our knowledge this paper is the first to formally explore the issue. Also, long-standing institutional linkages with investment bankers and financial advisors may result in a tendency to issue in particular jurisdictions.

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. Significant capacity building for managing debt issues needs to be developed in emerging economies. Many emerging economies need to develop prudential debt management capacities to address these legal complexities. Conversely, investors willing to diversify and optimize risks and returns should be aware that bonds with SEC registration offer a lower return than 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.

Acknowledgments

Appendix A

Table A1
List of countries and number of bond issuances in sample.

	Issuer nationality of operations	Number of bonds	Percent of sample
1	Argentina	15	3.06
2	Belarus	2	0.41
3	Brazil	38	7.76
4	Chile	5	1.02
5	China	10	2.04
6	Colombia	35	7.14
7	Costa Rica	7	1.43
8	Cote D'Ivoire (Ivory Coast)	1	0.2
9	Croatia	7	1.43
10	Dominican Republic	2	0.41
11	Ecuador	1	0.2
12	Egypt	4	0.82
13	El Salvador	9	1.84
14	Gabon	3	0.61
15	Georgia	2	0.41
16	Ghana	2	0.41
17	Guatemala	3	0.61
18	Honduras	1	0.2
19	Hungary	16	3.27
20	Indonesia	9	1.84
21	Jamaica	7	1.43
22	Jordan	3	0.61
23	Kazakhstan	6	1.22
24	Kenya	2	0.41
25	Lebanon	30	6.12
26	Lithuania	5	1.02
27	Malaysia	4	0.82
28	Mexico	33	6.73
29	Morocco	2	0.41
30	Pakistan	5	1.02
31	Paraguay	1	0.2
32	Peru	16	3.27
33	Philippines	43	8.78
34	Poland	12	2.45
35	Romania	5	1.02
36	Russian Federation	8	1.63
37	Rwanda	1	0.2
38	Senegal	2	0.41
39	Serbia	5	1.02
40	Slovak Republic	2	0.41
41	Slovenia	2	0.41
42	South Africa	16	3.27
43	South Korea	5	1.02
44	Sri Lanka	4	0.82
45	Thailand	1	0.2
46	Trinidad and Tobago	7	1.43
47	Tunisia	3	0.61
48	Turkey	49	10
49	Ukraine	12	2.45
50	Uruguay	14	2.86
51	Venezuela	10	2.04
52	Vietnam	1	0.2
53	Zambia	2	0.41
	Total	490	100

Table A2

Robustness checks using sample with all variables.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
			UK law	UK law		
	UK law	UK law	CAC	CAC	CAC	CAC
	CAC	CAC	First issuance	First issuance	First issuance	First issuance
	First issuance	First issuance	SEC	SEC	SEC	SEC
	Pre-crisis	Post-crisis	Pre-crisis	Post-crisis	Pre-crisis	Post-crisis
IG dummy	−0.298**	−0.162	−0.319**	−0.125	−0.321**	−0.093
	(−2.32)	(−1.51)	(−2.45)	(−1.16)	(−2.45)	(−0.91)
S&P rating	0.122***	0.059***	0.122***	0.063***	0.122***	0.068***
	(4.92)	(2.87)	(4.97)	(3.09)	(4.96)	(3.46)
Log(size)	−0.021	0.047	−0.029	0.060	−0.029	0.066
	(−0.43)	(0.93)	(−0.59)	(1.20)	(−0.60)	(1.39)
Years to maturity	0.005	−0.003	0.006	−0.003	0.005	−0.003
	(1.31)	(−0.90)	(1.55)	(−0.81)	(1.51)	(−0.91)
U.K. law	0.002	0.333***	0.078	0.129		
	(0.01)	(4.53)	(0.54)	(1.05)		
VIX	0.036***	0.027***	0.037***	0.028***	0.036***	0.028***
	(6.64)	(7.57)	(6.95)	(7.77)	(6.94)	(7.68)
GDP growth ($t-1$)	−0.019**	−0.000	−0.016*	−0.000	−0.017*	−0.000
	(−2.26)	(−0.02)	(−1.83)	(−0.01)	(−1.90)	(−0.06)
EAP	0.014	−0.254**	−0.071	−0.150	−0.052	−0.113
	(0.10)	(−1.98)	(−0.49)	(−1.20)	(−0.37)	(−0.90)
ECA	−0.109	0.076	−0.187	0.189*	−0.157	0.247**
	(−1.03)	(0.69)	(−1.51)	(1.75)	(−1.29)	(2.29)
LAC	0.015	−0.147	−0.049	−0.041	−0.036	−0.011
	(0.13)	(−1.29)	(−0.39)	(−0.35)	(−0.30)	(−0.09)
SAS	−0.173		−0.171		−0.156	
	(−1.17)		(−1.23)		(−1.13)	
SSA	0.100	0.123	0.033	0.244**	0.051	0.299***
	(0.68)	(1.19)	(0.22)	(2.30)	(0.35)	(2.93)
CAC	0.150*	0.013	0.127	0.034	0.122	0.048
	(1.96)	(0.15)	(1.65)	(0.36)	(1.58)	(0.55)
First issuance	−0.045	0.079	−0.022	0.065	−0.017	0.076
	(−0.30)	(0.90)	(−0.15)	(0.73)	(−0.12)	(0.81)
SEC registered			0.122	−0.238*	0.103	−0.337***
			(1.51)	(−1.94)	(1.32)	(−4.64)
Constant	4.004***	3.482***	4.120***	3.214***	4.141***	3.071***
	(3.91)	(3.24)	(3.99)	(3.04)	(4.08)	(3.07)
Observations	218	139	218	139	218	139
R-squared	0.554	0.663	0.559	0.675	0.558	0.672

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