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The value of legal recourse in sovereign bond markets: Evidence from Argentina

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Abstract

If sovereign immunity waivers and clauses calling for litigation abroad reduce the risk of expropriation, bonds governed by foreign law should, ceteris paribus, trade at a premium compared to bonds issued under domestic law. In 2020, Argentina exchanged a panoply of bonds with different currencies, maturity and coupon structure for pairs of bonds that are identical except for their governing law. We leverage these "twin" bonds to identify the effect of legal jurisdiction on sovereign debt prices. Our findings indicate that foreign-law bonds consistently trade at higher prices and are primarily held by long-term investors. These results suggest that market participants price certain legal terms (e.g., governing law) in sovereign debt, and investors expect to face less credit risk under bonds governed by foreign law, either due to a lower risk of selective default or higher recovery rate in foreign courts.

KEYWORDS

Argentina, foreign-law premium, governing law, sovereign debt

INTRODUCTION

Argentina's struggles with bondholders over the past two decades are well documented (cf. Alfaro, 2015; Guzman, 2020). After a payment moratorium on its sovereign debts in 2001, the country offered bondholders the opportunity to exchange the defaulted bonds at a significant discount in 2005 and again in 2010. Although more than 91% of bondholders participated in the exchange offers, a

group of holdouts, led by NML Capital, Ltd, a hedge fund specializing in distressed debt, chose to pursue legal action against Argentina in the United States.

On February 23, 2012, Judge Thomas P. Griesa of the US District Court for the Southern District of New York ruled in favor of the plaintiffs. The ruling included an injunction stating that financial intermediaries involved in assisting Argentina with repayments to exchanged bondholders without also repaying the holdouts would be held in contempt of court. Argentina appealed the decision, but the Second Circuit upheld the injunctions. Eventually, on June 16, 2014, the US Supreme Court rejected a review of the case, affirming the previous rulings.

Following the injunction that prevented Argentina from making payments on the exchange bonds, the country experienced another default on its sovereign debt shortly after. However, less than 2 years later, the Argentine government managed to reach a settlement with a majority of the holdouts, leading to the lifting of the injunction that had been blocking payments to the restructured bondholders. Because of their successful litigation in US courts, the litigants ultimately earned substantial returns on their debt holdings.

Not all of Argentina's creditors, however, had the opportunity to litigate in the United States. While some of the defaulted bonds were issued under foreign law, others were governed by local Argentine law. US courts had jurisdiction over the former because of Argentina's waiver of sovereign immunity in their covenants, which ultimately enhanced creditors' enforcement rights. In contrast, by giving Argentina a "home field" advantage in any legal disputes associated with repayment, the contract terms of the domestic-law issues placed creditors in a relatively weaker bargaining position. This example illustrates the main issue that motivates our analysis. To the extent that sovereign immunity waivers and clauses calling for litigation abroad reduce expropriation risk, then bonds that are governed by foreign law should, ceteris paribus, trade at a premium compared to bonds issued under domestic law.

Despite the importance of contract terms, much political economy work on sovereign debt emphasizes the role of economic and political risk factors in the sovereign state and gives little attention to the venue of bond litigation and its effects on bond pricing (e.g., Archer et al., 2007; Ballard-Rosa et al., 2021; Mosley, 2003). Recent research on the law and practice of capital markets has examined how contractual terms—including listing place, covenants, amendments clauses, currency of denomination, and governing law—affect sovereign debt markets (Bardozzetti & Dottori, 2014; Becker et al., 2003; Bradley et al., 2016, 2018; Chamon et al., 2018; Chari & Leary, 2020; Clare & Schmidlin, 2014; Eichengreen & Mody, 2004; Fang et al., 2021; Gelpern, 2008; Nordvig, 2015; Richards & Gugiatti, 2003; Weidemaier & Gulati, 2020).

Evidence on the effect of legal clauses on pricing in sovereign debt markets, however, is still limited. First, most studies exploit cross-national, rather than within-country, variation in sovereign bond issues. As such, they face well-known problems posed by unobserved heterogeneity, confounders and

measurement error bias. Second, the choice of governing law is unlikely to be random. For example, low-rated sovereigns may be more likely to relinquish legal immunity and subject themselves to the authority of foreign courts than highly rated sovereigns (Bradley et al., 2016). Therefore, the choice of governing law can pose significant selection and endogeneity effects.

In this study, we leverage Argentina's 2020 sovereign debt restructuring to examine the effects of legal jurisdiction on bond prices. In exchange of a panoply of eligible domestic- and foreign-law bonds denominated in three different currencies, with widely varying maturities (ranging from 10 months to 97 years), and different coupon structures, Argentina issued pairs of identical bonds—sharing the same currency, maturity, coupon, and other features—but with different legal jurisdictions. The Argentine government's goal was to streamline its debt payments and make them more sustainable. Because the invitation to submit tender orders included eligible bonds issued under different governing laws, the amount of new debt issued under domestic- versus foreign-law was a legacy of the existing obligations. Nonetheless, based on its negotiations with the bondholders, the Argentine government agreed to restructure the debt issued under different governing laws on *equitable* terms. This decision had the practical effect of creating pairs of otherwise identical bonds issued in different jurisdictions. Therefore, the value of legal recourse can be effectively identified by comparing the prices of these "twin" bonds.

We examine the daily prices of five pairs of bonds issued under Argentina's 2020 debt restructuring agreement for the period between September 15, 2020 (when the exchange was launched) and March 31, 2023. Our analysis reveals that the "twin bonds" sold at virtually the same price at issuance; but their price histories diverged markedly thereafter. Specifically, the foreign-law bonds have consistently traded at higher prices than their domestic-law counterparts, implying that relinquishing the "home field" advantage in legal disputes associated with repayment may help a sovereign lower its cost of acquiring capital. The evidence also shows that institutional investors tend to disproportionately hold foreign-law, rather than domestic-law bonds, suggesting that long-term, private-sector, investors are more likely to value legal protection than public-sector entities and short-term speculators.

The findings in this paper contribute to the political economy and law and practice of capital markets research. It is of particular interest to the literature studying how the legal framework of sovereign debt affects bond pricing and default risk. We add to this body of work by comparing pairs of otherwise identical bonds that were issued in different jurisdictions, serving as the first study to estimate the value of legal recourse in sovereign debt markets. Using this research design allows us to credibly identify the premium associated with foreign-law bonds. Our results suggest market participants price certain legal terms (e.g., governing law) in sovereign debt, and that buy-and-hold investors expect to face less credit risk under bonds governed by foreign law, either due to a lower risk

of selective default or higher recovery rate in foreign courts. Such issues are relevant for developing countries including Argentina, who are capital scarce and issue bonds at lower overall cost to promote their economic development.

The remainder of the paper is organized as follows. In the next section, we discuss the relationship between sovereign immunity and legal recourse. In the "Study Context: Argentina's 2020 Debt Restructuring" section, we introduce the context provided by Argentina's 2020 sovereign debt restructuring. We analyze the foreign-law premiums in the Argentine sovereign bond in the "Data and Analysis" section. Next, we examine who values having legal recourse in sovereign lending risk pricing in the "Who values legal protection?" section. A final section concludes the paper.

SOVEREIGN IMMUNITY AND LEGAL RECOURSE

The classic literature on sovereign debt identifies a "willingness to pay'" as the main factor that distinguishes sovereign debt from ordinary debt owed by non-government entities. In the corporate world, debt contracts are enforced by the threat of liquidation in the event of default. In contrast, creditors have limited legal redress in the case of sovereign entities, as countries usually have few, if any, commercial assets outside of their own borders for creditors to attach. In addition, there are legal principles protecting debtor governments, such as the doctrine of "absolute" sovereign immunity, which states that a government cannot be sued in foreign courts. Therefore, one of the cornerstones of the sovereign debt literature is that countries enjoy immunity from having assets seized to satisfy a creditor's judgment (Eaton & Fernandez, 1995).

The rule of absolute immunity gradually changed after World War II, when developed countries started to adopt a more restrictive view on sovereign immunity. For example, according to the Foreign Sovereign Immunities Act of 1976, sovereigns can be sued for their commercial activities executed in the United States. The issuance of bonds is a commercial activity; therefore, when sovereigns relinquish immunity and issue bonds under US law, creditors can sue them in the US courts. Countries, however, may only waive sovereign immunity with respect to commercial assets. Sovereign assets are usually still immune from attachment by sovereign debt creditors. For example, foreign assets held in a diplomatic capacity, such as military equipment or an ambassador's residence, are always protected in the United States. In consequence, collecting sovereign assets is notoriously difficult, making judgments in foreign courts somewhat limited.

These restrictions on creditor litigation notwithstanding, sovereign bond contracts often contain detailed terms establishing how and where sovereign debt disputes should be resolved. In addition, evidence from Schumacher et al. (2021) indicates that: (1) creditor lawsuits have become an increasingly common feature of sovereign debt markets; and (2) individual creditors have had some

notable successes in obtaining and executing judgments against defaulted sovereigns. These findings imply that having legal recourse should be valuable to bond market participants.

Pricing the foreign-law premium

To understand the importance of risk and legal recourse, consider two bonds with exactly the same cash flows, but issued in two different jurisdictions, foreign and domestic. For simplicity, suppose first that foreign-law bonds are never restructured. Then, an observed foreign-law premium should reflect the probability of a selective default on domestic-law bonds. The main challenge in pricing this risk is to calculate the expected change in the domestic-law bond's cash flow associated with selective default.

But how can we obtain a reasonable set of default probabilities? Modern finance has found an ingenious and practical way of dealing with this question. The two bonds can be priced in an *artificial* environment where the foreign-law premium is indirectly considered. The solution requires that the relevant probability distribution be determined by risk-neutral pricing, rather than the expected realization of the price process.

Let $y^d(T)$ be the yield on a T-year sovereign zero-coupon bond issued under domestic law, and $y^f(T)$ the yield on an identical T-year sovereign zero-coupon bond issued under foreign law. Then, the value of a T-year foreign-law bond with a principal of 100 should be $100e^{-y^f(T)T}$, while the value of a similar domestic-law bond should be $100e^{-y^d(T)T}$. Denote by $Q(T)$ the probability that the sovereign will default between time zero and time T. Assuming zero recovery upon default, then there is a probability $Q(T)$ that the domestic-law bond will be worth zero at maturity and a probability $1 - Q(T)$ that it will be worth 100. The value of the domestic-law bond for a risk-neutral investor would be:

$$\{Q(T) \times 0 + [1 - Q(T) \times 100]\} e^{-y^f(T)T} = 100\,[1 - Q(T)]e^{-y^f(T)T}.$$

Recall that the yield of a domestic-law bond is $100e^{-y^d(T)T}$, therefore,

$$100e^{-y^d(T)T} = 100\,[1 - Q(T)]e^{-y^f(T)T},$$

and the T-year survival probability is given by

$$S(T) = 1 - Q(T) = e^{-\left[y^d(T) - y^f(T)\right]T},$$

where $Q(T)$ is the risk-neutral probability of selective default, which can be inferred from the prices of the traded bonds.

Now, suppose that in the event of a selective default the holder of a domestic-law bond receives a proportion R of its no-default value. If there is no selective default, then the bondholder receives 100. The bond's no-default value corresponds to the foreign-law bond, $100e^{-y^f(T)T}$, and the probability of default is $Q(T)$. The risk-neutral value of the domestic-law bond should be

$$[1-Q(T)]100e^{-y^f(T)T}+Q(T)100\,Re^{-y^f(T)T},$$

so that,

$$100e^{-y^d(T)T}=[1-Q(T)]100e^{-y^f(T)T}+Q(T)100\,Re^{-y^f(T)T}.$$

The implied probability of selective default in terms of yield and recovery rate is given by,

$$Q(T)=\frac{1-e^{-\left[y^d(T)-y^f(T)\right]T}}{1-R}.$$

Under these assumptions, the difference between the price of a foreign-law bond, denoted by P_{F}, and the price of a domestic-law bond, denoted by P_{D}, with a face value of 100 can be expressed as

$$P_{\mathrm{F}}-P_{\mathrm{D}}=Q(T)(1-R).$$

As in Chamon et al. (2018), suppose that foreign-law bonds are either never restructured, or are restructured under the same terms as domestic-law bonds (i.e., the recovery rate R will be the same for both types of bonds). Then, the observed foreign-law premium can be attributed to the probability of a selective default on domestic-law bonds.

STUDY CONTEXT: ARGENTINA'S 2020 DEBT RESTRUCTURING

By the end of 2019, Argentina had accumulated a debt of approximately US $323 billion owed to various entities, including the International Monetary Fund, the Paris Club, and private bondholders. On December 21, 2019, the Argentine Congress passed Law No. 27541, granting authorization to the

Ministry of Economy to restructure the government's public debt. In May of 2020, while undergoing the restructuring process, Argentina once again defaulted on the payment of its international sovereign bonds. This marked the ninth default since the country's independence and the third time since the year 2000.

Argentina's "twin" bonds

The Argentine government's 2020 debt exchange invitation comprised a collection of eligible bonds with different currencies, maturity, and coupon structures issued under different governing laws. In the case of US$-denominated debt governed by the laws of the State of New York, a total of 17 bonds (6 issued under the 2005 indenture, and 11 issued under the 2016 indenture)—with coupons ranging from 5.87% to 8.28%, and maturities of 10 months to 97 years—were eligible to be exchanged for the new bonds. With respect to the US $-denominated debt governed by domestic law, there were 23 eligible bonds (2 issued under the 2005 indenture, and the rest under the 2016 indenture), with coupons ranging from 1.00% to 8.28%, and maturities of 4 months to 18 years.

The distribution of the new bonds' governing law was determined based on the existing obligations, with approximately 41% (US $42.673 billion) falling under domestic law and 59% (US $61.115 billion) issued under foreign law. The Argentine Congress passed Law No. 27544 on February 12, 2020, granting authorization to the Ministry of Economy to restructure the public debt issued under foreign law. Following successful negotiations with private creditors, the Argentine Congress then enacted Law No. 27556 on August 4, 2020, to restructure the public debt governed by the domestic law. The purpose of this statute was to ensure that the debt issued under different governing laws would be restructured on equitable terms.[1] After the tender offers were submitted and accepted, holders of eligible bonds received a much smaller, and uniform, set of bonds. Specifically, 98% of the US $105.88 billion in US $-denominated outstanding debt (US $103.788 billion) was consolidated in five new bonds maturing between 2029 and 2041.[2] The new bonds commenced trading in September 2020.

As Chamon et al. (2018) note, one would ideally estimate the premium on foreign-law bonds by comparing two otherwise identical bonds that were issued in different jurisdictions—that is, "twin" bonds that share the same currency, maturity, coupon, and other features except that one was issued under domestic law while the other was issued under a foreign jurisdiction. The Argentine

[1]Personal communication between an author of this study and Martin Guzman, Argentina's former Minister of the Economy in charge of the debt restructuring process.

[2]A new bond maturing in 2046 accounts for the remaining 2% of the US $-denominated outstanding debt. This bond, however, was only issued under foreign-law and thus did not have a domestic-law counterpart. Therefore, we exclude it from our analysis.

government's decision to give bondholders holding domestic-law bonds the same treatment as bondholders under foreign law had the practical effect of creating pairs of otherwise identical bonds issued in different jurisdictions. Therefore, the value of legal recourse can be effectively identified by comparing the prices of Argentina's "twin" bonds. Table 1 shows how each pair of bonds offered the same terms, and only differed in their governing law (see Tables A1 and A2 for more details).

Although domestic-law bonds (AL) are governed by the "Law of the Argentine Republic," foreign-law bonds (GD) explicitly include a choice-of-law clause stipulating to the application of foreign law, a clause submitting to the jurisdiction of foreign courts, and a waiver of sovereign immunity. With respect to governing law, the contract contains the following stipulation:

> This Bond shall be governed by and construed in accordance with the laws of the State of New York without regard to principles of conflicts of laws, except with respect to authorization and execution by the Republic, which shall be governed by the laws of the Republic.

Regarding the jurisdiction of foreign courts, the terms state that for Argentina:

> … The Republic agrees that a final non-appealable judgment in any Related Proceeding … shall be conclusive and binding upon it and may be enforced in any Specified Court or in any other courts to the jurisdiction of which the Republic is or may be subject (the "Other Courts"), by a suit upon such judgment.

Finally, regarding sovereign immunity, the bond contract stipulates that:

> … the Republic irrevocably waives such immunity to the fullest extent permitted by the laws of such jurisdiction, including the United States Foreign Sovereign Immunities Act of 1976 (the "Immunities Act").

These contractual provisions are intended to shield investors from the risk of legal instability, including the risk the sovereign will change its law to reduce its payment obligations. Therefore, we examine the prices of the pairs of Argentine sovereign loans listed in Table 1 to gauge the value of having legal recourse to market participants.

DATA AND ANALYSIS

For each of the bonds listed in Table 1, we collected daily prices for the period ranging from September 15, 2020, until March 31, 2023. These are the actual

TABLE 1 Bond characteristics.

Bond	Issue date	Maturity	Currency	Par value	Coupon type	Governing law	Indenture	Amortization (start)	Total amount (Mill. US$)
AL29	September 4, 2020	September 7, 2029	US$	US $1.00	Step up/down	Argentina		10 (2025)	2189
GD29	September 4, 2020	September 7, 2029	US$	US $1.00	Step up/down	New York	2016	10 (2025)	2635
AL30	September 4, 2020	September 7, 2030	US$	US $1.00	Step up/down	Argentina		13 (2024)	13,101
GD30	September 4, 2020	September 7, 2030	US$	US $1.00	Step up/down	New York	2016	13 (2024)	16,091
AL35	September 4, 2020	September 7, 2035	US$	US $1.00	Step up/down	Argentina		10 (2031)	18,719
GD35	September 4, 2020	September 7, 2035	US$	US $1.00	Step up/down	New York	2016	10 (2031)	20,502
AE38	September 4, 2020	September 7, 2038	US$	US $1.00	Step up/down	Argentina		22 (2027)	7196
GD38	September 4, 2020	September 7, 2038	US$	US $1.00	Step up/down	New York	2005	22 (2027)	11,405
AL41	September 4, 2020	September 7, 2041	US$	US $1.00	Step up/down	Argentina		28 (2028)	1468
GD41	September 4, 2020	September 7, 2041	US$	US $1.00	Step up/down	New York	2005	28 (2028)	10,482

prices quoted in the Buenos Aires Stock Exchange at the end of its trading day (i.e., GMT-03:00), and reported by the Argentine brokerage firm *Rava Bursátil*.[3] For each pair of bonds, we estimate the foreign-law premium by comparing the observed price of the foreign-law bond to its domestic-law counterpart.

Figure 1 shows the evolution of the restructured bond prices denominated in US$ according to their governing law. The black line corresponds to the prices of the foreign-law bonds, and the gray line to the domestic-law ones. As the graph shows, the prices of the two bonds were closely aligned at the time of issuance. This parity reflected the terms of Argentina's debt-restructuring arrangement with private creditors, which did not involve a reduction in principal (haircut), but rather a significant decrease in debt service payments. Consequently, bondholders agreed to a reduction in income totaling nearly $40 billion from 2020 to 2024, affording the country relief from debt amortizations and much lower interest payments. Given these favorable conditions, a selective default on the domestic-law debt seemed unlikely.

However, investors' expectations quickly shifted. Despite aggressive government intervention, which involved implementing stricter capital controls and purchase restrictions, the Argentine peso experienced a sharp decline from September 22, 2020, to October 22, 2020. During this period, the official exchange rate decreased by around 4.3%, while the informal rate plummeted by 27%. The black-market rate, hovering at approximately 185 pesos to the dollar, stood at 2.2 times the official rate. As the currency crisis cast doubts about the nation's economic prospects, investors factored in the escalating default risks. Figure 1 illustrates that, while all bond prices declined, a notable price gap emerged between foreign-law and domestic-law bonds. Additionally, the graph demonstrates that following this juncture, the bonds issued under different governing law consistently traded at distinct prices.

The price difference between the bonds, as discussed above, can be interpreted as the foreign-law premium. In the case of the bonds denominated in dollars and maturing in 2030, it ranged from a minimum of US $-1.08 per US $100 in nominal value on their first trading day (September 15, 2020) to a maximum of US $6.32 per US $100 in nominal value on January 19, 2023.[4] Overall, Figure 1 shows that investors are willing to pay more on debt issued under a foreign than a local legal system.

[3]https://www.rava.com. A comparison between these quotes and those provided by other sources, such as Refinitiv, MarketAxess, and the Frankfurt Stock Exchange, indicates that the Rava's data are representative of market's prices.

[4]For each pair of bonds, their initial valuation corresponded to the quantity of outstanding debt issued under distinct governing laws. In the case of the bonds maturing in 2030, approximately 45% were subject to domestic law, while 55% was governed by foreign law. Consequently, the relatively limited availability of domestic-law bonds likely accounts for their premium pricing on the inaugural trading day, preceding any price discovery. From September 16, 2020, until the initiation of the shift in investors' expectations on October 22, 2020, no price disparity existed between the bond pairs (with the average foreign-law premium during this period amounting to US $0.01 per US $100 in nominal value, and a standard deviation of US $0.09).

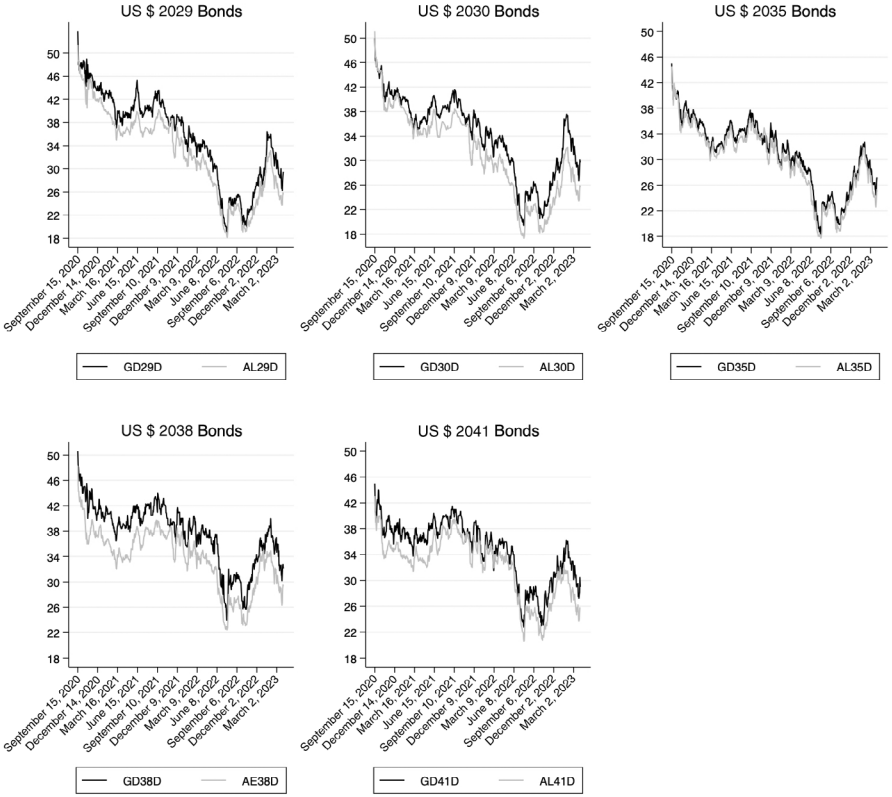

FIGURE 1 Legal risk spread: US $ bonds.

We can further examine the foreign-law premium for all the pairs of twin bonds. Keep in mind, though, that one should only draw inferences from comparisons within "twin" issues, rather than across the different bond types. Figure 2 presents the average foreign-law premium for five different Argentine bonds denominated in US$ and maturing between 2029 and 2041 for the period between September 15, 2020, and March 31, 2023.

The black markers in Figure 2 correspond to the average price difference for each pair of bonds maturing at a specified date (e.g., between the domestic- and foreign-law bonds maturing in 2030). The horizontal solid black lines represent 99% confidence intervals around these estimates. As the graph shows, regardless of each bond series' characteristics, the price differential between foreign- and domestic-law bonds is positive, and statistically distinguishable from zero. This finding indicates that average yields of the foreign-law bonds are systematically lower than those of the domestic-law bonds.

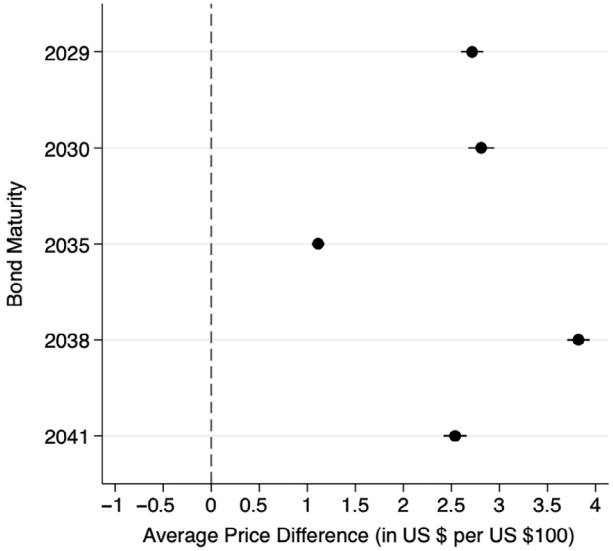

FIGURE 2 Foreign-law premia.

The estimated impact of the governing law on Argentina's bond prices is not only statistically significant, but also economically important. The findings in Figure 2 indicate that, on average, investors are willing to pay more to hold the same amount of bonds in nominal value to have legal recourse in case Argentina defaults on its debts. For example, consider the pair of "twin" bonds maturing in 2023 denominated in US$. The average price for the domestic- and foreign-law bonds during the period between September 15, 2020, and March 31, 2023, was US $31.21 and US $34.05, respectively. This "premium" implies that for every dollar invested in a domestic-law bond, one would obtain approximately US $3.20 in par value, compared to approximately US $2.94 in par value in the case of a foreign-law bond—an 8.84% difference.

Figure 2 also shows that the size of the foreign-law premium differs across maturities for twin bonds. Although there are some variations in the amount issued and the liquidity of the bonds based on their maturity, the principal determining factor of the pattern revealed in Figure 2 is likely the bonds' amortization schedule.

As noted above, Argentina's 2020 rescheduling agreement provided relief in the form of reduced debt service payments, rather than principal haircuts. Bondholders were offered amortizing bonds (*sinkers*) with coupons that stepped up over time. Indeed, as Table 1 shows, each new bond featured a distinct coupon step-up arrangement. The amortization schedule for the bonds exhibited variations as well. For example, the initial post-rescheduling amortization payment

for bonds maturing in 2030 was set for 2024, a mere 4 years following the 2020 rescheduling agreement. In contrast, the bonds maturing in 2035 were not slated to begin their amortization process until 11 years after their issuance date. The main purpose of adopting the stepped-up/amortization schedule was to mitigate rollover risks. Nonetheless, a significant consequence of this choice was that debt service payments would not increase gradually; instead, they would remain relatively low and then undergo a substantial rise by the year 2025. Hence, the service payments that were perceived to be at most risk were those associated with the bonds with earlier amortization dates compared to those with later ones. The value of legal protection should reflect expropriation/default risk. It is thus reassuring to see that the size of the foreign-law premium is smaller for the bonds maturing in 2035, compared to the short-end bonds' average.

One can also use the estimated foreign-law premium to recover the market expectation of a selective default on Argentine domestic-law bonds. Consider the implied probability of selective default in terms of yield and recovery rate discussed above,

$$Q(T) = \frac{1 - e^{-\left[y^d(T) - y^f(T)\right]T}}{1 - R}.$$

Note that $Q(T)$ is decreasing in R; namely, the greater the "haircut," the lower the probability of default. Intuitively, this reflects the market's view that the likelihood that a sovereign will engage in full confiscation should be lower than a partial, or a mild, restructuring of sovereign debt payments.

Using the prices of the benchmark "twin" bonds maturing in 2030 denominated in US$ in the last day of our sample (i.e., March 31, 2023), and a recovery rate of 50%, we can calculate the implied probability of selective default between April of 2023 and July of 2030. Being step-up coupon sinkers, the recovery rate for these bonds stays constant; yet, the actual remaining value to be recovered would become smaller the closer one gets to the maturity date. In consequence, the risk-neutral default probabilities will monotonically increase as time progresses and the amount to be defaulted decreases.

According to market participants, the probability that by the end of 2023 the Argentine government would selectively default on the bonds maturing in 2030, reducing their value by half, is approximately 7%. However, this probability rises to roughly 25% by the end of 2027. The average probability for the whole period is approximately 20%. To place these figures in perspective, the average 7-year default intensity for a Caa bond with a 50% recovery rate is 16.9. Therefore, even though these pairs of bonds are identical except for their governing law, the domestic-law ones are considered by market participants as being riskier, to the point of being equivalent to "junk" bonds vis-à-vis their foreign-law counterparts.

In sum, as Bradley et al. (2016) note, one way for a sovereign to assure investors that debt terms will be honored is to have a third-party control the terms of a loan agreement (i.e., to have the contract governed by foreign law). Based on the evidence presented in this section, we can conclude that relinquishing the "home field" advantage in any legal disputes associated with repayment can lower the cost of capital for the issuing sovereign.

Threats to inference

Previous studies have shown the existence of a foreign-law premium in sovereign lending (cf. Bradley et al., 2016; Chamon et al., 2018). However, the cross-sectional design used in prior work does not fully account for country effects, different political and economic conditions, and so forth. Although we believe that our analysis, based on a comparison of pairs loans with comparable contractual terms, produces a clearer identification of the effect of legal recourse on bond prices, we still need to make sure that no unaccounted confounders are driving our results.

Consider the price impact of a country's choice of exchange on which to list its sovereign bonds. As de Fontenay et al. (2019) note, according to the *bonding hypothesis*, complying with the listing standards set by a reputable exchange can send a credible signal to the market of an issuer's creditworthiness. This argument implies that, all else being equal, listing on one of the major global exchanges should lower the yield on sovereign's foreign bonds. In the case of the Argentine debt issued under the 2020 sovereign restructuring, the domestic-law bonds were listed in a local exchange (the Bolsa y Mercados Argentinos S.A.—BYMA), whereas the foreign-law bonds were listed in both the BYMA as well as a foreign exchange (FX, the Luxembourg Stock Exchange). Therefore, we cannot empirically isolate the effect of listing itself from our recovered foreign-law premium.

Nonetheless, in their analysis of the *bonding hypothesis*, de Fontenay et al. (2019) show that which exchange a sovereign chooses to list its bonds makes little difference to its yield. Instead, their findings suggest that sovereigns list solely to satisfy possible investor requirements for listed securities, and thus gravitate toward the international exchanges that offer the cheapest, fastest, and least burdensome listing process. This seems to be the case with the Argentine bonds under analysis in this study. By choosing the Luxembourg Stock Exchange and having the new bonds admitted for trading on the Euro MTF Market, rather than the EU-regulated Bourse de Luxembourg, Argentina faced less, rather than more, stringent requirements for financial reporting.[5] According to de Fontenay

[5]Non-European sovereigns and corporate issuers whose shares are listed on an EU Regulated Market or equivalent are granted an exemption from the formal approval of their prospectus by LuxSE for admissions on the Euro MTF (FastLane admission process). For more details, see https://www.bourse.lu/listing/luxse-market-or-euro-mtf

et al. (2019), a country's decision to list its bonds in permissive jurisdictions such as Luxembourg, should add very little value to sovereign-debt issuances. This view is also borne out in the Argentine case. As Figure 1 shows, the listing jurisdiction did not affect the price of the US$-denominated bonds at issuance. Therefore, we can confidently conclude that the exchange listing does not affect our interpretation of the foreign-law premium as the value of legal recourse to investors.

An alternative explanation for the price difference between "twin" bonds is market liquidity risk. In this context, liquidity refers to the ease at which a bond could be converted into cash without negatively affecting its market price. Suppose that domestic-law bonds are relatively illiquid compared to their foreign-law counterparts. Then, the former should carry a *liquidity premium*, an additional compensation in the form of higher yields (i.e., lower prices) to encourage investors to carry an asset that cannot be easily and efficiently converted into cash at fair market value. If this were the case with the Argentine bonds studied here, then, these liquidity costs could be confounding the uncovered foreign-law premium.

Our examination of bid-ask spreads and trading volumes, however, indicates that for the country's key benchmark security—the bonds maturing in 2030—the market for domestic-law bonds is as liquid as it is for foreign-law bonds. Their trading volumes are statistically indistinguishable from each other, while the bid-ask spread is actually higher for the domestic-law bonds relative to foreign-law bonds (see Table B1). The analysis of the other series also reveals that market liquidity risk cannot be an alternative explanation for the price difference between the "twin" bonds. For example, the market for the domestic-law bonds maturing in 2035 is considerably less liquid than it is for the equivalent foreign-law bonds. Yet, as Figure 2 shows, these are the Argentine bonds that exhibit the smallest foreign-law premium. With regard to the other bonds, their bid-ask spreads and trading volumes point in opposite directions (see Table B1).

In addition, during the period under study, Argentina has had a host of capital controls aimed at influencing the FX market, curbing the outflows of dollars, and conferring policy autonomy to the authorities. To overcome these restrictions, investors use Argentine securities priced in US$ in the United States and pesos in Argentina to move currency between markets. These trading positions are typically held for short periods of time—where concerns about how litigation abroad may reduce expropriation risk are rarely important—thereby positively impacting the market value and liquidity of domestic-law bonds. We can thus conclude that, if anything, the existence of a liquidity premium probably understates, rather than overstates, the effect of legal recourse on foreign-law bond prices.

The Argentine central bank's involvement in the bond market aimed at controlling FX markets might also raise concerns regarding our interpretation of

the foreign-law premium. Specifically, by selling large quantities of bonds in pesos and then buying their dollar-denominated counterparts, the monetary authority could tinker with the implicit exchange rate derived from operations with assets that trade in pesos and dollars. For example, by selling enough bonds to lower their price from 6500 to 6400 pesos, and buying them back at a price of 36, rather than 35, dollars, the resulting implicit exchange rate would be approximately 178 pesos per dollar instead of 186 pesos per dollar—a 4.3 percentage points decrease.

An important implication of this financial operation is that the prices of the domestic-law bonds may deviate from intrinsic values, obfuscating their relationship between them and foreign-law bonds. Suppose that the price of the foreign-law bond stands at 37 dollars, then by raising the price of the, otherwise identical, domestic-law bond to 36 (instead of 35) dollars, the foreign-law premium would decrease by 100%, even though neither the fundamentals nor the expropriation risk have radically changed.

However, two reasons lessen concerns about the Argentine central bank's involvement. First, as Webb and Webb (2013) note, when central banks intervene in the FX market by trading bonds, they usually use the cheapest eligible security. As noted above, the foreign-law bonds consistently traded at a premium. Therefore, as long as the Argentine central bank interventions were restricted to the domestic-law bond market, the price distortions would likely produce a downward, rather than an upward, bias on our estimated effect of legal recourse on sovereign law bond prices. Second, as it is often the case, the Argentine authorities lacked the fire power to make the domestic-law bonds deviate from their intrinsic values for long periods of time. An examination of the implicit exchange rate derived from bond trading operations indicates that most price distortions were restricted to the domestic-law bonds maturing in 2030, and that they only lasted for an eight-week period around the 2021 legislative elections in Argentina. Excluding these observations from our analyses yields almost identical results with regard to the estimated foreign-law premium. Thus, we can also rule out these price distortions as a threat to inference.

Another potential confounder is the so-called "benchmark effect;" namely, how market indexes (such as, JPMorgan's Emerging Market Bond ETF, or Vanguard's Emerging Markets Government Bonds ETF) may affect asset allocations, capital flows, and prices in sovereign bond markets. Pandolfi and Williams (2019) document that changes in the relative importance (i.e., the benchmark weight) of a given country in the JPMorgan Government Bond Index-Emerging Markets Global Diversified (GBI-EM Global Diversified) induced by purely mechanical reasons—rather than any new information about the country's economic prospects—can trigger information-less price changes in the days following the portfolio rebalancing.

The empirical evidence in "Who values legal protection?" section below indicates that, compared to their domestic-law counterparts, the Argentine

foreign-law bonds are disproportionally represented in the holdings of the major international sovereign debt market funds/portfolios. It could thus be possible that, regardless of the value of legal protection, the differential inclusion of foreign-law bonds in these indexes may account for their higher prices vis-à-vis domestic-law bonds. While the index in Pandolfi and Williams (2019)—JPMorgan's GBI-EM Global Diversified—does not include any Argentine bonds governed by domestic law, Vanguard's US$ Emerging Markets Government Bond UCITS ETF (VEMT) index does. In fact, it features investments in the five pairs of "twin" bonds (see Figure C1).

The VEMT index does not use mechanical rebalancing, so we cannot rely on the identification strategy proposed by Pandolfi and Williams (2019). However, we can still explore the correlation between debt holdings and the foreign-law premium. Unlike changes in weights, which are influenced by both shifts in debt holdings and prices, the relative proportions of foreign-law to domestic-law holdings should primarily mirror investment opportunities arising solely from price fluctuations. An examination of monthly data from Vanguard's VEMT index for the period between October 2020 and February 2023 reveals that approximately 55% of the shares in Argentine debt issued under the 2020 rescheduling agreement corresponded to foreign-law bonds. Furthermore, the foreign-law premium averaged an 8.39% price difference between the bond pairs governed by foreign law and those under domestic law.[6] A linear regression of the latter on the former indicates that the increase in the price difference between the foreign- and domestic-law bonds associated with a 1% increase in the share of foreign-law holdings is significantly less than one (see Table C1). This finding implies that the differential inclusion of foreign-law bonds in the index cannot fully explain their higher prices in comparison to their domestic-law counterparts.

One final issue is whether the premium associated with foreign-law bonds captures debt covenants rather than legal protection. The foreign-law bonds issued after the 2020 debt exchange include provisions concerning future modifications to their terms. These provisions, commonly known as "collective action clauses" (CACs), allow for modifications that affect certain reserved matters, such as coupon reductions, maturity extensions, and principal reductions. Such changes can be applied to individual bond series or across different series, subject to the consent of a supermajority of creditors. CACs serve as a mechanism to mitigate lengthy and costly disputes with holdout creditors, thereby increasing the potential recoveries for investors in the event of a sovereign default. Consequently, bonds incorporating these covenants may trade at a premium (Carletti et al., 2021; Haldane et al., 2005; Kletzer, 2004).

[6]We obtained the data from *Refinitiv* (https://www.refinitiv.com/). For more details on Vanguard's VEMT index, see https://www.vanguardinvestor.co.uk/investments/vanguard-usd-emerging-markets-government-bond-ucits-etf-usd-distributing/overview

Unlike their foreign-law counterparts, none of the domestic-law bonds issued under the 2020 restructuring agreement contain CACs. It thus becomes challenging to directly determine whether the premium associated with foreign-law bonds is a result of superior legal protection offered by the foreign jurisdiction or the inclusion of CAC provisions. Nonetheless, Law No. 27556 included an important provision that granted holders of the new sovereign bonds under domestic law specific rights upon future offers. In order to fulfill its obligations under the "RUFO" clause, the Argentine government established that if, within the period commencing from the effective date of Law No. 27556 and concluding 5 years from the settlement date of the new bonds governed by foreign law, it voluntarily presents a superior offer to eligible bonds governed by Argentine law or eligible bonds governed by foreign law, the improvement will also apply to the holders of the new bonds governed by Argentine law.

The provision granting rights to holders of domestic bonds would not be applicable if the improvement is made in compliance with a judicial order or a final and non-appealable arbitration award (Mairal & Ranieri, 2020). While the domestic-law bonds do not explicitly include CAC provisions, the cross-application of the RUFO clause to foreign-law bonds implies that they may benefit from the terms of CACs in voluntary debt restructurings. On the other hand, the RUFO clause itself could be modified at the discretion of the Argentine Congress. Based on this interpretation, it can be inferred that the premium associated with foreign-law bonds reflects the pricing of their stronger legal protection rather than the inclusion of CAC provisions.

WHO VALUES LEGAL PROTECTION?

The empirical evidence reveals that Argentina's foreign-law bonds consistently trade at higher prices than their domestic-law twins. A natural question to ask is: why are some investors willing to pay a premium to hedge against selective default while others are more risk-prone? A comprehensive answer would necessitate documenting the identity of every bondholder, which is an impractical task. Nevertheless, by utilizing information on market indexes' asset allocations and theory as our guide, we can make some educated inferences regarding the value of legal protection.

One reasonable assumption is that foreign-law bonds attract investors concerned about long-term credit risk, while domestic-law bonds may appeal more to short-term speculators. An alternative hypothesis is that foreign-law bonds are favored by international investors, while domestic investors gravitate toward domestic-law bonds. The latter group could include speculators, but also Argentine entities such as banks, pension funds, institutional investors, municipalities, and other governmental or quasi-governmental organizations. These domestic investors may have compelling reasons for not wanting to subject themselves to foreign law, and in many cases, they might even be prohibited from doing so due to concerns related to sovereign immunity.

First, consider the share of Argentine debt held by foreign financial firms and institutional investors who have fiduciary responsibilities and, consequently, a long-term investment horizon (e.g., PIMCO, BlackRock, Fidelity in the United States; Switzerland's UBS Asset Management; and Chile's Moneda SA Administradora de Fondos de Inversión) and/or included in major sovereign debt market funds/portfolios (such as JP Morgan's Emerging Market Bond ETF, or Vanguard's Emerging Markets Government Bonds ETF).[7] The top graph in Figure 3 shows a detailed breakdown of these investments in Argentina's sovereign debt instruments issued in the 2020 rescheduling agreement. We obtained the information from *Refinitiv*, and the figures correspond to the financial disclosures filed at the end of 2002/beginning of 2023.

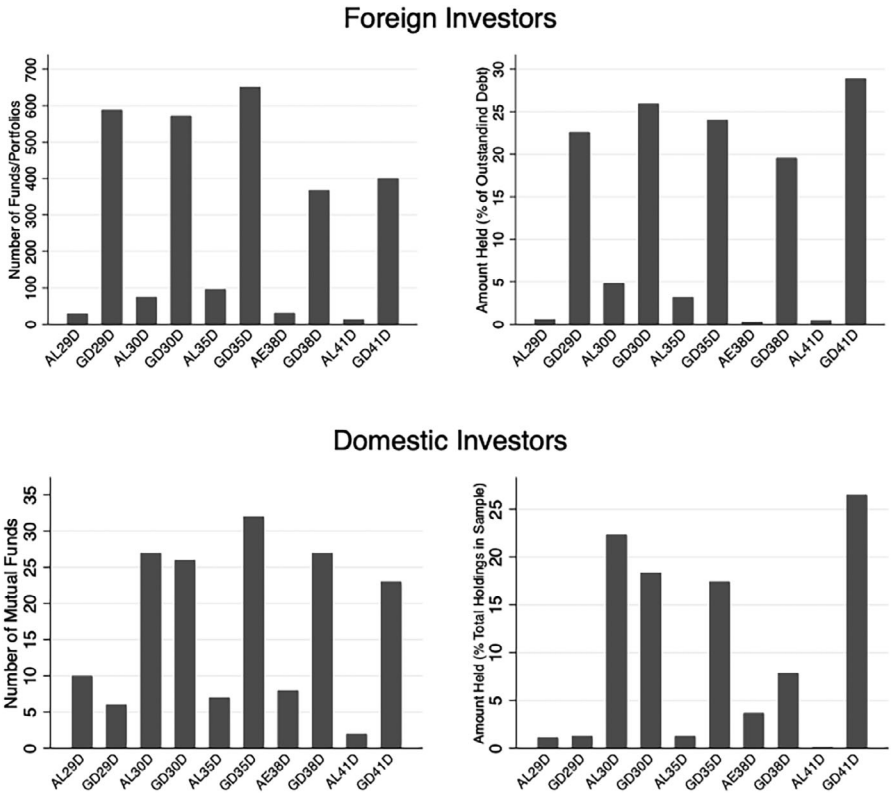

FIGURE 3 Investors' debt holdings by bond issues.

[7]See Table D1 for the full list of foreign financial firms.

The left panel displays the number of overseas funds/portfolios who have holdings on a particular bond. So, for example, only 75 funds/portfolios include the dollar-denominated domestic-law bond maturing in 2030; but its twin bond, the dollar-denominated foreign-law bond maturing in 2030 is held by 572 of the funds/portfolios. In terms of the amount of debt held by these investors, the contrast is also stark. Consider again the bonds maturing in 2030. Of the US $13,581,299,590 in outstanding debt corresponding to the bonds issued under domestic law, approximately US $654,821,000—or, 4.82%, is held by overseas funds/portfolios. In contrast, these investors hold approximately one-quarter (25.94%) of the US $16,090,612,053 in outstanding debt corresponding to its foreign-law counterpart. All the other bonds show a very similar pattern.

With regard to domestic investors, the bottom graph in Figure 3 shows the debt holdings of a sample of Argentine mutual funds. We obtained the data from the country's mutual funds' board (*Cámara Argentina de Fondos Comunes de Inversión*), based on their current portfolio composition.[8] The left panel displays the number of 51 Argentine mutual funds in our sample who have holdings on a particular bond. So, for example, 63% of them (32) include the dollar-denominated foreign-law bond maturing in 2035; but its twin, domestic-law, counterpart is only held by 14% of them.

Regarding the quantity of debt owned by these investors, the difference is also quite noticeable. Altogether, these mutual funds hold approximately US $927,428,939 in dollar-denominated Argentine debt issued under the 2020 rescheduling agreement. The right panel of Figure 3 (bottom graph) shows the share of this amount of nominal debt held by the Argentine mutual funds by type of bond. Except for the bonds maturing in 2030, these domestic investors also tend to favor foreign-law bonds over their domestic-law counterparts.

The graphs in Figure 3 make clear that both foreign and domestic investors will pay a foreign-law premium when holding Argentine debt. This implies that, regardless of their geographic location, most long-term private investors tend to expend a higher amount to retain the same nominal value of bonds, primarily to secure legal recourse in case Argentina defaults on its debts.

So, who gravitates toward domestic-law bonds? As mentioned above, public-sector entities in Argentina may have motivations for holding positions in the country's sovereign debt that are unrelated to credit risk. A prime example is the Argentine Central Bank. An analysis of its holdings of Argentine sovereign debt issued under the 2020 restructuring agreement reveals that as of the end of 2022, only 1% consisted of foreign-law bonds, while the remaining 99% was made up of their domestic-law counterparts.[9] Recall that the Argentine Central Bank routinely engages in FX interventions, which involve the purchase

[8] https://www.cafci.org.ar/consulta-de-fondos.html. See Table E1 for the full list of Argentine mutual funds in our sample.

[9] https://www.bcra.gob.ar/Pdfs/PublicacionesEstadisticas/e2022estadoscontables.pdf

of dollar-denominated bonds and providing private individuals with cash in foreign currency. These transactions primarily focus on the MEP (Medio Electrónico de Pagos) dollar traded through the AL30D, and, to a lesser extent, the GD30D in the Price Priority Time segment of the Buenos Aires Stock Exchange in 48-hs operations. The disproportional amount of domestic-law bonds held by the Argentine Central Bank implies that private sector agents participating in this exchange-rate arbitrage scheme have an incentive to hold domestic-law rather than foreign-law bonds. Furthermore, considering the short-term nature of these strategies, these traders do not require significant legal protection.

CONCLUSION

Sovereign bonds serve as an important capital source in developing countries, who are generally capital scarce and need funds to promote economic growth and development. Unlike developed countries, less developed states are typically considered less suitable to receive financial credit, as well as more susceptible to economic challenges. Such concerns pose a greater threat of debt non-repayment, which affects risk premiums on sovereign bonds.

Based on the unpredictable investment climate in developing countries, political economy scholarship has extensively studied sovereign bond pricing and default risk. While much of the sovereign bond determinants research highlights economic and political risk factors, the existing literature often fails to address the effects of legal jurisdictions on issued bonds. Amongst the studies that consider legal jurisdiction issues as a bond pricing determinant, nearly all employ cross-national, rather than within-country, variation in sovereign bond issues, eliciting possible selection and endogeneity problems.

This study investigates the legal jurisdictions of bonds and their effects on pricing, default risk, and bondholder interest based on Argentina's 2020 debt restructuring. As part of its exchange offer, the country issued pairs of "twin" bonds maturing between 2029 and 2041, with half governed by domestic law and the other half under foreign-law jurisdiction. Our findings indicate that investors expect to face less credit risk under bonds governed by foreign law, either due to a lower risk of selective default or higher recovery rates as compared to cases adjudicated in domestic courts.

We recognize the potential limitations of our work. First, our study compares foreign-law and domestic-law bonds based solely on the Argentine case. As with any analysis based on micro-evidence, there are legitimate issues related to the findings' external validity. Therefore, both scholars and practitioners should exercise caution and not naively extrapolate the results in this paper to other sovereign borrowers. Second, we cannot know for certain why some investors are more willing than others to pay a premium to hedge against selective default as we do not know the identity of every bondholder and cannot ascribe their individual preferences. Nonetheless, for

each bond issue we can determine how much debt is held by long-term investors, allowing us to make educated inferences about who values legal protection.

This work provides opportunities for future research projects. Scholars might want to investigate if there are other countries that have issued identical bonds but with different legal jurisdictions to see if the results presented here hold up or if there are other relevant factors to explain bond pricing. Additionally, although we have focused on legal jurisdictions, scholars may wish to consider alternative factors such as differences in covenants, amendment clauses, and currency of denomination and how bonds that are similar in all other ways may impact sovereign bond prices. Furthermore, future research might compare similar bonds from the same country but issued at different time periods to determine if there are other factors that also affect bond pricing and default.

DATA AVAILABILITY STATEMENT

Data necessary to replicate the results of this article are available upon request from the corresponding author.

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APPENDIX A: BOND COMPARISON

TABLE A1 Bond characteristics.

US $ 2030 bond **Foreign law** **Bond Information** **Principal/coupon information**		**Domestic law** **Bond information** **Principal/coupon information**	
Maturity date/next call date	July 9, 2030 @ 100%/ September 15, 2023 @ 100%	Maturity date	July 9, 2030 @ 100%
Principal/coupon currency	US $/US $	Principal/coupon currency	US $/US $
Coupon type	Variable: step up/step down	Coupon type	Variable: step up/step down
Coupon frequency	Semiannually	Coupon frequency	Semiannually
Current coupon/ next pay date	0.75000/January 9, 2024	Current coupon/ next pay date	0.75000/January 9, 2024
Dated/first/final coupon	September 4, 2020/July 9, 2021/January 9, 2030	Dated/first/final coupon	September 4, 2020/ July 9, 2021/ January 9, 2030
Amount outstanding	US $16,090,612,053	Amount outstanding	US $13,581,299,590
Par value/min. denomination/ increment	US $1.00/1.00/1.00	Par value/min. denomination/ increment	US $1.00/1.00/1.00
Floating rate note	No	Floating rate note	No
%Amount outstanding/ total issue amount	100.0000%	%Amount outstanding/ total issue amount	100.0000%
Coupon next reset date	July 9, 2027	Coupon next reset date	July 9, 2027
Index transitioned	No	Index transitioned	No
Irregular coupon	First	Irregular coupon	First
Inflation index linked	No	Inflation index linked	No
Principal index linked	No	Principal index linked	No

TABLE A1 (Continued)

Market conventions		**Market conventions**	
Day count basis	30/360US, 30U/360, 30US/360	Day count basis	30/360US, 30U/360, 30US/360
Settlement	Trade + 2 business days	Settlement	Trade + 2 business days
Ex-dividend rules	—	Ex-dividend rules	—
Holiday for trade settlement	United States	Holiday for trade settlement	Argentina
Payment rule	Move forward to next bus day	Payment rule	Move forward to next bus day
End of month convention	Same day of month	End of month convention	Same day of month
Yield calculation convention	ACT 30/360 6M YTW	Yield calculation convention	ACT 30/360 6M YTM
Price rounding	Round NEAR 4 places	Price rounding	Round DOWN 3 places
Accrued interest truncation	—	Accrued interest truncation	—
Price quote	Without accrued	Price quote	With accrued
Yield type	Yield to worst	Yield type	Yield to maturity
Linear last period	30/360 for the last period only	Linear last period	30/360 for the last period only
Bond type		**Bond type**	
Instrument/structure type	Bond	Instrument/structure type	Bond
MTN	No	MTN	No
Option	Callable, sinkable	Option	Sinkable
Floating rate note	No	Floating rate note	No
Use of proceeds	—	Use of proceeds	—
Offering type	Exchange offer	Offering type	Exchange offer
Private placement	No	Private placement	No
Government bond type	Republic of Argentina	Government bond type	Argentina Bono De La Nacion
Redemption		**Redemption**	
Payment-in-Kind (PIK)	No	Payment-in-kind (PIK)	No
Extendible maturity	No	Extendible maturity	No

(Continues)

TABLE A1 (Continued)

Redemption		**Redemption**	
Next sink	July 9, 2024 @ 100%	Next sink	July 9, 2024 @ 100%
Worst	July 9, 2030 MAT @ 100%	Worst	July 10, 2030 MAT @ 100%
Sink	Full schedule	Sink	Full schedule
Acceleration factor	1	Acceleration factor	1
Begin notify	60 calendar day(s)	Begin notify	—
End notify	30 calendar day(s)	End notify	—
Method	Pro rata	Method	Pro rata
Sinking fund type	Sinking/amortization	Sinking fund type	Sinking/amortization
Sink code	Required	Sink code	Required
Issuance details		**Issuance details**	
Issue date/price/ yield	September 4, 2020/—/—	Issue date/price/ yield	September 4, 2020/—/—
Issue spread	—	Issue spread	—
Announcement date	July 17, 2020	Announcement date	April 22, 2020
Country of risk	Argentina	Country of risk	Argentina
Country of issue	Argentina	Country of issue	United States
Market of issue	Domestic	Market of issue	Global
Original issue amount	US $12,422,882,573	Original issue amount	US $16,090,612,053
Total issue amount	US $13,581,299,590	Total issue amount	US $16,090,612,053
Auction date	November 9, 2020	Auction date	—
Indicative amount	—	Indicative amount	—

More bond information		**More bond information**	
Rank (seniority)	Sovereign	Rank (seniority)	Sovereign
Listed on		Listed on	
Exchange code	Exchange name	Exchange code	Exchange name
BER	Berlin Stock Exchange	BER	Berlin Stock Exchange
BUE	Bolsa de Comerio de Buenos Aires	BUE	Bolsa de Comerio de Buenos Aires
FRA	Frankfurt Stock Exchange	FRA	Frankfurt Stock Exchange
MAE	Mercado Abierto Electronico S.A.	MAE	Mercado Abierto Electronico S.A.

TABLE A1 (Continued)

More bond information		More bond information	
STU	Stuttgart Stock Exchange	STU	Stuttgart Stock Exchange
TDG	Tradegate Exchange	TDG	Tradegate Exchange
		DUS	Dusseldorf Stock Exchange
		ETX	EURO TLX
		GTX	GETTEX
		HMT	HI-MTF SIM SPA
		LUX	Luxembourg Stock Exchange
		MUN	Munich Stock Exchange
Asset status description	Reopening	Asset status description	Issued
Owner trustee	—	Owner trustee	Bank of New York Mellon
Paying agent	—	Paying agent	Bank of New York Mellon
Governing law	Argentina	Governing law	New York
Program type	—	Program type	—
Repo eligible	No	Repo eligible	No
Ownership type	Registered	Ownership type	Book entry
US eligibility code	Government	US eligibility code	Government
Date seasoned	—	Date seasoned	—
Insured by	—	Insured by	—
Warrants	No	Warrants	No
Clearing house	—	Clearing house	Clearstream, Depository Trust Co, Euroclear
Bond Grade	High yield	Bond grade	High yield

Covenants		Covenants	
Prospectus available	Yes (October 5, 2020)	Prospectus available	No
Events of default	Yes		
Pari Passu	Yes		
Special clause	No		
Negative pledge	Yes		

Tax details		Tax details	
EU Savings Tax Directive	Yes	EU Savings Tax Directive	Yes
	Yes		No

(Continues)

TABLE A1 (Continued)

Tax details		**Tax details**	
March 1, 2002 or later tap		March 1, 2002 or later tap	
Issued on or before March 1, 2002	No (September 4, 2020)	Issued on or before March 1, 2002	No (September 4, 2020)
Swiss exempt flag	—	Swiss exempt flag	—
Withholding tax	—	Withholding tax	—
DRD eligible	No	DRD eligible	No
QDI eligible	No	QDI eligible	No
Regulations		**Regulations**	
EU HQLA	—	EU HQLA	—
Basel HQLA	Not eligible	Basel HQLA	Not eligible
MiFIR identifier/ MiFID bond type	Bond/Sovereign bond	MiFIR identifier/ MiFID bond type	Bond/Sovereign bond
MiFID liquidity indicator (COFIA)	No	MiFID liquidity indicator (COFIA)	No
MiFID liquidity indicator (ESMA)	No	MiFID liquidity indicator (ESMA)	No
Eligible to be traded on EEA venue	Yes	Eligible to be traded on EEA venue	Yes
MiFID complex instrument indicator and reason	Yes/complex returns on principal	MiFID complex instrument indicator and reason	Yes/complex returns on principal
Financial Instrument Short Name (FISN)	ARGENTINA REP/SU BD 20300709 GOVE	Financial Instrument Short Name (FISN)	Rep. Argentina/1.75 Bd 20300709
Capital tier	—	Capital tier	—
Coco bond	No	Coco bond	No
CRR risk weight	100	CRR risk weight	100
TRACE status	Not TRACE reportable and not disseminated	TRACE status	Not TRACE reportable and not disseminated
Solvency II CIC code	AR11	Solvency II CIC code	AR11
CFI	DBVTGR	CFI	DBFUAR
Domestic bail-in eligible	—	Domestic bail-in eligible	—

Note: The differences in the bonds' terms are highlighted in dark gray.

TABLE A2 Descriptive statistics—bond prices.

Bond	Obs.	Mean	Std. dev.	Min	Max
AL29D	621	32.73853	7.371563	18.13	51.4
GD29D	617	35.4229	7.587048	19.1	53.75
AL30D	621	31.21232	6.955632	17.3	51.08
GD30D	621	34.02171	6.360457	19.35	50
AL35D	621	29.76801	5.357714	17.7	44.55
GD35D	620	30.87607	5.253267	17.9	45
AE38D	620	33.67879	4.65816	22.45	48.35
GD38D	604	37.50807	4.783683	24	50.6
AL41D	620	32.17942	4.750126	20.65	43.1
GD41D	610	34.65564	4.622145	22.8	45

APPENDIX B: LIQUIDITY RISK

TABLE B1 Liquidity risk.

Maturity	Domestic law	Foreign law	Difference	p-value
Bid-ask spread				
2029	1.171	0.999	0.172	0.0000
2030	1.033	1.115	−0.082	0.0004
2035	2.027	1.010	1.017	0.0000
2038	1.968	0.999	0.969	0.0002
2041	1.150	1.118	0.032	0.0000
Trading volume				
2029	316461.200	48,246.980	268,214.22	0.0000
2030	21,200,090.000	21,202,230.000	−2140	0.5020
2035	272,348.200	723,182.300	−450,834.1	0.0000
2038	414,124.500	101,701.700	312,422.8	0.0000
2041	161,547.500	127,527.200	34,020.3	0.0644

APPENDIX C: VANGUARD'S US $ EMERGING MARKETS GOVERNMENT BOND UCITS ETF

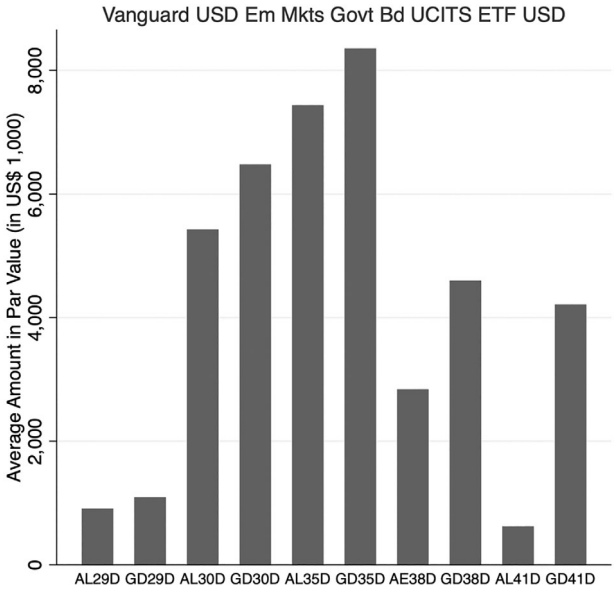

FIGURE C1 Debt holdings. *Source*: Refinitiv.

TABLE C1 Debt holdings and foreign-law premium.

Law premium	
Percent foreign	0.541**
	(0.199)
Constant	−21.77
	(12.09)
Observations	112
R^2	0.18

Note: Standard errors clustered by bond maturity in parentheses.
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

APPENDIX D: FOREIGN INVESTORS

TABLE D1 List of investors.

Firm	Country
Aberdeen Asset Managers Ltd	United Kingdom
Aberdeen Standard Investments (Edinburgh)	United Kingdom
ABN AMRO Investment Solutions (AAIS)	France
abrdn Australia Limited	Australia
abrdn Hong Kong Limited	Hong Kong
abrdn Inc	United States
ACATIS Investment GmbH	Germany
AcomeA SGR S.p.A.	Italy
ACTIAM N.V.	Netherlands
AEGON Investment Management B.V.	Netherlands
AGF Investments Inc	Canada
AIG Asset Management (US) LLC	United States
AIG Asset Management (US) LLC (Houston)	United States
AllFinancial Partners II, LLC	United States
AllianceBernstein Japan Ltd	Japan
AllianceBernstein LP	United States
AllianceBernstein Ltd (Growth)	United Kingdom
Allianz Global Investors France	France
Allianz Global Investors GmbH	Italy
Allianz Global Investors US LLC	United States
Allspring Global Investments, LLC	United States
American Century Investment Management Inc	United States
American Century Investment Management Inc (Mountain View)	United States
Amundi (UK)	United Kingdom
Amundi Asset Management	France
Amundi Asset Management US, Inc	United States
Amundi Deutschland GmbH	Germany
Amundi Ireland Limited	Ireland
Amundi SGR S.p.A.	Italy

(Continues)

TABLE D1 (Continued)

Firm	Country
AQR Capital Management LLC	United States
Ashmore Investment Management Ltd	United Kingdom
Asset Allocation & Management Company, LLC	United States
Associated Investment Management LLC	United States
Aviva Investors Global Services Limited	United Kingdom
AXA Investment Managers Paris	France
Azimut Capital Management Sgr SpA	Italy
Banque Degroof Luxembourg SA	Luxembourg
Banque Lombard Odier & Cie SA	Switzerland
BI Asset Management Fondsm-glerselskab A	Denmark
BlackRock (Luxembourg) SA	Luxembourg
BlackRock Advisors (UK) Limited	United Kingdom
BlackRock Asset Management Ireland Limited	Ireland
BlackRock Asset Management North Asia Limited	Hong Kong
BlackRock Financial Management, Inc	United States
BlackRock Fund Advisors	United States
BlackRock Institutional Trust Company, NA	United States
BlackRock Investment Management (Australia) Ltd	Australia
BlackRock Investment Management (UK) Ltd	United Kingdom
BlackRock Investment Management LLC	United States
BlueBay Asset Management LLP	United Kingdom
BMO Asset Management Inc	Canada
BMO Asset Management US	United States
BNP Paribas Asset Management France SAS	France
BNP Paribas Investment Partners UK Limited	United Kingdom
BNY Mellon Serviços Financeiros DTVM SA	Brazil
Boston Partners	United States
C.S. McKee	United States
Calamos Advisors LLC	United States
Capital Fixed Income Investors	United States
Capital International Ltd	United Kingdom
Capital International, Inc	United States
Capital Research Global Investors	United States
Capital World Investors	United States
CapitalatWork—Foyer Group	Belgium

TABLE D1 (Continued)

Firm	Country
Carmignac Gestion	France
Casa4Funds Luxembourg European Asset Management SA	Switzerland
Colchester Global Investors Limited	United Kingdom
Columbia Threadneedle Investments (UK)	United Kingdom
Columbia Threadneedle Investments (US)	United States
Compass Asset Management SA	Switzerland
Consultinvest Asset Management SGR S.p.A	Italy
CPR Asset Management	France
Credit Suisse Asset Management	Switzerland
Credit Suisse Private Banking (Switzerland)	Switzerland
Daiwa Asset Management (Singapore) Ltd	Singapore
Daiwa Asset Management Co Ltd	Japan
Danske Bank Asset Management	Denmark
Danske Invest Management Company SA	Luxembourg
Davy Global Fund Management Luxembourg SA	Luxembourg
Degroof Petercam Asset Management	Belgium
Deka Investment GmbH	Germany
Deka Vermögensmanagement GmbH	Germany
Delphi Capital Management Inc	United States
Desjardins Global Asset Management	Canada
Deutsche Asset & Wealth Management	United States
Deutsche Asset Management Americas	United States
DoubleLine Capital LP	United States
Duff & Phelps Investment Management Company	United States
DuPont Capital Management Corporation	United States
DWS Investment GmbH	Germany
DWS Investments UK Limited	United Kingdom
Eastspring Investments (Singapore) Limited	Singapore
Eaton Vance Management	United States
Edmond de Rothschild (Suisse) SA	Switzerland
Edmond de Rothschild Asset Management	France
EFG Asset Management (UK) Limited	United Kingdom
ERSTE-SPARINVEST Kapitalanlagegesellschaft m.b.H.	Austria
Eurizon Capital SA	Luxembourg

(Continues)

TABLE D1 (Continued)

Firm	Country
Eurizon Capital SGR S.p.A	Italy
External Manager Not Disclosed (Asia)	Japan
External Manager Not Disclosed (North America)	United States
Fayez Sarofim & Co	United States
Federated Hermes Investment Management Company	United States
Fidelity Institutional Asset Management	United States
Fidelity International	United Kingdom
Fidelity Investments Canada ULC	Canada
Fidelity Management & Research (Hong Kong) Limited	United Kingdom
Fidelity Management & Research Company	United States
Fidelity Management & Research Company (Fixed-Income Division)	United States
Fideuram Asset Management (Ireland) Limited	Ireland
FIL Gestion	France
FIL Investment Management (Australia) Limited	Australia
FIL Investments (Japan) Limited	Japan
Finisterre Capital LLP	United Kingdom
First Pacific Advisors LLC	United States
First Sentier Investments (UK) Ltd	United Kingdom
First Sentier Investors	Australia
Fort Washington Investment Advisors Inc	United States
Franklin Advisers, Inc	United States
Franklin Real Asset Advisors	United States
Franklin Templeton Fixed Income Group	United States
Franklin Templeton Investment Management Ltd	United States
Frost Investment Advisors LLC	United States
GAM Investment Management (Switzerland) AG	Switzerland
Geode Capital Management LLC	United States
GLG Partners LP	United Kingdom
Global Evolution Fondsm-glerselskab A	Denmark
Global Index Advisors Inc	United States
GoldenTree Asset Management LP	United States
Goldman Sachs Asset Management (New York)	United States
Goldman Sachs Asset Management (US)	United States
Goldman Sachs Asset Management Co Ltd	Japan
Goldman Sachs Asset Management International	United Kingdom

TABLE D1 (Continued)

Firm	Country
Goldman Sachs Asset Management International (GSAMI)	United Kingdom
Goodman & Company Investment Counsel Ltd (Goodman & Co NY Ltd)	Canada
Grantham Mayo Van Otterloo & Co LLC	United States
GuideStone Capital Management, LLC	United States
Helaba Invest Kapitalanlagegesellschaft mbH	Germany
Highland Capital Management LP	United States
HSBC Global Asset Management (UK) Limited	United Kingdom
HSBC Global Asset Management (USA) Inc	United States
ID-Sparinvest A	Denmark
IG Wealth Management	Canada
Income Research & Management	United States
Insight Investment Management (Global) Limited	United Kingdom
Invesco Advisers, Inc (Atlanta)	United States
INVESCO Asset Management (Japan) Ltd	Japan
Invesco Asset Management Deutschland GmbH	Germany
INVESCO Asset Management Limited	United Kingdom
Invesco Asset Management Limited (London)	United Kingdom
Invesco Capital Management LLC	United States
INVESCO Fixed Income	United States
INVESCO Global Structured Products Group	United States
Invesco Management Group, Inc	United States
IST Investmentstiftung für Personalvorsorge	Switzerland
Itaú Unibanco SA	Brazil
Ivy Investment Management Company	United States
J.P. Morgan Asset Management (Hong Kong) Ltd	Hong Kong
Jackson National Asset Management, LLC	United States
JP Morgan Asset Management	United States
JPMorgan Asset Management UK Limited	United Kingdom
Jupiter Asset Management Ltd	United Kingdom
Jyske Invest Fund Management A	Denmark
K2 Advisors L.L.C.	United States
KBC Asset Management N.V.	Belgium
Kemper Corporation	United States
KEPLER-FONDS Kapitalanlagegesellschaft m.b.H	Austria

(Continues)

TABLE D1 (Continued)

Firm	Country
Lazard Asset Management, L.L.C.	United States
Legal & General Investment Management Ltd	United Kingdom
Legg Mason Investments (Europe) Limited	United Kingdom
Leith Wheeler Investment Counsel Ltd	Canada
Liberty Mutual Insurance Group	United States
Logan Circle Partners LP	United States
Loomis, Sayles & Company LP	United States
Lord, Abbett & Co LLC	United States
LSV Asset Management	United States
M & G Investment Management Ltd	United Kingdom
Mackenzie Financial Corporation	Canada
Macquarie Investment Management	United States
Macquarie Investment Management Austria Kapitalanlage AG	Austria
MainFirst Asset Management	Switzerland
Manulife Investment Management (North America) Limited	Hong Kong
Manulife Investment Management (US) LLC (Sibling)	United States
Marathon Asset Management LP	United States
Mason Street Advisors LLC	United States
Mediolanum International Funds Limited	Ireland
Mellon Investments Corporation	United States
Merian Global Investors (UK) Limited_NLE	United Kingdom
Metropolitan Life Insurance Co (US)	United States
MFS International (UK) Limited	United Kingdom
MFS Investment Management	United States
Mirae Asset Global Investments (USA) LLC	United States
Mirae Asset Global Investments Co, Ltd	South Korea
Mitsubishi UFJ Kokusai Asset Management Co, Ltd	Japan
Mizuho Asset Management Co Ltd	Japan
Moneda SA Administradora de Fondos de Inversión	Chile
Morgan Stanley Investment Management Inc (US)	United States
Nationwide Insurance Co (Office of Investments)	United States
Neuberger Berman Asia Limited	Hong Kong
Neuberger Berman Management LLC (Chicago)	United States
Neuberger Berman, LLC	Netherlands Antilles

TABLE D1 (Continued)

Firm	Country
Newfleet Asset Management LLC	United States
Newfleet Asset Management LLC (Hartford)	United States
Ninety One UK Limited	United Kingdom
NNIP Advisors B.V.	Netherlands
Nomura Asset Management (UK) Ltd	United Kingdom
Nomura Asset Management Co Ltd	Japan
Nordea Funds Oy	Finland
Nordea Investment Management AB (Denmark)	Denmark
Northern Trust Investments, Inc	United States
Nuveen Asset Management LLC	United States
Nuveen LLC	United States
NWQ Investment Management Company LLC	United States
OFI Global Institutional, Inc	United States
Orange Investment Advisors, LLC	United States
Ostrum Asset Management	France
Pacific Global Investment Management Co	United States
Payden & Rygel	United States
Perkins Investment Management LLC	United States
PGIM Fixed Income	United States
PGIM Investments LLC	United States
PGIM Limited	United Kingdom
Pharus Management Lux SA	Luxembourg
Pictet Asset Management (Singapore) Ltd	Japan
Pictet Asset Management Ltd	United Kingdom
Pictet Asset Management SA (Gen-ve)	Switzerland
PIMCO (US)	United States
PIMCO Australia Pty. Ltd	Australia
PIMCO Europe Ltd	United Kingdom
PIMCO Europe Ltd Munich Branch	Germany
PineBridge Investments Europe Limited	United Kingdom
PineBridge Investments Japan Co, Ltd	Japan
PineBridge Investments LLC	United States
Pramerica SGR S.p.A._NLE	Italy
Principal Global Investors (Fixed Income)	United States

(Continues)

TABLE D1 (Continued)

Firm	Country
Putnam Investment Management LLC	United States
PZU Asset Management SA	Poland
Quilter Investors Limited	United Kingdom
Raiffeisen Kapitalanlage-Gesellschaft m.b.H.	Austria
Raiffeisen Vermögensverwaltungsbank AG	Austria
RBC Global Asset Management (UK) Limited	United Kingdom
RBC Global Asset Management Inc	Canada
Research Affiliates, LLC	United States
Resona Bank, Ltd	Japan
Robert W. Baird & Co Inc	United States
Russell Investments	United States
Russell Investments Canada Limited	Canada
Saturna Sdn. Bhd.	Malaysia
Schroder Investment Management (Australia) Ltd	Australia
Schroder Investment Management (Hong Kong) Ltd	Hong Kong
Schroder Investment Management Ltd (SIM)	United Kingdom
Schroder Investment Management North America Inc	United States
Securian Asset Management, Inc	United States
SEI Investments Management Corporation	United States
Sella SGR S.p.A.	Italy
Shenkman Capital Management Inc	United States
Sompo Asset Management Co, Ltd	Japan
Sparinvest SA	Luxembourg
State Street Global Advisors (US)	United States
State Street Global Advisors UK Ltd	United Kingdom
Stone Harbor Investment Partners LP	United States
Sun Life Global Investments (Canada) Inc	Canada
Sydbank	Denmark
Sydinvest	Denmark
T Rowe Price Associates Inc	United States
T. Rowe Price International (UK) Ltd	United Kingdom
TCW Asset Management Company	United States
TD Asset Management Inc	Canada
The Patterson Capital Corporation	United States
The Vanguard Group, Inc	United States

TABLE D1 (Continued)

Firm	Country
Thrivent Asset Management, LLC	United States
UBS Asset Management (Americas), Inc	United States
UBS Asset Management (Australia) Ltd	Australia
UBS Asset Management (Switzerland)	Switzerland
UBS Asset Management (UK) Ltd	United Kingdom
Union Bancaire Privée	Switzerland
Union Investment Luxembourg SA	Luxembourg
Union Investment Privatfonds GmbH	Germany
UOB Asset Management Ltd	Singapore
Van Eck Associates Corporation	United States
Vanguard Global Advisers LLC	United States
Vinci Partners	Brazil
Vontobel Asset Management AG	Switzerland
Vontobel Asset Management, Inc	United States
Voya Investment Management LLC	United States
Waddell & Reed Investment Management Company	United States
Wellington International Management Company Pte. Ltd	Singapore
Wellington Management Company LLP	United States
Wellington Management Company, LLP	United States
Westchester Capital Management, LLC	United States
Western Asset Management Co	United States
Western Asset Management Company (Asia)	Singapore
Western Asset Management Company Ltd	United Kingdom
Z-rcher Kantonalbank, Asset Management	Switzerland

APPENDIX E: DOMESTIC INVESTORS

TABLE E1 List of investors.

Mutual fund	Type
fondo 1810	Mixed income
Adcap Balanceado	Mixed income
Allaria Diversificado	Mixed income
Allaria Renta Mixta	Mixed income
Allaria Renta Mixta Dolares	Mixed income
Alpha Planeamiento Dinamico	Mixed income
Alpha Planeamiento Equilibrado	Mixed income
Alpha Retorno Total	Mixed income
Axis Estrategia 3	Mixed income
Balanz Renta Fija Estrategica	Mixed income
Balanz Retorno Total	Mixed income
Compass Renta Mixta	Mixed income
Compass Renta Plus	Mixed income
Consultatio Renta Balanceada	Mixed income
Delta Gestion V	Mixed income
Delta Gestion VII	Mixed income
Delta Multimercado I	Mixed income
First Renta Mixta I	Mixed income
Gainvest Balanceado III	Mixed income
Gainvest Global II	Mixed income
Gainvest Global V	Mixed income
Galileo Multimercado IV	Mixed income
Galileo Multimercado V	Mixed income
HF Balanceado	Mixed income
MAF Gestion Activa	Mixed income
MAF Renta Mixta	Mixed income
Novus Renta Balanceado	Mixed income
Pellegrini Integral	Mixed income
Pionero Renta Mixta I	Mixed income

TABLE E1 (Continued)

Mutual fund	Type
Probolsa	Mixed income
Probolsa Dolares	Mixed income
SBS Balanceado	Mixed income
SBS Patrimonio VI	Mixed income
SBS Renta Patrimonio	Mixed income
Schroder Balanceado	Mixed income
Schroder Multiactivos	Mixed income
Schroder Renta Global Dos	Mixed income
Schroder Renta Global FCI	Mixed income
Schroder Retorno Absoluto	Mixed income
SF Value	Mixed income
ST Gestion II	Mixed income
ST Renta Pesos	Mixed income
Toronto Trust Argentina 2021	Mixed income
Toronto Trust Balanceado	Mixed income
Toronto Trust Gestión	Mixed income
Consultatio Balance Fund	Total return
Galileo Renta Fija	Total return
Megainver Retorno Total	Total return
SBS Retorno Total	Total return
Schroder Renta Global Tres	Total return
ST Gestion VII	Total return