Exchange Rates and Sovereign Risk*

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Abstract

An increase in a country's sovereign risk, as measured by credit default swap spreads, is accompanied by a contemporaneous depreciation of its currency and an increase of its volatility. The relation between currency excess returns and sovereign risk is mainly driven by default expectations (rather than distress risk premia) and exposure to global sovereign risk shocks, and also emerges in a predictive setting for currency risk premia. We show that a sovereign risk factor is priced in the cross-section of currency returns and that it is not subsumed by the carry factor.

Keywords: Exchange rates, currency risk premium, currency options, sovereign risk, CDS spreads.

JEL Classification: F31, G12, G15.

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The profitability of popular currency investment strategies, most notably the carry trade, has been documented and studied by a recent growing literature (e.g., Lustig, Roussanov, and Verdelhan, 2011; Menkhoff et al., 2012a; Gabaix and Maggiori, 2015; Hassan and Mano, 2019). A natural interpretation of this profitability is that currency excess returns are compensation for risk, and a series of papers provides evidence of priced risk premia in currency markets.[1] While the risk factors proposed in this literature are intuitively appealing, there is, so far, little evidence on how currency risk relates to one of the most prominent source of risk for international financial markets, namely sovereign risk. This seems surprising since historical evidence suggests that the cost of a sovereign default is closely related to the value of a country's currency. And indeed, actual sovereign defaults have usually been followed by severe currency depreciations and heightened exchange rate uncertainty (e.g., Reinhart, 2002; Reinhart and Rogoff, 2009). Consequently, expectations about the likelihood of sovereign default (i.e., sovereign risk) and the potential for contagion effects that typically accompany sovereign default in a country should affect the risk premium that international investors demand for holding foreign currencies. Based on this logic, the main hypothesis that we test in this paper is whether sovereign risk is related to returns both in currency spot and derivatives markets.

As anecdotal evidence on the link between sovereign risk and exchange rates, consider the period preceding the widely anticipated UK credit rating downgrade on February 22, 2013. Figure 1 shows that from 1 December 2012 onwards the spread on the 5-year UK government credit default swap (CDS) increased from 31 to 52 basis points. A CDS contract allows investors to buy protection against the event of a sovereign default at a market price, which is the CDS spread. During the same period, the pound (GBP) depreciates by more than 5% against the US dollar (USD). In derivatives markets, investors positioned against the GBP, with net speculator positions changing from about 30,000 contracts long to 30,000 contracts short. The implied volatilities of USD/GBP options surged, and more so for put relative to call options, reflecting the market's perception of tail risks and increased cost of crash insurance. Notably, the downgrade was only one notch down from AAA, so the UK was far away from actually defaulting on its debt.[2]

[1] See, among many others, the 'global' carry risk factor (Lustig, Roussanov, and Verdelhan, 2011), unanticipated global volatility risk (Menkhoff et al., 2012a), liquidity risk (Mancini, Ranaldo, and Wrampelmeyer, 2013), downside risk (Lettau, Maggiori, and Weber, 2014), global imbalance risk (Della Corte, Sarno, and Riddiough, 2016), and unemployment gap risk (Berg and Mark, 2018).

[2] For media coverage, see "Sterling hits two-year low on downgrade", Financial Times, 22 February 2013; "UK

FIGURE 1 ABOUT HERE

While the UK downgrade in 2013 is just an illustrative example based on a particular episode, our empirical analysis shows the existence of a strong systematic link between currency excess returns and sovereign risk both across countries and over time. We measure a country's sovereign risk using the spread on its sovereign CDS. The CDS spread reflects both the state of the local and global economy as well as investor risk aversion, and it can be decomposed into the market's default expectations and distress risk premia demanded by investors for facing unpredictable variation in market spreads (e.g., Longstaff et al., 2011).

To understand the link between changes in sovereign risk and exchange rates observed in the data, we proceed in two steps. First, we provide evidence for the notion that sovereign risk is an important state variable for currency markets by studying the *contemporaneous* relation between exchange rates and changes in sovereign CDS spreads. Second, we study the *predictive* relation between exchange rates and sovereign risk and conduct cross sectional asset pricing tests. More specifically, we address the following interrelated questions: What is the nature of information embedded in sovereign CDS spreads that matters for exchange rates: default expectations or distress risk premia? Does local or global sovereign risk matter for exchange rates? Is a sovereign risk factor priced in the cross-section of currencies? The answers to these questions are important to a broad set of financial market participants who invest internationally and are exposed to sovereign risk and currency risk as these directly affect the investors' risk-return tradeoff and their ability to diversify risk in global portfolios.[3]

We answer these questions for a broad set of (up to) 40 exchange rates of developed and emerging countries against the USD from January 2003 to July 2017. First, the currencies of countries that experience increasing sovereign risk show a significant *contemporaneous* depreciation. In regressions of currency excess returns on changes in sovereign CDS spreads, both

is stripped of triple-A rating", Wall Street Journal, 22 February 2013; "Sterling falls, bruised by UK credit rating downgrade", Reuters, 25 February 2013.

[3]Research on how sovereign risk relates to exchange rates and currency risk premia is scant. An intuitive mechanism linking sovereign risk and currency markets could be a risk-based channel where an increase in the sovereign risk of a country leads investors to demand a higher risk premium for holding that currency. However, there is no formal asset pricing theory, to the best of our knowledge, that examines jointly the determination of sovereign risk and exchange rates in an international setting. Our paper is therefore also motivated by providing a set of stylized facts about the link between sovereign risk (and indeed various components of sovereign risk related to default expectations and distress risk premia) and exchange rates to guide theoretical work in this area.

for individual countries as well as for different pools of countries, we find a significantly negative slope coefficient at the monthly frequency, and in robustness checks also at the daily and weekly frequency. This relation is particularly strong for countries with floating exchange rates and/or open capital accounts. For example, in the pooled regression for floating currencies the R^2 is about 21%, which is orders of magnitude higher than the very low R^2 typically recorded in similar regressions, e.g. of currency excess returns on (changes in) interest rate differentials. The economic effect is, on average, that a one standard deviation shock to the CDS spread is associated with a currency depreciation of around 1.2% over the same month.

Next, we decompose CDS spreads into a global and a local component and show that the contemporaneous link to currency excess returns is mostly driven by changes in global sovereign risk, whereas (orthogonalized) innovations in local sovereign risk are much less important. These results line up with previous findings that sovereign CDS spreads have a strong common component (Longstaff et al., 2011) and that exposure to global factors matters for exchange rates (e.g., Lustig, Roussanov, and Verdelhan, 2011; Verdelhan, 2018). Moreover, we also find that global sovereign risk contains currency-relevant information that is not captured by commonly used global variables, namely, the VIX index, US stock markets, US high-yield bond spreads, and commodity markets. Our analysis shows that currencies have different sensitivities to global sovereign risk, and we provide evidence for a cross sectional relation of these exposures to macroeconomic fundamentals linked to government debt financing.

To explore the nature of currency-relevant information embedded in CDS spreads in more depth, we use the affine sovereign credit risk model of Pan and Singleton (2008) to decompose CDS spreads into default expectations and distress risk premia. Our empirical results suggest that the nexus between sovereign risk and currency excess returns is mostly driven by changes in default expectations and that distress risk premia play a minor role. Additionally, we verify that our results are not driven by non-default information that might affect the pricing of sovereign CDS relative to sovereign bonds by controlling for the CDS-bond basis. We also show that there is a positive contemporaneous link between price changes for sovereign risk and price changes for FX derivatives strategies that insure against currency volatility, crash risk, and kurtosis risk. Our finding that FX option prices reflect sovereign default expectations seems plausible given

that actual sovereign defaults are associated with sudden and large changes in exchange rates.

The results summarized above suggest that default expectations embedded in sovereign CDS spreads are an important state variable for exchange rates; and we conduct a battery of robustness checks to corroborate these findings. This motivates our further analysis that explores whether lagged CDS spreads are also related to future currency excess returns and whether sovereign risk is a priced factor in currency markets. We start with portfolios sorted by sovereign CDS spreads and document strong predictive power: long-short portfolio strategies generate significantly positive currency excess returns as well as excess returns to selling volatility in FX option markets, with economically sizeable Sharpe ratios. Moving on to formal asset pricing tests, we find that a CDS-based sovereign risk factor is priced in a broad cross section of currency and FX option returns that includes both CDS-sorted portfolios as well as canonical strategies such as carry and momentum. Indeed, this sovereign risk factor embeds pricing information for currencies that is not subsumed by interest rates (carry). We also show that double-sorting currencies into portfolios based on CDS spreads and standard measures of carry and momentum yields larger carry and momentum returns for currencies with high sovereign risk, and vice versa. Taken together, these results imply that sovereign CDS spreads contain information for currency risk premia not captured by other factors.

The remainder of the paper unfolds as follows. Section 1 provides our motivation and discusses the related literature. Section 2 describes our data, instruments, and trading strategies. Section 3 reports results on to the contemporaneous link between sovereign risk and exchange rates. Section 4 reports results for currency excess return predictability and asset pricing tests. The last section concludes. The Internet Appendix contains technical details and presents results of additional analyses and robustness checks.

1. Motivation and Related Literature

Our finding that sovereign risk matters for exchange rates contributes to the literature on currency risk premia pioneered by Lustig and Verdelhan (2007).[4] While this branch of the literature is

[4]Other recent papers that follow their cross-sectional approach are, for instance, Barroso and Santa-Clara (2015), Burnside et al. (2011), Farhi et al. (2015), Lettau, Maggiori, and Weber (2014), Lustig, Roussanov, and Verdelhan (2011, 2014), Menkhoff et al. (2012a,b, 2016), Verdelhan (2018), and Lustig, Stathopoulos, and Verdelhan (2019).

growing rapidly, there is little research on how exchange rates and currency risk premia relate to sovereign risk, except for a few specific empirical results. Carr and Wu (2007b) propose a valuation framework for sovereign CDS contracts that takes information in currency option prices into account and discuss implications for default probabilities and credit spreads in Brazil and Mexico from 2002 to early 2005. Pu and Zhang (2012) and Mano (2013) compare USD- and EUR-denominated sovereign CDS spreads for Eurozone countries to investigate whether the differential (the quanto CDS) conveys information for the EUR, with Mano (2013) focussing on expected depreciations given the default of member countries.[5] In a more recent paper, Augustin, Chernov, and Song (2020) provide an asset-pricing view on the relation between sovereign defaults and currency depreciation in the Eurozone using quanto spreads. They find that, while the probability of devaluation conditional on default is low, the risk premium for the euro devaluation is larger than the credit risk premium or the carry trade component. A large literature in international macroeconomics studies the relationship between sovereign crises and currency crises (Reinhart and Rogoff, 2009), but this is typically in the context of an actual default and a currency devaluation that occurs in a non-floating exchange rate regime. This is surprising given the vast anecdotal evidence that default expectations, as embedded in CDS spreads or in credit ratings, affect currency markets even in the absence of an actual default and in floating exchange rate regimes. To fill this gap in the literature, we empirically investigate whether countries with high sovereign risk compensate investors with higher expected currency excess returns than countries with low sovereign risk. We perform our exercise using a broad sample of floating and non-floating currencies.[6]

Several key properties of currency risk premia and measures of sovereign risk documented by earlier studies suggest common features that further motivate our empirical analysis of the relationship between exchange rates and sovereign CDS spreads. First, risk premia on currencies are time-varying and countercyclical (e.g., Sarno, Schneider, and Wagner, 2012; Lustig, Roussanov, and Verdelhan, 2014), thereby matching the general business cycle properties of credit

[5] We control for potential CDS quanto effects in our empirical analysis. See also Tse and Wald (2013), who find that using sovereign CDS spreads sheds some light on the forward premium puzzle but argue that CDS spreads have no explanatory power for carry trade returns.

[6] Hofmann, Shim, and Shin (2020) study how the local currency bond credit risk premium co-moves with the spot exchange rate and relate this to currency mismatches. Their approach differs from ours as they are specifically interested in how spot exchange rate changes affect the bond risk premium in emerging market economies.

spreads (e.g., Avramov et al., 2012; Gilchrist and Zakrajsek, 2012). Second, interest rate differentials predict excess returns in the cross section of currencies (e.g., Lustig and Verdelhan, 2007; Burnside et al., 2011; Lustig, Roussanov, and Verdelhan, 2011). Given that interest rates can be thought of as comprising a riskfree as well as a credit risk component (see, e.g., Duffie, Pedersen, and Singleton, 2003), a natural question is to what extent the predictive ability for currency risk premia is due to the credit risk component. Third, currency risk premia compensate for exposure to global factors (e.g., Lustig, Roussanov, and Verdelhan, 2011; Verdelhan, 2018) and, similarly, sovereign CDS spreads exhibit a strong common component (Longstaff et al., 2011; Doshi, Jacobs, and Zurita, 2017). Longstaff et al. (2011) use an affine model and decompose CDS spreads into different components that capture default expectations and distress risk premia, respectively, thereby providing the toolkit for conducting sharper tests of whether and how sovereign risk is related to exchange rates.

Historical evidence shows that *actual sovereign defaults* have often been followed by currency crises, associated with extreme events in the form of severe currency devaluations, and heightened uncertainty about the exchange rate (e.g., Reinhart, 2002; Mano, 2013). These findings suggest that *default expectations* embedded in sovereign CDS spreads may not only convey information for currency excess returns but also for currency volatility and skewness, i.e., higher moments of the exchange rate distribution. Indeed, our empirical results suggest a strong link between sovereign risk and currency options-based insurance against volatility and (to some extent) skewness and kurtosis risk, as well as the returns of currency portfolios that mimic higher moment risks. These findings complement earlier evidence on the properties of variance and skewness risk in exchange rates (e.g., Carr and Wu, 2007a; Bakshi, Carr, and Wu, 2008; Du, 2013; Della Corte, Ramadorai, and Sarno, 2016; Londono and Zhou, 2017) and also relate our paper to recent work on crash risk in currency markets (see, e.g., Brunnermeier, Nagel, and Pedersen, 2008; Chernov, Graveline, and Zviadadze, 2018; Jurek, 2014; Farhi et al., 2015; Farhi and Gabaix, 2016; Daniel, Hodrick, and Lu, 2017).[7]

Finally, a large and growing literature has proposed risk factors that appear to explain cur-

[7]The link between sovereign risk, higher exchange rate moments, and currency crash risk suggested by our empirical results is also consistent with the literature on asset pricing implications of rare event risk for credit spreads and option prices, recently surveyed by Tsai and Wachter (2015). Bhamra and Strebulaev (2014), Gourio (2013), Seo and Wachter (2019), and Seo (2016) link disaster risk to credit spreads. Backus, Chernov, and Martin (2011) and Seo and Wachter (2018) discuss the asset pricing implications for equity index options.

rency risk premia, and Lustig, Roussanov, and Verdelhan (2011) provide a benchmark two-factor model against which a risk factor aspiring to provide pricing power for the cross-section of currencies should be tested. Their stochastic discount factor (SDF) specification includes a dollar factor that captures the returns from investing in a broad set of foreign currencies and borrowing in US dollars, and a carry factor that captures the returns from investing in high-interest rate currencies and shorts low-interest rate currencies. If sovereign risk matters for currency returns, the key question is then whether a factor that captures global sovereign risk is priced in the cross-section of currencies, and whether any pricing information is not already embedded in the carry factor by virtue of the interest rate differentials that are used to construct it. Using conventional asset pricing technology, we provide empirical evidence that this sovereign risk factor is indeed priced in a broad set of currency portfolios, and its pricing power is not subsumed by carry.

2. Data, Descriptive Statistics, and FX Trading Strategies

In this section we describe the data and sample construction, present summary statistics for sovereign CDS spreads and exchange rates, and discuss our empirical approach to explore whether sovereign risk matters for currency returns based on FX trading strategies.

2.1 Data and sample construction

We measure sovereign risk using sovereign CDS spreads, which represent timely market information and allow for a more accurate assessment of sovereign risk compared to sovereign credit ratings or sovereign bond yield spreads (see, e.g., Duffie, Pedersen, and Singleton, 2003; Pan and Singleton, 2008; Longstaff et al., 2011; Palladini and Portes, 2011; Augustin, 2018; Ang and Longstaff, 2013; Klingler and Lando, 2018).[8]

The core analysis on the link between sovereign risk and currency excess returns requires daily data on sovereign CDS spreads, spot and forward exchange rates. Our sample includes the ex-

[8] An important advantage is that sovereign CDS markets are typically more liquid than corresponding bond markets. Other advantages of using CDS data, also discussed in the literature on corporate CDS, include the comparability of CDS spreads across reference entities because of standardized CDS contract specifications (in terms of maturities, cash flows, default definitions, etc.) as well as avoidance of bond-specific effects related to covenants, taxes, and liquidity. There are also other arguments that favor the use of sovereign CDS data over using sovereign credit ratings, for instance, the fact that ratings are only updated at low frequencies and often represent stale measures of credit risk for sovereign issuers.

change rates of 40 countries relative to the US Dollar (USD): Argentina (ARS), Australia (AUD), Bulgaria (BGN), Brazil (BRL), Canada (CAD), Chile (CLP), China (CNY), Colombia (COP), Croatia (HRK), Cyprus (CYP), Czech Republic (CZK), Denmark (DKK), Estonia (EEK), Hong Kong (HKD), Hungary (HUF), Indonesia (IDR), Iceland (ISK), Israel (ILS), Japan (JPY), South Korea (KRW), Latvia ((LVL), Lithuania (LTL), Malaysia (MYR), Malta (MTL), Mexico (MXN), New Zealand (NZD), Norway (NOK), Philippines (PHP), Poland (PLN), Russia (RUB), Singapore (SGD), Slovakia (SKK), Slovenia (SIT), South Africa (ZAR), Sweden (SEK), Switzerland (CHF), Thailand (THB), Turkey (TRY), the UK (GBP), and Ukraine (UAH). This list includes several countries that operate in fixed or quasi-fixed exchange rate regimes as well as countries with restrictions to cross-border capital transactions. Therefore, we also consider subsamples of countries with floating exchange rates (25 countries), with open capital accounts (33 countries), and countries with both floating exchange rates and open capital accounts (21 countries).[9] The sample period is from January 2003 to July 2017.

2.1.1 Sovereign CDS data

CDS contracts provide insurance against the event that a reference entity, in our case a sovereign, defaults on its debt.[10] The buyer of a credit protection typically pays a semi-annual premium, the CDS spread, over the contract's tenor as long as no default occurs. In the event of a default, the protection seller compensates the protection buyer for the loss given default and the contract terminates. We refer to Pan and Singleton (2008), Augustin et al. (2014), Augustin (2018), and Augustin, Chernov, and Song (2020) for a detailed discussion of the contractual provisions of sovereign CDS contracts.

We collect data on sovereign CDS spreads from Markit. Specifically, we use data for CDS contracts written on foreign currency debt and for most of the analysis we focus on USD-denominated contracts with a tenor of five years; this represents the most liquid segment of the sovereign CDS

[9] To construct the subsamples, we apply filters for exchange rate regimes and capital account openness on a daily level, i.e., the subsample composition can change over time. Our subsamples of countries with open capital accounts require that the capital account openness index of Chinn and Ito (2006) is greater than or equal to zero. To identify floating exchange rates, we follow Ilzetzki, Reinhart, and Rogoff (2019), whose classification aims to provide a more flexible and accurate classification than the earlier IMF coarse classification. Our subsamples of countries with floating exchange rates comprises countries in regimes 3 or 4, i.e., with currencies in a pre-announced crawling band that is wider than or equal to $+/-2\%$, a *de facto* crawling band that is narrower than or equal to $+/-5\%$, a moving band that is narrower than or equal to $+/-2\%$, a managed float, or a free float.

[10] Depending on contract specifications, a credit event may also be restructuring or rescheduling of debt.

market. The standard sovereign CDS contract specifies the credit event via the "full restructuring" clause ("CR"), but there is some variation across countries; in our sample, we have more CDS data under the "modified restructuring" clause ("MR") for AUD and NZD. Hence, we use CR-contracts for all countries except AUD and NZD for which we use MR-contracts. In our analysis, we control for differences in contract specifications, account for changes to the ISDA 2014 Credit Derivatives Definitions, and we verify that the results for AUD and NZD are essentially the same when using CR- instead of MR-contracts. Tables IA.1 to IA.4 in the Internet Appendix summarize the availability of sovereign CDS data for contracts denominated in USD as well as for contracts denominated in EUR, JPY, and local currency, which we use for several robustness checks.

2.1.2 Exchange rate and interest rate data

We obtain daily spot and one-month forward exchange rates from BBI and WM/Reuters via Datastream. All exchange rates are relative to the USD and defined as units of USD per unit of foreign currency, i.e., we take the perspective of a US investor and a rising exchange rate represents a foreign currency appreciation. Additionally, we obtain data on interest rate swap curves and 5-year government bond yields from Bloomberg.

2.1.3 Currency option data

We use over-the-counter (OTC) one-month currency option data from JP Morgan. The OTC market for currency options is characterized by specific trading conventions in that options are quoted in terms of Garman and Kohlhagen (1983) implied volatility on baskets of plain vanilla options, at fixed deltas (δ), and with constant maturities. For a given maturity, quotes are typically available for five different option combinations: delta-neutral (0δ) straddle, 10δ and 25δ risk-reversals, and 10δ and 25δ butterfly spreads.[11] The delta-neutral straddle is equivalent to buying a call and a put option with the same maturity and identical absolute deltas. The implied volatility of this strategy equals the at-the-money (ATM) implied volatility quoted in the market. In a risk reversal, the trader buys an out-of-the money (OTM) call and sells an OTM

[11] In line with market conventions, a 10δ (25δ) call option is a call with a delta of 0.10 (0.25) and a 10δ (25δ) put option is a put with a delta equal to -0.10 (-0.25).

put with symmetric deltas (either 25δ or 10δ). The butterfly spread combines a long strangle (similar to a straddle but with 25δ or 10δ OTM options) with a short delta-neutral straddle. In our empirical analysis, we focus on one-month instruments and work with delta-neutral straddles and 25δ risk reversals and butterfly spreads because there is typically less trading activity on 10δ option baskets for some emerging market currencies. From these data, we then recover both prices and implied volatilities as described in Section A in the Internet Appendix.

2.1.4 Other data

Turning to macroeconomic data, we obtain annual data series on foreign (or external) assets and liabilities from Lane and Milesi-Ferretti (2007), available on Philip Lane's website. Foreign assets are measured as the dollar value of assets a country owns abroad, while foreign liabilities refer to the dollar value of domestic assets owned by foreigners. We extend the dataset until the end of 2016 using the IMF's International Financial Statistics database. Additionally, we obtain the quarterly data on investor holdings of sovereign debt compiled by Arslanalp and Tsuda (2014a,b) from the IMF's website, and monthly year-on-year inflation data from Datastream.

In our empirical analysis, we also control for a set of global variables to disentangle information in CDS spreads from other macro-finance variables. In particular, we collect: the CRSP value-weighted US stock market return; the 5-year US Treasury constant-maturity yield, and the effective yields of the ICE BofA US Corporate AAA, BBB, and BB indices from FRED; the VIX index, the S&P500 index, the Baltic Dry Index, and the S&P500 price-earning ratio from Bloomberg; the mutual fund flows into US equity and bonds from EPFR; and the CRSP Fama-Bliss data of one through five-year zero coupon bond prices, which we use to construct an updated version of the Cochrane and Piazzesi (2005) factor.

2.2 Descriptive statistics

Table 1 reports the time periods and descriptive statistics for CDS spreads (levels and changes), forward discounts, and currency excess returns for each of the 40 countries covered in our full sample as well as for our most restrictive subsample of countries with floating exchange rates and open capital accounts. At first glance, emerging countries seem to have higher (average) CDS

spreads and forward discounts than developed countries. Taking a closer look reveals that the cross-country variation in CDS spreads and forward discounts is not perfectly correlated across instruments, neither within developed or emerging markets, nor across all countries.

For instance, comparing South Korea and Australia over the full sample period shows that KRW has substantially higher CDS spreads than AUD (81 *bps* versus 32 *bps*) but much lower forward discounts (8 *bps* versus 22 *bps*). As another example, NOK has a lower CDS spread than JPY (15 *bps* versus 41 *bps*) but a substantially higher forward discount (5 *bps* versus −12 *bps*). These examples illustrate how CDS spreads may convey different information for exchange rates compared to forward discounts, which reflect differences in aggregate interest rates.

TABLE 1 ABOUT HERE

2.3 FX trading strategies

We explore the empirical relation between sovereign risk and exchange rates and report results on the contemporaneous link between sovereign CDS spread changes and currency excess returns as well as changes in the higher moments of the FX distribution (volatility, skewness, kurtosis). We also evaluate the predictive ability of sovereign risk for excess returns on currency investments across the first four moments of the FX distribution. Below we describe how we construct the relevant FX strategies from spot and forward exchange rates and currency option IVs.

2.3.1 Currency spot/forward strategies

Let $s_{i,t}$ and $f_{i,t}$ denote the logs of spot and one-month forward exchange rates at time t, respectively, for the foreign currency i relative to the US dollar. We compute the excess return from buying a unit of foreign currency in the forward market at time t and selling the position in the spot market after one month as $rx_{i,t+1} = s_{i,t+1} - f_{i,t}$. Since covered interest rate parity typically holds at the data frequencies we study (Akram, Rime, and Sarno, 2008), the one-month forward discount $fd_{i,t} = s_{i,t} - f_{i,t}$ corresponds to the difference between the one-month foreign and US interest rates, and the excess return can be rewritten as $rx_{i,t+1} = \Delta s_{i,t+1} + fd_{i,t}$, where $\Delta s_{i,t+1} = s_{i,t+1} - s_{i,t}$ denotes the one-month log exchange rate return between times t and $t+1$.

Given these standard definitions of FX returns and excess returns, we later present empirical evidence that sovereign risk matters for *contemporaneous* and *future currency excess returns*.

2.3.2 Higher FX moments and currency option trading strategies

In addition to trading in spot and forward contracts, investors also trade currency options to hedge against or bet on higher FX moments, which we proxy as in Beber, Breedon, and Buraschi (2010). Specifically, an investor can hedge volatility risk between times t and $t+1$ by going long a one-month delta-neutral straddle at time t. We quantify the price for this volatility insurance strategy by its implied volatility, which we denote by $ivol_{i,t}$ such that an increase in $ivol_{i,t}$ implies higher volatility risk of currency i relative to the US dollar. To protect herself against (negative) skewness or crash risk, the investor can sell a one-month risk reversal at time t, equivalent to going long a 25δ put and short a 25δ call option. We denote the implied volatility for skewness insurance by $iskew_{i,t}$ and an increase in $iskew_{i,t}$ denotes a more expensive protection for crash insurance. Finally, the investor can insure herself against kurtosis risk by selling a one-month butterfly spread based on 25δ options at time t. We refer to the implied volatility of this strategy as $ikurt_{i,t}$, and an increase stands for higher kurtosis risk of currency i.

In our empirical analysis, we analyze the *contemporaneous link* between sovereign risk and higher order moments in exchange rates by regressing changes in these implied moments on changes in sovereign CDS spreads. A positive regression coefficient implies that higher sovereign risk is associated with a higher cost of insuring against volatility risk, skewness risk, and kurtosis risk. In our analysis of the *predictive ability* of sovereign risk for the distribution of exchange rates, we study whether selling volatility, skewness, and kurtosis insurance generates positive excess returns and whether a sovereign risk factor is priced in the cross-section of such FX option strategies.

It is worth mentioning that the option strategies outlined above are not pure bets on higher moments. In particular, the risk reversal strategy generates exposure to the underlying exchange rate because it is not delta-neutral.[12] As a consequence the return of the strategy does not only depend on the asymmetry of the implied volatility smile, which reflects the skewness of

[12]For example, a risk reversal strategy that shorts a 25δ put and is long a 25δ call has by construction a 50δ long position on the underlying exchange rate.

the currency return distribution, but also on the return of the underlying exchange rate. To disentangle returns due to spot rate exposure and compensation for skewness risk, we conduct two additional exercises. On the one hand, we use a delta-hedged risk reversal strategy akin to the skewness asset constructed by Bali and Murray (2013). On the other hand, we use higher moment swaps designed to (only) capture higher moment risk like, for example, the skew risk premium of Kozhan, Neuberger, and Schneider (2013). These moment swaps typically involve fairly complex replication strategies, and we delegate this discussion to Internet Appendix C.

We first compute FX option excess returns as follows. We denote by $C_{\delta,t}$ and $P_{\delta,t}$ the prices of one-month European call and put options with $\delta \in \{ATM, 25\}$, while dropping the currency subscript i to simplify notation. Following Burnside et al. (2011), we calculate the excess returns on long and short positions on call options (LC and SC) and put options (LP and SP) as follows:

$$
\begin{aligned}
rx^{LC}_{\delta,t+1} &= \frac{\max(S_{t+1} - X_t, 0) - C_{\delta,t}(1 + i_t \cdot \tau)}{F_t}, \\
rx^{LP}_{\delta,t+1} &= \frac{\max(X_t - S_{t+1}, 0) - P_{\delta,t}(1 + i_t \cdot \tau)}{F_t}, \\
rx^{SC}_{\delta,t+1} &= \frac{\min(X_t - S_{t+1}, 0) + C_{\delta,t}(1 + i_t \cdot \tau)}{F_t}, \\
rx^{SP}_{\delta,t+1} &= \frac{\min(S_{t+1} - X_t, 0) + P_{\delta,t}(1 + i_t \cdot \tau)}{F_t}.
\end{aligned}
$$

where S_t (F_t) is the spot (one-month forward) exchange rate at time t defined as units of US dollar per unit of foreign currency, i_t is the one-month US interest rate at time t in annual terms, and τ equals the number of calendar days divided by 365. Note that we scale the net option payoffs by the forward rate so that all positions are fully collateralized (i.e., we assume no leverage).

We then compute excess returns on selling insurance against volatility risk (i.e., short a delta-neutral straddle or simply ST), negative skewness risk (i.e., short a 25δ-risk reversal RR), and kurtosis risk (i.e., short 25δ-butterfly spread BF), respectively, as follows

$$
\begin{aligned}
rx^{ST}_{t+1} &= rx^{SP}_{ATM,t+1} + rx^{SC}_{ATM,t+1}, \\
rx^{RR}_{t+1} &= rx^{SP}_{25,t+1} + rx^{LC}_{25,t+1}, \\
rx^{BF}_{t+1} &= rx^{LP}_{25,t+1} + rx^{LC}_{25,t+1} + rx^{SP}_{ATM,t+1} + rx^{SC}_{ATM,t+1}.
\end{aligned}
$$

The excess return of selling a delta-hedged 25δ-risk reversal is given by

$$rx_{t+1}^{dhRR} = rx_{t+1}^{RR} - 0.5rx_{t+1},$$

where rx_{t+1} denotes the currency excess return as defined above in Section 2.3.1.

3. Sovereign Risk and Exchange Rates: Contemporaneous Relation

In this section, we document a strong *negative contemporaneous* relation between sovereign risk and currency excess returns. This is equivalent to saying that an increase in the CDS spread of a country is associated with a depreciation of its exchange rate. We show that this link is largely driven by global shocks to sovereign risk, while country-specific shocks generally play a minor role. Global sovereign risk contains currency-relevant information beyond other global macro-finance variables and countries' FX exposures to global CDS shocks are related to their external asset-liability positions, inflation, and interest rates. Moreover, we decompose CDS spreads into components that capture default expectations and distress risk premia, respectively, and uncover that currency excess returns are primarily driven by default expectations. Finally, we document that an increase in the sovereign risk of a country is also associated with an increase in (higher moment) risk of the exchange rate reflecting higher costs of FX volatility and crash insurance.

3.1 Sovereign risk and currency excess returns

We start by running the following country-by-country regressions over the full sample period:

$$rx_{i,t} = a_i + b_i \Delta C_{i,t}^{\star} + e_{i,t}, \tag{1}$$

where $rx_{i,t}$ is the currency excess return for currency i relative to the USD between times $t-1$ and t, and $\Delta C_{i,t}^{\star}$ is the change in the 5-year CDS spread for country i measured over the same time interval. We will omit the subscript i throughout the discussion of the results for simplicity.

TABLE 2 ABOUT HERE

Table 2 reports estimation results of these regressions using monthly data for USD-denominated sovereign CDS contracts. We present results for all currencies in our sample as well as subsamples where we eliminate countries with fixed or quasi-fixed exchange rate regimes and/or countries that impose restrictions to their capital account and thus limit the actual trading of their currencies (as discussed in Section 2.1). We find that estimates of b are negative in all regressions and at least significant at the 5% level for 36 out of 40 countries in our largest sample, in 24 of 25 countries in our sample of floating exchange rates, 29 of 33 countries with open capital accounts, and 18 of 21 countries with both floating exchange rates and open capital accounts. The explanatory power of changes in sovereign CDS spreads for currency excess returns varies across countries but we find it to be sizeable with the median R^2s across countries in the four samples being 18.8%, 24.6%, 17.3%, and 24.3%, respectively. In our largest sample, we find that there is no link between currency excess returns and changes in sovereign CDS spreads for CNY, HKD and SIT; this is not surprising given that these currencies are characterized by heavy and regular intervention by government authorities and, in the case of China and Slovenia prior to joining the euro, tight capital controls. Across all sample specifications, the JPY appears to be the only major currency for which excess returns are unrelated to sovereign risk.[13] The results also indicate a high degree of economic significance, even for countries with very low sovereign risk. For instance, Norway's relatively low average CDS spread is 14.7 *bps* per annum (*p.a.*), and the standard deviation of monthly changes is 3.8 *bps* (see Table 1). Yet, the b-estimate of -31.9 implies that a one standard deviation shock to Norway's CDS spread is associated with a NOK-depreciation of 1.2% over the same month.

To get a summary measure of the link between currency excess returns and sovereign risk, the last five rows of Table 2 report results for pooled and panel regressions using all country observations. We find significantly negative slope estimates in all four samples for all pooled and panel regression specifications, also when we control for differences in CDS recovery clauses as well as country and time fixed-effects. While the pooled coefficient estimate is comparably small in magnitude and the R^2 is relatively low in the sample of all countries (mostly due to including

[13]The lack of significance for a few other estimates is mostly driven by lower numbers of observations in subsamples. For IDR and ISK, we find significantly negative coefficients over the full sample period as well as our floating exchange rate subsample, but not when we additionally require capital account openness and the number of observations drop to 43 and 39, respectively. Very similarly the negative estimate for SIT is not significant due to only having 33 observations if we exclude data from the sample after Slovenia joined the EUR.

CNY and HKD, as discussed above), we find significant estimates in the range of -6.7 to -5.0 and R^2s between 17.0% and 20.7% in the samples where we require floating exchange rates and/or capital account openness. In economic terms, these estimates imply that, on average, a one standard deviation shock to the CDS spread of countries with open capital accounts and floating exchange rates (approx 20 *bps*) is associated with a currency depreciation of around 1.2% over the same month.

We present an extensive set of robustness checks in the Internet Appendix. We show that the results are (i) very similar for the relation between sovereign CDS spread changes and exchange rate returns (as opposed to currency excess returns) in Table IA.5; (ii) qualitatively the same at weekly and daily frequencies in Table IA.6; (iii) robust to using sovereign CDS contracts denominated in EUR or JPY (rather than USD) in Tables IA.7 and IA.8, respectively; (iv) robust to controlling for quanto spreads (i.e., the price differences in credit protection in USD, EUR, and JPY) in Tables IA.9 to IA.10; and (v) very similar when using USD- or local currency-denominated CDS spreads in a subset where data on both contracts are jointly available in Tables IA.11 to IA.12.

3.2 Global versus local sovereign risk and exchange rates

To better understand the relation between sovereign CDS spreads and exchange rates, we explore to what extent innovations in *global* compared to *local* sovereign risk relate to currency excess returns. We use monthly currency excess returns and changes in CDS spreads to run regressions based on the following specification

$$rx_{i,t} = a_i + b_i^{glob}\Delta\overline{C_t^{\star}} + b_i^{loc}\Delta C_{i,t}^{\star loc} + e_{i,t}, \tag{2}$$

where $\Delta\overline{C_t^{\star}}$ denotes the change in global sovereign risk measured as the simple cross-country average of CDS spreads (except country i);[14] $\Delta C_{i,t}^{\star loc}$ is the change in local sovereign risk computed by orthogonalizing CDS spread changes for country i relative to the global changes.

[14]For example, in a regression of AUD exchange rate changes on the global sovereign risk factor, we compute the global sovereign risk factor as the average innovation in CDS spreads of all countries except Australia. This procedure is utilized to rule out potential mechanical effects resulting from country i affecting the global CDS spread (e.g., Longstaff et al., 2011; Verdelhan, 2018).

TABLE 3 ABOUT HERE

Table 3 presents estimates with and without the local sovereign risk component, and shows that innovations in global sovereign risk matter more for currency excess returns than innovations in local sovereign risk. In line with the country-by-country regressions discussed above, we also find that the link between innovations in sovereign risk and currency excess returns is stronger for countries with open capital accounts and floating exchange rate regimes. We find that estimates of b^{glob}, after controlling for innovations in local sovereign risk, are negative and statistically significant at the 5% significance level in 34 out of 40 countries for the broad sample, and in 18 out of 21 countries for the restricted sample. In the pooled regressions, estimates of b^{glob} remain negative and highly statistically significant, even after controlling for innovations in local sovereign risk. Regarding the innovations in local sovereign risk, the corresponding coefficients are significant in 11 of 21 bilateral currency return in the restricted sample of floating countries with open capital accounts well as in all pooled regressions. This component is generally more important for emerging markets but there is no clear pattern between developed and emerging market countries. The additional explanatory power of b^{loc} beyond b^{glob}, moreover, is relatively small as in the pooled regression the R^2 only increases from 22.3% to 25.7%. The results are very similar when we control for differences in CDS recovery clauses and robust to using a panel regression setup in which we allow for country fixed-effects.

Our findings are in line with previous evidence that sovereign CDS spreads have a strong common component (e.g., Longstaff et al., 2011) and that exchange rates are driven by exposures to global factors (e.g., Lustig, Roussanov, and Verdelhan, 2011; Verdelhan, 2018). These findings, however, beg the question of whether (i) global sovereign risk simply captures macroeconomic risks conveyed by global variables, that potentially drive both changes in sovereign CDS spreads and currency returns, or (ii) whether global sovereign risk carries additional information that is relevant for currency returns. To answer this question, we extend the analysis presented in Tables 2 and 3 and control for a number of global macro-finance variables.

As noted by Longstaff et al. (2011), there is virtually an unlimited number of variables that could be related to sovereign credit risk. We follow their suggestion and select a number of market-based global variables that should aggregate the economic information that is relevant

to an investor. Our set of variables includes the VIX volatility index, the US stock markets, US corporate high-yield spread, and the Baltic Dry Index as a proxy for commodity markets. First, we use the VIX because recent research argues that this market's expectation of volatility is linked to global risk aversion and uncertainty (e.g., Bekaert, Hoerova, and Lo Duca, 2013), that it captures global financial cycles (Miranda-Agrippino and Rey, 2020), and that it is related to the common component in sovereign CDS spreads (e.g., Longstaff et al., 2011). It is thus natural to ask whether changes in VIX subsume information in global CDS spreads. Second, we use US stock market returns and the US corporate high-yield spread because Longstaff et al. (2011) find that the common component in sovereign CDS spreads is significantly related to these two variables, which we also find to be true in our sample.[15] Additionally, previous research has also shown that US corporate high-yield spreads are a key factor explaining emerging market bond spreads (Borri and Verdelhan, 2015). Third, we use the Baltic Dry Index as a proxy for commodity markets, because Ready, Roussanov, and Ward (2017) find that commodity markets are a significant factor for currency returns.

TABLE 4 ABOUT HERE

We extend regressions (1) and (2) by including (i) log changes in the VIX, (ii) returns on the US stock market (CRSP value-weighted index), changes in the US corporate high-yield spreads (i.e., changes in the yield spread between BB and BBB corporate indices), and returns on the Baltic Dry Index, and (iii) all control variables together. Table 4 presents results for pooled and fixed-effects panel regressions whereas the Internet Appendix contains detailed country-level results.[16]

Panel A reports results for regressions of currency excess returns on changes in CDS spreads (as in Table 2) and different combinations of global variables. We find that the inclusion of the

[15] To verify that the results are qualitatively the same in our sample, we directly follow the approach of Longstaff et al. (2011) and use the same set of local and global variables. Table IA.13 shows that global variables have substantial explanatory power for changes in sovereign CDS spreads and that including local variables does not increase the explanatory power by much for most countries. Across countries, the global variables that are most significantly linked to sovereign CDS spreads are the US stock market return and changes in US high-yield spreads. The results are very similar when we repeat the analysis using innovations in global sovereign risk, both in our broadest sample containing all observations as well as in our most restrictive sample only containing observations of countries with open capital accounts and floating exchange rates; see Tables IA.14 and IA.15.

[16] For results of regressions using changes in sovereign CDS spreads and control specifications (i) to (iii) see Tables IA.16 to IA.18. For results of regressions using innovations in global sovereign risk see Tables IA.19 to IA.21.

control variables increases the explanatory power for currency excess returns but does not matter much for the coefficient estimates. The additional explanatory power of the control variables compared to only using changes in CDS spreads can be substantial for the sample of all currencies, where the pooled regression R^2 increases from 4.52% (reported in Table 2) up to 20.91%. For floating exchange rates with open capital accounts the additional explanatory power is much lower, in particular in relative terms, with the pooled regression R^2 increasing from 18.74% to 28.34% when adding all four global variables. More importantly, the coefficient estimates for changes in sovereign CDS spreads remain very similar in magnitude and significantly negative in all samples for all control specifications. Consider, for example, the panel regression with country fixed-effects that includes all control variables. In the sample of all currencies the estimate of the slope coefficient is -0.29 (with a t-statistic of -8.17), very similar to the estimate of -0.26 (with a t-statistic of -5.72) reported in Table 2 for the panel regression with country and time fixed effects. In the sample of countries with floating exchange rates and open capital accounts, the corresponding estimate is -3.02 (with a t-statistic of -2.74), which is close to the estimate of -2.50 (with a t-statistic of -2.33) presented in Table 2.

In Panel B, we report results for regressions of currency excess returns on innovations in global sovereign risk (as in Table 3) plus the control variables. Controlling for the VIX has little impact on the magnitude and significance of the coefficient estimates for global sovereign risk innovations and does not add much explanatory power compared to the results in Table 3. Adding the other control variables, i.e., US stock and high-yield as well as commodity markets, has a relatively large effect in the sample of all currencies, that is, a large increase in the R^2 and a reduction of significance (t-statistics decline to around -1.7). For the countries with floating exchange rates and/or open capital accounts, the coefficient estimates remain significant (with t-statistics of -2.52 to -3.17) but the magnitudes are lower. In the most restrictive specification of floating exchange rates with open capital accounts the estimates are between -3.9 and -4.1 compared to around -9.5 reported in Table 3. These results suggest that countries' currency exposures to global sovereign risk can partly be captured by the four other macro-finance variables but also confirm sovereign risk contains additional, independent information for currency excess returns.

Overall, the analysis presented in this section suggests several important facts. First, most of

the variation in currency excess returns is related to the global component of sovereign CDS, with local sovereign risk playing a non-negligible but small role. Second, the informational content of global sovereign risk is not subsumed by global macro-financial variables and is thus valuable to empirically understand the dynamics of currency returns. Finally, the estimates of the exposure of currencies to global sovereign risk display heterogeneity across countries, even when restricting the sample to countries that have a floating exchange rate and an open current account. Thus, while all currencies tend to depreciate when global sovereign risk increases, the exposures differ substantially across currencies.

3.3 FX exposures to sovereign risk and country fundamentals

While it is not the purpose of this paper to explicitly identify the macroeconomic mechanism that drives the relation between sovereign risk and exchange rates, this section presents some evidence on the link between countries' FX exposure to sovereign risk and their fundamentals by correlating sovereign risk exposures to macroeconomic variables. Specifically, in Figure 2 we plot the slope coefficient estimates of regressing currency excess returns on global CDS spread changes against various macroeconomic variables. These graphs speak to an economic link between exchange rate exposure and macro fundamentals that are related to government debt financing and hence directly relevant for sovereign risk. Overall, we do not find different tales for developed versus emerging markets, marked by blue bullets and red crosses, respectively.

FIGURE 2 ABOUT HERE

First, we provide evidence that currencies of countries with worse external positions are more sensitive to changes in global sovereign risk,[17] using data on (i) the average ratio of foreign total liabilities to assets, which represents a proxy for the countries' vulnerability to external shocks; (ii) the average ratio of foreign debt liabilities to assets; and (iii) the average share of government debt held by foreign investors. Since we also find that (iv) currencies of countries with higher inflation rates are more exposed to global sovereign risk shocks, our results offer the following

[17] We standardize global CDS spread changes in the exposure regressions by their sample means and standard deviations to facilitate comparability and interpretation.

interpretation: net-creditor countries, countries with a lower share of foreign debt, and countries with lower inflation have lower exposures to global shocks because they are less dependent on foreign debt financing and have a lower probability of experiencing a credit event. In other words, such a reasoning is consistent with the notion that external asset positions can serve as collateral and thereby reduce foreign investors' loss in the event of a default (see, e.g., Bussiere and Fratzscher, 2006; Greenlaw et al., 2013).[18] These results complement the findings of Longstaff et al. (2011), who show that sovereign risk is related to macroeconomic conditions such that it embeds information about global market factors, risk premia and investment flows.

Finally, we provide evidence that interest rates capture country-differentials in currency exposures to global sovereign risk shocks. Panels (v) and (vi) in Figure 2 show that higher one-month and five-year interest rates are associated with a more negative relation between exchange rates and sovereign risk. These results are consistent with the notion that interest rates comprise a default risk component, and interesting in the light of previous evidence that interest rate differentials forecast the cross section of currency returns generated by carry trades. We discuss this in more detail in Section 4, where we study the predictive information in sovereign CDS spreads.

3.4 Default expectations, credit risk premia, and CDS-bond basis

We now show that the link between sovereign risk and exchange rates is mostly driven by default expectations rather than default risk premia. Following Longstaff et al. (2011), we use the affine sovereign credit model of Pan and Singleton (2008) to decompose sovereign CDS spreads into a default-related component and an associated risk premium. We estimate affine models for all countries for which sufficient daily data on the sovereign CDS term structure is available to obtain the time-series of (i) the model-implied CDS spread CDS_t^Q, which reflects default expectations under the risk-neutral probability measure; (ii) the 'pseudo' CDS spread CDS_t^P, which reflects default expectations under the objective probability measure; and (iii) the default risk premium $CDSRP_t = CDS_t^Q - CDS_t^P$ (i.e., the distress risk premium as in Longstaff et al., 2011). Section

[18] Bussiere and Fratzscher (2006) examine a set of 20 open emerging markets and show that a high current account deficit and decelerating growth make a country more vulnerable to crises. Greenlaw et al. (2013) study 20 advanced economies and find that the average nominal yield on long-term government debt is sensitive to both lagged debt and the current-account deficit. They suggest that a country will start paying a premium to foreign debt-holders as compensation for default or inflation risk when the government is not able to run a sufficiently high primary surplus.

B in the Internet Appendix describes the model, its implementation, and discusses summary statistics for CDS_t^Q, CDS_t^P, and $CDSRP_t$ (which we report in Internet Appendix Tables IA.22 to IA.24).

TABLE 5 ABOUT HERE

Table 5 presents the empirical evidence on the contemporaneous relation between currency excess returns and the CDS components (sampled at the monthly frequency) estimated from the affine model of Pan and Singleton (2008). To sum up our findings, we first confirm a statistically significant negative relation with high R^2s between currency excess returns and ΔCDS_t^Q, with the exception of CNY and JPY. Second, the results remain largely comparable when using changes in default expectations ΔCDS_t^P. Finally, the relation between currency excess returns and changes in the default risk premium, $\Delta CDSRP_t$, is only significant in few cases (with switching signs) and with much lower explanatory power, as documented by the low R^2s. These findings, moreover, are robust to using exchange rate returns (as opposed to currency excess returns) as well as to using data sampled at the weekly frequency (see Tables IA.25 – IA.27 in the Internet Appendix). Hence, the significantly negative contemporaneous relation between currency excess returns and changes in sovereign CDS spreads appears to be mostly driven by changes in default expectations. Moreover, additional evidence reported in the Internet Appendix confirms that changes in default expectations are the driving force behind the link between exchange rates and global sovereign risk documented in Table 3.[19] Overall, our results are similar in nature to those of Longstaff et al. (2011), who show that the link between countries' default expectation components embedded in sovereign CDS spreads to several global factors is significantly stronger than it is for the risk premium components.[20]

Next, we also show that our results are robust to controlling for the CDS-bond basis. Conceptually, sovereign default risk should be reflected in both CDS spreads and bond yield spreads, i.e.,

[19] Following the procedure described in Section 3.2, we confirm that global shocks in CDS_t^Q are more important for the link between sovereign CDS changes and currency returns than local shocks (Table IA.28). This finding is driven by changes in global default expectations rather then distress risk premia (Tables IA.29 and IA.30).

[20] To show that this is also true in our sample, the Internet Appendix reports results from regressions of changes in model-implied CDS spreads, default expectations, and distress risk premia on the global variables suggested by Longstaff et al. (2011) in Tables IA.31, IA.32, and IA.33, respectively.

the difference between bond yields and riskless rates (see, e.g., Duffie, Pedersen, and Singleton, 2003). A difference between CDS and bond yield spreads, i.e., a non-zero CDS-bond basis, may arise from differences in contractual specifications and market frictions (such as supply and liquidity of the bonds). Previous research shows that CDS spreads provide a more direct measure of default risk than yield spreads (see, e.g. Longstaff et al., 2011; Ang and Longstaff, 2013; Klingler and Lando, 2018). However, to the extent that changes in sovereign CDS spreads reflect changes in the pricing relative to sovereign bonds, changes in CDS spreads and their relation to currency excess returns may also be driven by factors not directly related to sovereign default risk, and we now explicitly control for this possibility by controlling for the CDS-bond basis.

TABLE 6 ABOUT HERE

In Table 6, we present results for pooled and panel regressions of monthly currency excess returns using data for sovereign CDS spreads, sovereign bond yield spreads, and the CDS-bond basis.[21] Panel A confirms the negative relation between currency excess returns and sovereign CDS spread changes in the sample for which bond data is available. Panel B shows that there is an inverse relation of changes in 5-year sovereign yield spreads to currency excess returns as well, but it appears considerably weaker with lower t-statistics for the coefficient estimates and all R^2s being less than 1.7% (compared to 18.3% or more in the CDS regressions). The results in Panel C suggest that there is indeed a significantly negative relation between changes in the CDS-bond basis and currency excess returns. However, the magnitudes of the regression coefficients as well as the R^2 values are considerably smaller than for the CDS regressions in Panel A. To control for CDS-bond basis effects, we repeat the regressions of currency excess returns on changes in CDS spreads and add changes in the CDS-bond basis as additional explanatory variable. Panel D shows that controlling for the CDS-bond basis has little impact on our finding that there is a strong relation between currency excess returns and changes in sovereign CDS spreads, i.e., the results are very similar to those in Panel A.

[21] In the Internet Appendix, we also report results for the corresponding individual country regressions using changes in sovereign CDS spreads (Table IA.34), sovereign yields spreads (Table IA.35), the CDS-bond basis (Table IA.36), as well as for regressions using CDS spread changes and controlling for changes in the CDS-bond basis (Table IA.37).

Overall, the results in this section suggest that the significantly negative contemporaneous relation between currency excess returns and changes in sovereign CDS spreads mostly reflects changes in default expectations. Risk premia embedded in CDS spreads as well as non-default factors captured by the CDS-bond basis appear to matter much less.

3.5 Higher moments implied by currency options

If sovereign risk matters for exchange rates, then investors may wish to hedge this risk and pay a premium for the option-based strategies described in Section 2.3.2 when a country's CDS spread widens. This would also be consistent with the narrative of the events surrounding the depreciation of the GBP at the time of the UK downgrade discussed in the introduction. To evaluate the contemporaneous relation between option-implied FX moments and sovereign risk, we run pooled and panel regressions of changes in the costs of the strategies that offer protection against volatility risk ($ivol_{i,t}$), skewness risk ($iskew_{i,t}$), and kurtosis risk ($ikurt_{i,t}$) on changes in sovereign CDS spreads. That is, we estimate regressions like $\Delta ivol_{i,t} = a + b\Delta C^{\star}_{i,t} + e_{i,t}$, where $\Delta ivol_{i,t}$ measures the change in the cost of volatility insurance for currency i between times $t-1$ and t.

TABLE 7 ABOUT HERE

Table 7 presents regression estimates using monthly data. Consistent with our economic intuition, we find that an increase in sovereign risk is associated with higher FX risk and, hence, an increase in the costs of the hedging strategies. Specifically, we show that increases in sovereign CDS spreads are associated with (i) higher volatility risk, i.e., prices of ATM puts and calls increase; (ii) higher skewness or crash risk, i.e., the prices of OTM put options increase more than the prices of OTM call options; and (iii) higher kurtosis risk, i.e., the prices of OTM options increase more than the prices of ATM options. The regression coefficients are positive and highly significant across moments and associated with sizeable regression R^2s, thereby strongly supporting a link between sovereign risk and higher FX moments as well.[22]

[22] In the Internet Appendix, we present additional evidence that corroborates our conclusion. We show that the results are robust to controlling for global macro-finance variables in Table IA.38 and we report results for individual currencies as well as for weekly and daily frequencies in Tables IA.39 to IA.44.

4. Return Predictability and Asset Pricing Tests

The results so far document a strong contemporaneous link between sovereign default expectations and currency returns, which is in line with the notion that default expectations are an important state variable and that shocks to this state variable are priced in currency markets. Consequently, we now move on to test whether default expectations matter for risk premia in the cross-section of currencies in a predictive, rather than contemporaneous, setting. Therefore, in this section we examine the predictive relation between sovereign risk and currency excess returns, and then run asset pricing tests to assess whether sovereign risk matters beyond standard currency pricing factors. We find that currency portfolios sorted by sovereign risk forecast excess returns to trading FX forwards, FX volatility, and to some extent FX skewness. We then show that sovereign risk is priced in the cross-section of currency excess returns even when controlling for other benchmark currency factors. Finally, we find that the link between sovereign risk and currency risk premia also matters for the performance of benchmark trading strategies. Specifically, we show that both carry and momentum strategies generate high returns across countries with high sovereign risk but significantly lower returns across countries with low sovereign CDS spreads.

4.1 Empirical approach

This section briefly summarizes our approach to cross-sectional asset pricing. The benchmark results rely on a linear SDF which we estimate via the generalized method of moments (GMM) of Hansen (1982). Let $rx_{i,t+1}$ denote the excess return of a portfolio i between t and $t+1$. The usual no-arbitrage relation applies so that risk-adjusted currency excess returns have a zero price and satisfy the basic Euler equation:

$$E[m_{t+1} rx_{i,t+1}] = 0 \tag{3}$$

with a linear SDF $m_t = 1 - b'(h_t - \mu)$, h denoting a vector of risk factors. b is the vector of SDF slopes and μ denotes factor means. This specification implies a beta pricing model

$$E\left[rx_i\right] = \lambda' \beta_i, \tag{4}$$

where expected excess returns depend on factor risk prices λ and risk quantities β_i, which are the regression betas of portfolio excess returns on the risk factors for each portfolio i (e.g., Cochrane, 2005). The relationship between the factor risk prices in Equation (4) and the SDF parameters in Equation (3) is given by $\lambda = \Sigma_h b$ such that factor risk prices can also be obtained from the GMM estimates.

The GMM estimation is based on a pre-specified weighting matrix and we focus on unconditional moments, i.e., we do not use instruments other than a constant vector of ones. Factor means are estimated simultaneously with the SDF parameters by adding the corresponding moment conditions to the asset pricing moment conditions implied by Equation (3). This one-step approach ensures that estimation uncertainty associated with the fact that factor means have to be estimated is incorporated).[23] We use tradable portfolio excess returns as pricing factors. As advocated by Lewellen, Nagel, and Shanken (2010), we add risk factor returns to the set of test assets to discipline the estimate of the factor price of risk.

4.2 Currency portfolios

To implement the methodology outlined above, we need empirical proxies for currency risk factors as well as returns of portfolios that serve as our test assets. We now describe several different cross sections of currency portfolios, which will later serve as risk factors and/or test assets in the empirical analysis. Crucially, currencies have to be actually tradable for portfolio sorts and the no-arbitrage condition in Equation (3) to make sense. Hence, throughout this section, we rely on the sample containing countries with floating exchange rates and open capital accounts. Moreover, we present summary statistics on currency and FX option excess returns in Table IA.45 in the Internet Appendix.

We start by constructing portfolios sorted on last month's CDS spread. To have a reasonable number of currencies in each basket, we limit our cross-section to three portfolios, where portfolio 1 (3) comprises currencies with low (high) CDS spreads. For the same reason, we also drop the first year of our sample, i.e., we start in 01/2004, to ensure that we have sufficient data for all

[23] Specifically, our (first-stage) GMM estimation uses a pre-specified weighting matrix W_T based on the identity matrix I_N for the first N asset pricing moment conditions and a large weight of $10,000$ assigned to the additional moment conditions (for precise estimation of factor means). Standard errors are computed based on a HAC estimate of the long-run covariance matrix $S = \sum_{j=-\infty}^{\infty} E[g(z_t, \theta)g(z_{t-j}, \theta)']$ by the Newey-West procedure.

instruments so that there are no "empty portfolios" in the first year of the sample. We update these portfolios at the end of each month. In addition to reporting returns on these portfolios, we also calculate the excess return on a zero investment strategy (denoted HML) that is long portfolio 3 and short portfolio 1. As a robustness check, we follow Asness, Moskowitz, and Pedersen (2013) and also present the excess return on a zero investment strategy (denoted Rank) with portfolio weights for currency i in month $t+1$ given by

$$w_{i,t+1} = c_t(\text{rank}(K_{i,t}) - \sum_i \text{rank}(K_{i,t})/N_t), \tag{5}$$

where $K_{i,t}$ denotes the conditioning variable (e.g., interest rates or CDS spreads) used to determine portfolio weights, and N_t is the number of currencies available at time t. The scaling factor c_t is chosen such that the portfolio is one dollar long and one dollar short at the time of portfolio construction so that the portfolio is dollar-neutral. The excess return to this rank portfolio is given by $rx^P_{t+1} = \sum_i w_{i,t+1} rx_{i,t+1}$, and we update the portfolio weights at the end of each month. An advantage of this procedure is that the resulting portfolio takes positions in all currencies (not just those in the corner portfolios) and should thus be better diversified.

TABLE 8 ABOUT HERE

Table 8 presents summary statistics for currency portfolio returns (in percentage *p.a.*) and the corresponding annualized Sharpe ratios (SR) and maximum drawdown (MDD). Panel A displays returns from trading forward against spot exchange rates based on CDS spreads. We find that investing in countries with high sovereign risk while borrowing in countries with low sovereign risk (see HML strategy) generates an average excess return of 5.82% (with a t-statistic of 3.62) and an annualized Sharpe Ratio of 0.91, which is economically significant. The rank portfolio performs slightly better with an excess return of 6.27% and a Sharpe Ratio close to 1. Overall, sovereign risk seems to contain substantial predictive information for the cross section of currency excess returns. Moreover, we find that the maximum drawdown for the zero-investment HML and rank portfolios is substantially less pronounced than the for long-only corner portfolios $P1$ and $P3$.

The next three sets of portfolios present results for FX options trading strategies. We take the perspective of an investor who sells insurance against higher FX moments as described in Section 2.3.2. In Table 8, Panel B shows that selling delta-neutral straddles (or protection against volatility risk) is more profitable for countries with high CDS spreads as opposed to countries with low CDS spreads. The HML strategy, for example, yields an excess return of 3.40% *p.a.* (with a t-statistic of 2.70) and an annualized Sharpe ratio of 0.73. Similarly, as documented in Panel C, selling risk reversals (protection against skewness risk) for countries with high CDS spreads relative to countries with low CDS spreads is also profitable, with an HML excess return of 4.27% *p.a.* (with a t-statistic of 4.31) and an associated Sharpe ratio of 1.16. Finally, Panel D shows that the economic value from selling butterfly spreads (or protection against kurtosis risk) is economically small and statistically insignificant.

Notably, the HML and rank portfolios based on risk reversals have the highest Sharpe Ratios and the lowest maximum drawdowns (in absolute values) across all long-short strategies presented in Table 8. However, as discussed in Section 2.3.2, selling a 25δ-risk reversal is not a pure bet on skewness because it contains, by construction, a 50δ-exposure to the underlying exchange rate. To disentangle skewness- from delta-effects, we compute the returns of selling a delta-hedged risk reversal and present the results in Table IA.46 in the Internet Appendix. We find that the return spread remains positive but becomes statistically insignificant and that the Sharpe ratio drops to 0.3 *p.a.* These results suggest that sovereign risk matters for risk reversal returns primarily due to the strategy's exposure to the spot rate rather than due to a premium for skewness risk. To ensure that this insight will not affect our asset pricing tests in the next section, we will conduct these tests using both the unhedged and the hedged risk reversal returns.

Panel E and F of Table 8 report two benchmark currency portfolio strategies. First, we report forward trades based on last month's forward discounts, i.e., the traditional carry trade strategy. As in the extant literature, the carry trade is profitable such that high interest rate currencies earn higher excess returns than low interest rate currencies with an annualized return spread of 6.98% (with a t-statistic of 3.08) and an annualized Sharpe Ratio of 0.83. Second, we also report returns for a momentum strategy which is based on sorting currencies into three portfolios based on last month's excess return.[24] The momentum strategy then goes long in past winner

[24]See Menkhoff et al. (2012b) who show that momentum strategies in FX markets are most profitable for short

currencies and short in past loser currencies. Momentum is profitable in our sample period with an annualized return spread of 5.82% (with a t-statistic of 3.14) and earns an annualized Sharpe Ratio of 0.85.

The Internet Appendix presents additional portfolio results, which we briefly summarize here.[25] Table IA.48 reports the return correlations for the six HML portfolios and the dollar factor. While the correlations are generally positive, they are far from unity and provide a potentially important source of diversification to an international investor. Table IA.49 summarizes the composition of the currency portfolios sorted by CDS spreads, carry, and momentum. The long (short) portfolio sorted on CDS spreads has a strong tilt towards emerging (developed) countries whereas long and short carry and momentum portfolios are more evenly spaced across both developed and emerging countries. Table IA.50 reports monthly turnover, which is very high for currency momentum (above 66%) and low for both carry (roughly 12%) and CDS-sorted strategies (between 6% and 7%), reflecting the persistent nature of CDS spreads and interest rate differentials. The last column reports the break-even half spread, i.e. the (hypothetical, average) bid-ask spread that would equalize the return of the respective portfolio to zero.[26] These results suggest, with the exception of the portfolios trading in butterfly spreads, that transaction costs are not prohibitively large; in particular, for the CDS-based portfolios trading in forward contracts where we find a half spread of more than 5% (relative to the spot mid quote) whereas real-word spreads for most currencies are typically in the magnitude of basis points. We further examine our evidence on the link between sovereign risk and higher FX moments using variance, skewness, and kurtosis swaps synthesized as in Schneider and Trojani (2019a,b, 2020). We present and discuss our results in Table IA.51 and Section C in the Internet Appendix.

The six different cross sections described above will serve as the test assets in the empirical asset pricing tests below. We employ these portfolio returns for a number of reasons. First, we use carry portfolios since they are standard in the literature (e.g., Lustig, Roussanov, and Verdelhan, 2011; Menkhoff et al., 2012a) and we employ a cross section of CDS-sorted portfolios

formation periods of one month.

[25] Moreover, we run panel regressions of currency excess returns on lagged CDS spreads and other controls while absorbing both currency and time fixed effects. Table IA.47 in the Internet Appendix shows that, in line with our portfolio results, CDS spreads significantly forecast excess returns to forwards, straddles, and risk reversals (depending on whether controls are included) but not to butterfly spreads.

[26] We report implied break-even spreads because actual bid-ask spreads are not available for all instruments.

since we want to learn about the risk factors driving this alternative set of currency portfolios. Moreover, we add momentum returns to the set of test assets as they are well-known to be very different from carry returns (Menkhoff et al., 2012b) and thus add some independent variation that may help to discriminate between alternative factors. Finally, we employ the three sets of option returns to test our finding from the previous section that sovereign risk matters for higher moments of the exchange rate distribution as well.

4.3 Asset pricing tests

We now run asset pricing tests to learn whether sovereign and carry risk, respectively, matter in the cross-section of currency excess returns. To tackle this question, we estimate variants of the following SDF

$$m_{t+1} = 1 + (DOL_{FX,t+1} - \mu_{DOL}) - b_1(HML_{FX,t+1} - \mu_{HML_{FX}}) + b_2(HML_{CDS,t+1} - \mu_{HML_{CDS}}) \tag{6}$$

where $DOL_{FX,t+1}$ denotes the return of the dollar factor (excess return of holding a basket of foreign currencies against USD), HML_{FX} denotes the excess return to a carry trade as in Lustig, Roussanov, and Verdelhan (2011), HML_{CDS} denotes the excess return to a portfolio sorted on sovereign risk, μ denotes the mean of a factor which is estimated along with the other parameters of the SDF.[27]

TABLE 9 AND FIGURE 3 ABOUT HERE

We estimate this SDF on different sets of test assets. The left panel of Table 9, for specifications (1) to (3), shows GMM estimation results when using three carry portfolios and three CDS-sorted portfolios (documented in Table 8 above). We find across specifications that the dollar factor is not significantly priced in the cross-section of currency returns, which is in line with the existing literature (Lustig, Roussanov, and Verdelhan, 2011; Menkhoff et al., 2012a).

[27] We follow Menkhoff et al. (2012a) and estimate the factor means via additional moment conditions. Our first-stage GMM estimation uses a pre-specified weighting matrix based on the identity matrix for the asset pricing moments (covariances of returns with the SDF) and sets large weights (=10,000) for the moment conditions that estimate the factor means.

Specification (1), which is a two-factor SDF including the dollar factor and HML_{FX} , also shows that HML_{FX} is significantly priced with an SDF slope of 0.12 (and robust standard error of 0.04) and a risk price of 0.68 (with a robust standard error of 0.27). The cross-sectional R^2 is quite high at 84% with a root-mean-squared-error (RMSE) of 1.14% *p.a.* However, the high R^2 is not too surprising since we are pricing only two cross-sections, which both have a strong factor structure. The J-test statistic is 6.04 with a p-value of 0.53. Specification (2), which is a two-factor SDF including the dollar factor and HML_{CDS} , then shows that the HML_{CDS}-factor is significantly priced when included on its own with an SDF slope of 0.16 (standard error of 0.06) and a risk price of 0.57 (standard error of 0.20). The R^2 is higher than for specification (1) with a value of 92% and the RMSE decreases to 0.75%. The joint, three-factor specification (3) shows that in a horse race between carry and sovereign risk, only HML_{CDS} is significantly priced with an SDF slope of 0.11 (with a robust standard error of 0.05) and a risk price estimate of 0.50 (with a robust standard error of 0.17), which is close to and within the confidence band of the mean factor return of 0.49% per month (see Panel A of Table 8, which reports an annualized return of 5.82%). Hence, the estimated risk price implies that the factor prices itself (Lewellen, Nagel, and Shanken, 2010). The upper plot in Figure 3 shows that predicted and average mean excess returns are very close, which is consistent with the high cross-sectional R^2.

Next, we extend the set of tests assets by adding the three momentum portfolios, three straddle portfolios, three risk reversal portfolios, and three butterfly spread portfolios (also documented in Table 8), i.e., we now have a total of six different cross-sections. Specifications (4) to (6) in Table 9 present the GMM estimation results, which suggest again that HML_{CDS} does a better job in pricing the test assets than HML_{FX}. More specifically, we find that HML_{CDS} crowds out HML_{FX} in the joint specification (6) based on the estimated SDF slope parameters. While the model, unsurprisingly, struggles with the pricing of some test assets, as illustrated in the lower panel of Figure 3, the estimated price of risk of HML_{CDS} is 0.55 and again well within the confidence interval of the mean factor return of 0.49%.[28]

Figure IA.1 in the Internet Appendix plots, from the first-stage Fama-MacBeth procedure, the time-series portfolio betas associated with the pricing factors DOL, HML_{FX}, and HML_{CDS}.

[28]The "high" portfolios of straddles and risk reversals are not captured well by exposure to the factors. On the bright side, this reassures us that CDS-sorted option portfolios are not mechanically priced by HML_{CDS}, since these option portfolios are also sorted on CDS spreads.

While all currency portfolios (i.e., CDS, Carry, and Momentum) load strongly on the DOL factor, we uncover that CDS portfolios load strongly on the HML_{CDS} factor, carry portfolios are strongly related to the HML_{FX}, and both carry and momentum portfolios load on the HML_{CDS} factor. The option portfolios (i.e., straddle, risk reversal, and butterfly spread), moreover, neither load on the DOL nor on the HML_{FX} factor but all have some time-series exposure to the HML_{CDS} factor. As a robustness exercise, Table IA.52 in the Internet Appendix reports the second-stage GMM estimates with an optimal weighting matrix but results remain unchanged compared to the results in Table 9. We also run Fama-MacBeth two-stage pricing tests on the set of individual currency excess returns and report results in Internet Appendix Table IA.53. Since we only have a small cross-section (with relatively noisy individual currency returns), we employ scaled returns to incorporate conditioning information in these tests by interacting excess returns with lagged forward discounts (carry) and lagged excess returns (momentum). The results show that HML_{CDS} remains significantly priced with a price of risk ranging between 0.55 and 0.60, which is close to the price of risk reported in Table 9. Finally, Table IA.54 presents asset pricing tests in which we use the delta-hedged risk reversals instead of the original (i.e. unhedged) risk reversals, and we find that the results are very similar to those in Table 9. Thus, explicitly accounting for the finding that the link between sovereign risk and risk reversal returns is mostly due to spot exposure and not a skew risk premium does not alter any of our main conclusions.

Since portfolios sorted on CDS spreads are potentially related to crash risk we also relate our results to the downside risk CAPM approach of Lettau, Maggiori, and Weber (2014). We report beta and downside-beta estimates for all portfolios in the Internet Appendix Table IA.55. Looking at the long-short sorted (or ranked) portfolios, we find some evidence that is consistent with a downside risk explanation but other results do not seem to fully fit this story. For example, the downside beta of CDS-sorted forward portfolios is significantly different from zero and higher than the standard beta. However, the beta and downside beta of implied volatility and risk reversal portfolios do not seem to fit this pattern. For momentum, we find the opposite pattern, i.e., the downside beta is much lower than the standard beta.

Overall, the results presented in this section suggest that sovereign risk is a priced factor in currency markets and embeds information that is not captured by the traditional carry factor.

4.4 Portfolio double sorts

As a final exercise, we also look at the interaction of sovereign risk with the two most important benchmark sorting variables in currency markets, namely carry and momentum.

We report results for conditional double sorts in Table 10. In Panel A, we first sort currencies into two buckets depending on CDS spreads being below/above the median CDS spread in a given month and, second, on carry being below/above its median in a given month. We find that high-CDS carry strategies are more profitable (return of 7.49% *p.a.*) than low-CDS carry strategies (3.89% *p.a.*). Panel B reports results for the same exercise with momentum instead of carry. We find a very strong interaction effect such that momentum strategies are much more profitable among high CDS currencies but yield insignificant returns among low CDS currencies.

These results suggest that carry and CDS spreads do not simply capture the same information as carry and momentum and that these benchmark strategies, which are widely used by investors, can be enhanced by interacting them with information about sovereign default expectations.[29]

TABLE 10 ABOUT HERE

5. Conclusion

Using data on sovereign credit default swap (CDS) spreads for a broad set of countries, we show that sovereign risk matters for currency excess returns as well as for the higher moments of the exchange rate distribution such as volatility and skewness. The returns to currency investments strongly comove with changes in sovereign risk, and the variation in CDS spreads across countries forecasts excess returns to trading currencies using forward contracts and options strategies.

We also find that the relation between currency excess returns and sovereign CDS spreads is mostly driven by countries' exposures to global sovereign risk, whereas purely local sovereign risk

[29]Since we only have a limited sample of currencies, we prefer to use conditional double sorts, which ensures evenly distributed portfolios. For robustness, we also conduct independent double sorts using the unconditional intersections of high vs low CDS spreads and high vs low carry or momentum. Table IA.56 in the Internet Appendix shows patterns that are comparable to Table 10, with the exception that high-CDS and low-CDS carry strategies have mean returns that are less different. For momentum, the results are almost identical. Overall, these findings confirm that carry and sovereign risk do not provide identical information, as it is possible to run profitable carry strategies among countries with high and low sovereign risk, and that CDS spreads are a useful tool for increasing the profitability of currency momentum strategies.

matters much less. The extent to which currencies are exposed to global shocks is related to measures of countries' financial vulnerability such as their external position. Moreover, decomposing sovereign risk into default expectations and distress risk premia, we find that the link between exchange rates and sovereign risk is mainly attributable to default expectations.

Overall, sovereign risk appears to be an important, but so far neglected, source of risk in currency markets. Indeed, formal asset pricing tests suggest that a sovereign risk factor is priced in a broad cross-section of currency returns, and its pricing power is not subsumed by a standard carry factor. While our findings are economically intuitive and withstand extensive robustness checks, our understanding of the relation between sovereign credit risk and currency markets requires further work. Given the evidence reported in this paper, developing a macro-finance theory that links sovereign risk to currency excess returns seems to be an important avenue for future research.

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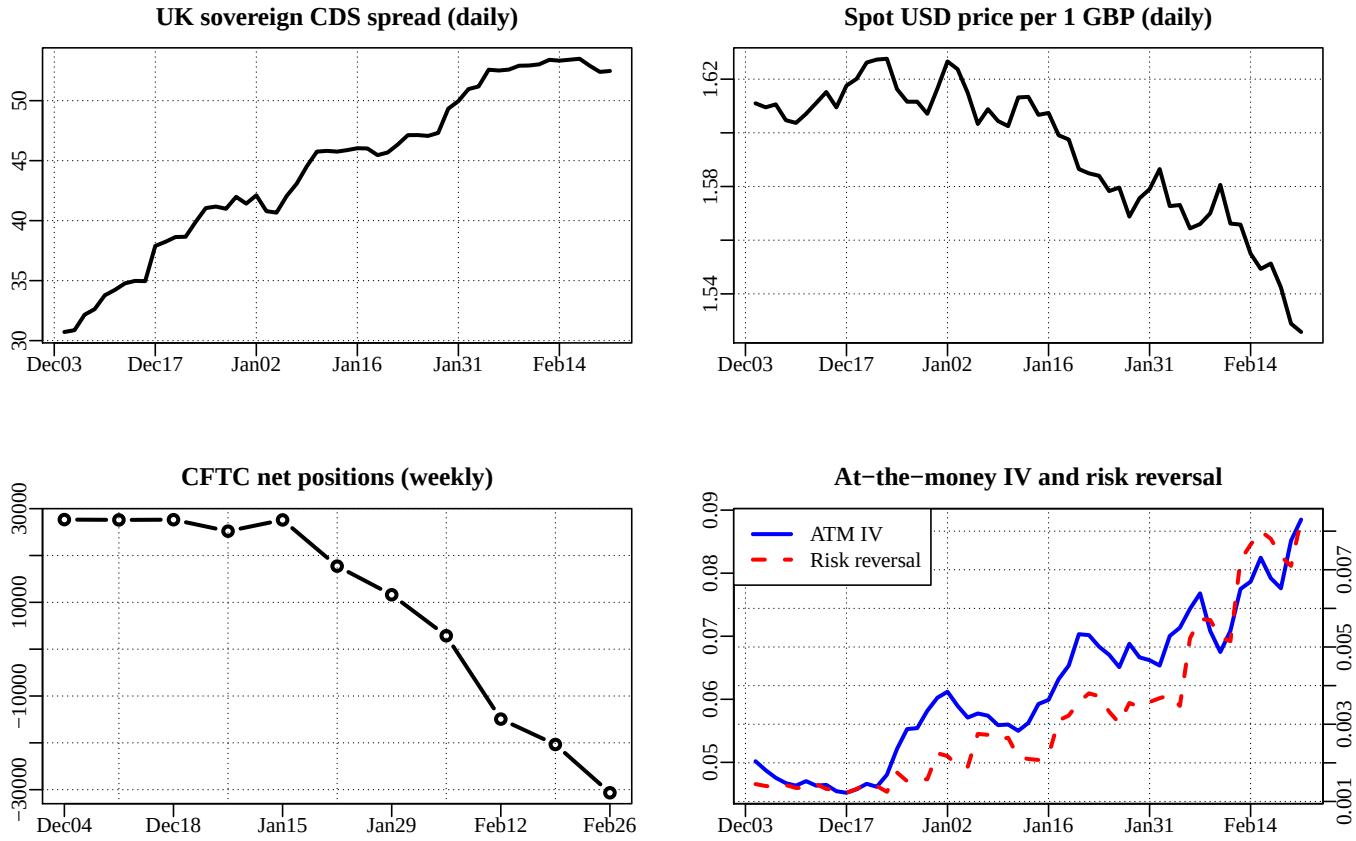

Figure 1: Sovereign CDS spreads and foreign exchange markets: The UK downgrade in February 2013

This figure summarizes data on sovereign CDS spreads and currency markets for the three months prior to the UK sovereign credit rating downgrade on 22 February 2013. The top left panel plots the evolution of the 5-year UK sovereign CDS spread and the top right panel displays the USD/GBP spot exchange rate quoted as USD price per one GBP. The lower left panel presents the net positions (long minus short) of non-commercial traders in USD/GBP currency futures and options as reported by the US Commodity Futures Trading Commission (CFTC) every week. The lower right panel plots the at-the-money (ATM) implied volatility (IV) of USD/GBP options (solid line in blue, left y-axis) and the difference between 25δ out-of-the-money IVs for put and call options, i.e., the negative of the 25δ risk reversal (dashed line in red, right y-axis).

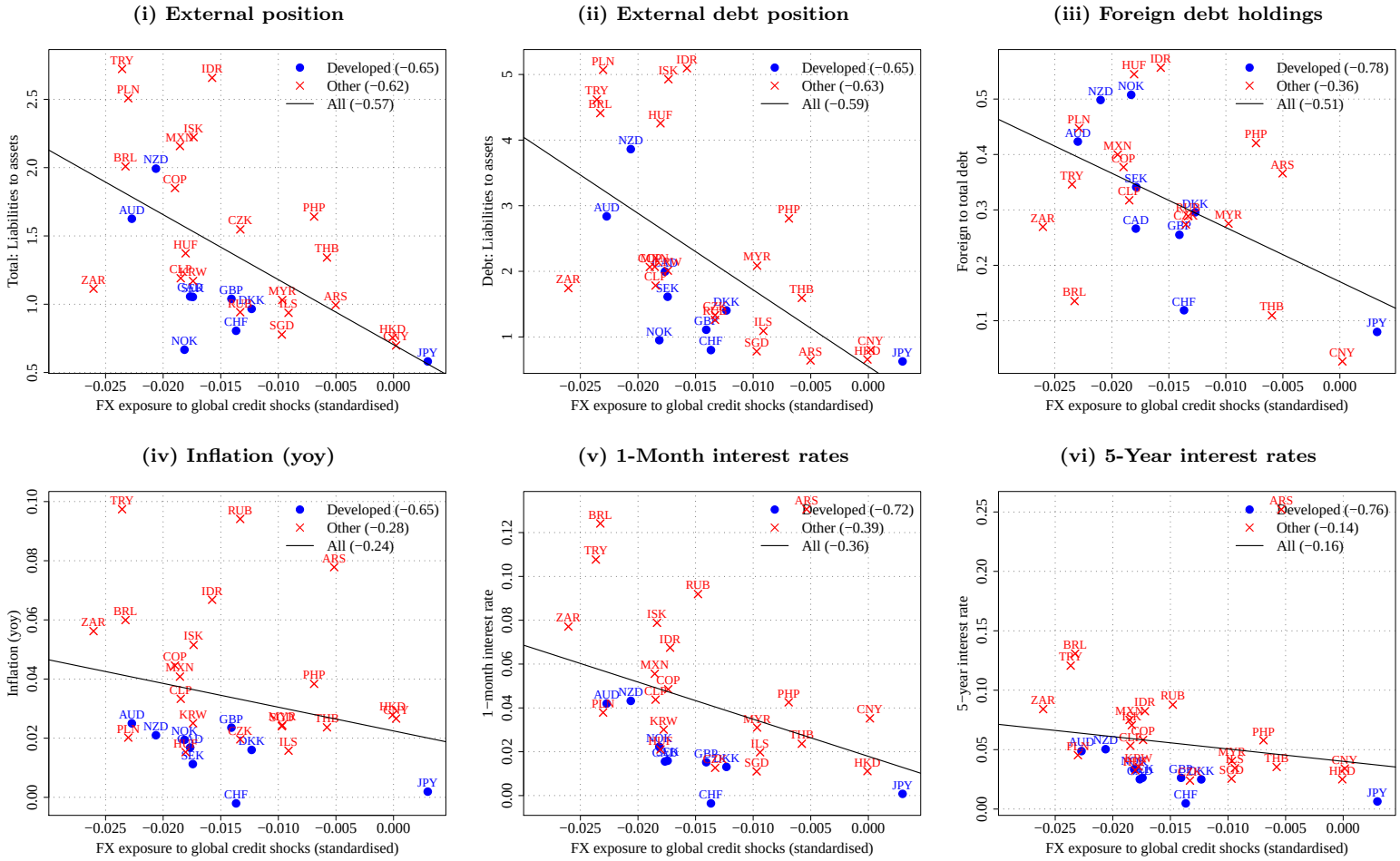

Figure 2: FX exposures to global sovereign risk

This figure plots the slope coefficient from regressing exchange rate changes on global CDS spread changes against the average (i) ratio between foreign assets and liabilities, (ii) ratio between foreign debt assets and liabilities, (iii) ratio between foreign holdings of the government debt and total holdings of government debt, (iv) inflation rate, and foreign 1-month (v) and 5-year (vi) interest rates. The sample runs from 2003 to 2017 (depending on data availability). Blue bullets and red crosses indicated developed and emerging markets, respectively.

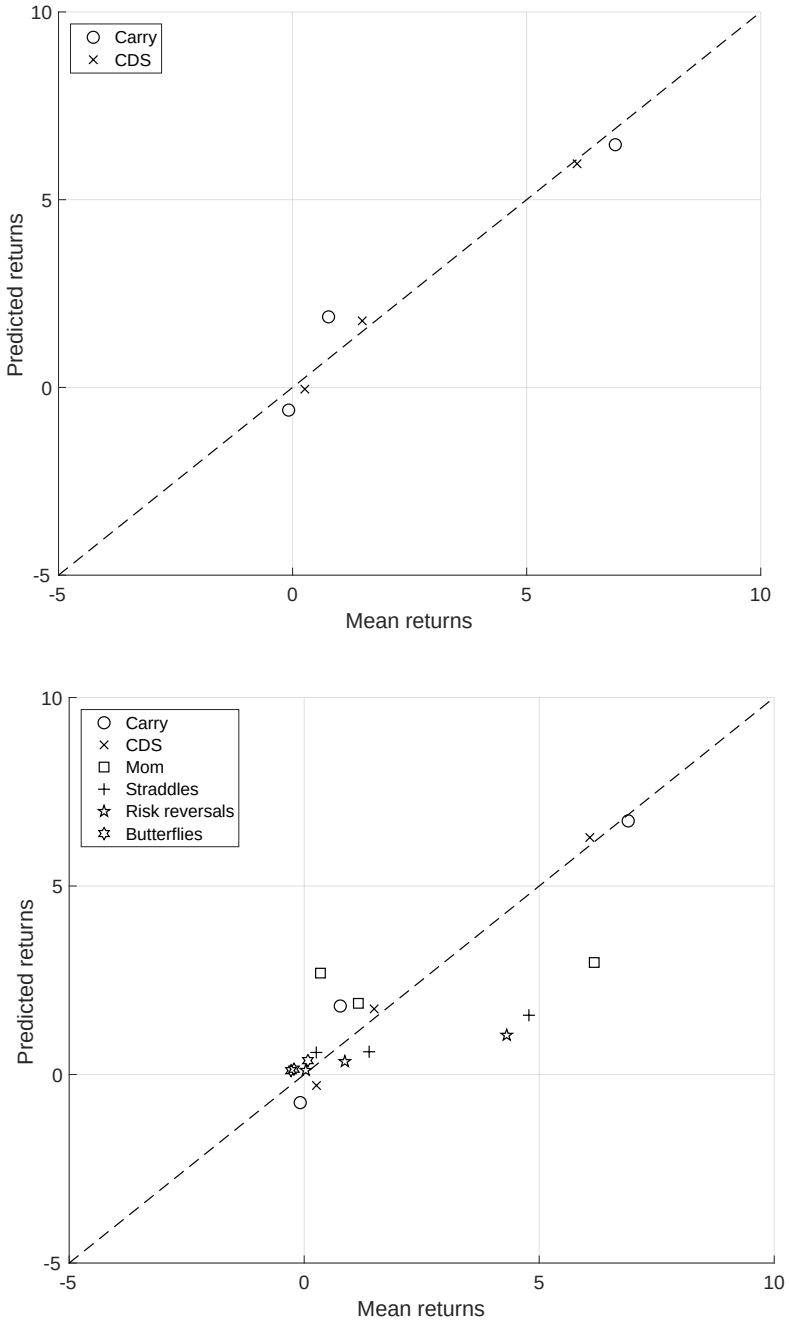

Figure 3: Pricing errors

This Figure shows pricing errors based on the results in Table 9. The upper plot corresponds to specification (3) whereas the lower plot corresponds to specification (6) in Table 9.

Table 1: Descriptive statistics

This table reports descriptive statistics for CDS spreads, changes in CDS spreads (ΔCDS), forward discounts (fd), and currency excess returns (rx). We report the mean, standard deviation ($sdev$), and the number of observations (N) for the full sample ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). The CDS is in basis points per annum whereas fd and rx are in percentage per month. AVE denotes cross-country averages. The sample is monthly from 01/2003 – 07/2017.

	All currencies									Floating FX & open CA								
		CDS		ΔCDS		fd		rx			CDS		ΔCDS		fd		rx	
	N	$mean$	std	$mean$	std	$mean$	std	$mean$	std	N	$mean$	std	$mean$	std	$mean$	std	$mean$	std
ARS	126	1110.58	1031.76	11.97	450.73	1.63	2.26	0.62	2.78									
AUD	167	32.55	28.86	0.08	9.80	0.22	0.12	0.39	3.78	167	32.55	28.86	0.08	9.80	0.22	0.12	0.39	3.78
BGN	160	161.61	116.91	0.00	38.68	0.03	0.14	-0.00	2.96									
BRL	160	212.78	130.67	-2.31	40.24	0.78	0.27	0.74	4.49	71	174.06	94.18	-3.47	38.88	0.74	0.29	1.39	4.30
CAD	133	26.67	18.47	-0.37	4.47	0.02	0.06	-0.13	2.82	133	26.67	18.47	-0.37	4.47	0.02	0.06	-0.13	2.82
CHF	100	36.97	22.63	-0.29	7.86	-0.04	0.11	0.08	2.93	58	35.70	27.02	0.17	9.11	-0.04	0.14	0.46	2.74
CLP	160	74.62	44.93	0.13	16.88	0.04	0.05	0.01	3.46	160	74.62	44.93	0.13	16.88	0.04	0.05	0.01	3.46
CNY	174	72.15	43.61	0.13	16.56	-0.04	0.30	0.08	0.61									
COP	160	177.62	94.16	-1.64	33.61	0.28	0.25	0.21	4.02									
CYP	37	9.01	2.87	0.02	1.72	-0.04	0.14	0.39	1.79									
CZK	174	55.06	47.88	0.04	17.04	-0.04	0.12	0.12	3.63									
DKK	172	27.97	33.03	0.06	10.90	-0.02	0.11	0.08	2.89									
EEK	154	96.99	116.87	0.33	33.87	0.00	0.15	-0.05	2.98									
GBP	133	40.54	30.57	0.10	8.98	0.02	0.10	-0.23	2.68	133	40.54	30.57	0.10	8.98	0.02	0.10	-0.23	2.68
HKD	157	43.87	27.38	0.09	10.09	-0.03	0.04	-0.03	0.15									
HRK	160	213.47	138.76	0.24	37.90	0.12	0.23	0.10	3.04									
HUF	66	227.19	122.31	-7.22	33.04	0.15	0.18	-0.05	3.28									
IDR	164	215.76	110.04	-1.77	44.93	1.77	3.28	1.57	4.25	43	240.20	95.66	-6.76	27.58	5.32	4.92	5.49	4.86
ILS	160	91.18	52.07	0.06	16.64	0.04	0.09	0.19	2.42	160	91.18	52.07	0.06	16.64	0.04	0.09	0.19	2.42
ISK	154	206.89	219.54	0.53	62.13	0.50	0.20	0.27	4.40	39	11.65	13.20	1.46	8.06	0.61	0.15	0.99	3.50
JPY	174	40.59	33.96	0.03	9.98	-0.12	0.14	-0.07	2.78	174	40.59	33.96	0.03	9.98	-0.12	0.14	-0.07	2.78
KRW	174	81.17	66.55	-0.11	27.29	0.08	0.16	0.10	3.38	114	101.37	72.15	-0.16	32.27	0.09	0.16	-0.06	3.94
LTL	160	142.87	148.41	0.15	40.47	-0.00	0.13	-0.03	2.95									
LVL	151	186.79	208.25	0.31	54.59	0.03	0.20	-0.06	3.01	53	183.33	292.96	12.82	78.81	0.11	0.29	0.21	3.24
MTL	131	145.00	115.23	1.46	17.73	0.02	0.07	-0.08	3.08									
MXN	174	124.32	61.76	-0.98	25.92	0.34	0.16	0.06	3.03	174	124.32	61.76	-0.98	25.92	0.34	0.16	0.06	3.03
MYR	174	92.20	54.88	-0.21	20.33	0.82	1.60	0.78	2.67									
NOK	165	14.66	11.52	0.06	3.80	0.05	0.13	-0.01	3.31	165	14.66	11.52	0.06	3.80	0.05	0.13	-0.01	3.31
NZD	158	39.16	33.66	0.07	11.37	0.23	0.13	0.37	4.03	158	39.16	33.66	0.07	11.37	0.23	0.13	0.37	4.03
PHP	174	211.17	136.95	-2.80	33.53	0.21	0.17	0.25	1.66	101	181.50	105.78	-2.92	34.43	0.17	0.10	0.24	1.71
PLN	174	85.74	70.27	0.06	22.19	0.18	0.15	0.22	4.23	109	84.28	83.63	1.34	25.25	0.20	0.17	0.40	4.73
RUB	160	199.51	134.75	-0.17	53.22	0.55	0.70	0.08	4.31	85	204.37	84.83	-7.04	45.78	0.57	0.23	0.50	3.67
SEK	163	23.14	24.45	0.06	9.00	0.02	0.11	0.13	3.36	106	33.42	24.73	-0.02	11.12	0.04	0.07	-0.11	3.51
SGD	87	29.10	27.66	0.69	8.86	-0.06	0.09	0.20	1.88	87	29.10	27.66	0.69	8.86	-0.06	0.09	0.20	1.88
SIT	33	6.79	3.57	-0.38	1.65	0.01	0.14	0.22	2.17									
SKK	71	23.46	30.19	1.44	12.81	0.08	0.20	0.90	3.45									
THB	174	95.23	53.19	-0.13	20.19	0.11	0.14	0.25	1.68									
TRY	174	264.32	161.63	-3.86	62.04	0.98	0.60	0.56	4.14	114	226.09	68.19	-0.22	34.23	0.71	0.23	-0.25	3.82
UAH	141	1319.24	2858.77	70.67	1150.73	-0.09	4.29	-1.06	7.15									
ZAR	174	159.42	83.88	-0.02	27.39	1.04	2.09	0.83	5.46									
AVE		160.43	168.82	1.66	62.73	0.25	0.49	0.20	3.18		94.73	62.18	-0.24	22.01	0.44	0.37	0.48	3.34

Table 2: Currency excess returns and changes in sovereign CDS spreads

This table reports estimates for regressions of currency excess returns on CDS spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	126	-0.22	-2.31	12.74												
AUD	167	-19.11	-4.31	24.58	167	-19.11	-4.31	24.58	167	-19.11	-4.31	24.58	167	-19.11	-4.31	24.58
BGN	160	-3.31	-5.88	18.77					138	-3.33	-5.86	20.43				
BRL	160	-7.08	-7.52	40.24	160	-7.08	-7.52	40.24	71	-7.01	-5.64	40.20	71	-7.01	-5.64	40.20
CAD	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09
CHF	100	-12.12	-3.13	10.58	58	-6.69	-3.21	4.94	100	-12.12	-3.13	10.58	58	-6.69	-3.21	4.94
CLP	160	-10.74	-3.42	27.48	160	-10.74	-3.42	27.48	160	-10.74	-3.42	27.48	160	-10.74	-3.42	27.48
CNY	174	-0.19	-0.58	0.26												
COP	160	-6.52	-6.53	29.77	160	-6.52	-6.53	29.77								
CYP	37	-20.19	-2.83	3.75					37	-20.19	-2.83	3.75				
CZK	174	-9.11	-5.75	18.34					174	-9.11	-5.75	18.34				
DKK	172	-8.23	-5.15	9.64					172	-8.23	-5.15	9.64				
EEK	154	-2.81	-3.53	10.19					154	-2.81	-3.53	10.19				
GBP	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39
HKD	157	-0.08	-0.56	0.25					157	-0.08	-0.56	0.25				
HRK	160	-3.24	-6.18	16.35					160	-3.24	-6.18	16.35				
HUF	66	-6.40	-4.33	41.46					66	-6.40	-4.33	41.46				
IDR	164	-4.18	-8.83	19.58	83	-4.66	-2.09	5.70	85	-4.17	-6.93	20.29	43	-1.80	-1.03	1.04
ILS	160	-5.26	-4.35	13.07	160	-5.26	-4.35	13.07	160	-5.26	-4.35	13.07	160	-5.26	-4.35	13.07
ISK	154	-3.27	-2.81	21.39	154	-3.27	-2.81	21.39	39	-12.07	-1.66	7.74	39	-12.07	-1.66	7.74
JPY	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00
KRW	174	-7.89	-13.11	40.49	174	-7.89	-13.11	40.49	114	-7.95	-11.55	42.32	114	-7.95	-11.55	42.32
LTL	160	-2.30	-3.11	9.97					160	-2.30	-3.11	9.97				
LVL	151	-2.04	-4.28	13.64	53	-2.03	-4.14	24.35	151	-2.04	-4.28	13.64	53	-2.03	-4.14	24.35
MTL	131	-6.67	-9.30	14.71					131	-6.67	-9.30	14.71				
MXN	174	-8.12	-7.86	48.31	174	-8.12	-7.86	48.31	174	-8.12	-7.86	48.31	174	-8.12	-7.86	48.31
MYR	174	-6.87	-7.16	27.34	144	-6.60	-8.94	39.99								
NOK	165	-31.91	-6.54	13.38	165	-31.91	-6.54	13.38	165	-31.91	-6.54	13.38	165	-31.91	-6.54	13.38
NZD	158	-15.38	-4.06	18.89	158	-15.38	-4.06	18.89	158	-15.38	-4.06	18.89	158	-15.38	-4.06	18.89
PHP	174	-2.34	-6.64	22.39	150	-2.72	-6.42	24.69	125	-1.85	-5.38	17.54	101	-2.16	-4.91	18.85
PLN	174	-11.74	-8.57	37.89	109	-11.96	-6.59	40.71	174	-11.74	-8.57	37.89	109	-11.96	-6.59	40.71
RUB	160	-5.05	-3.03	38.95	86	-5.16	-3.42	37.47	102	-7.31	-4.62	54.90	85	-5.22	-3.87	42.38
SEK	163	-16.65	-9.35	19.85	106	-16.64	-5.81	27.74	163	-16.65	-9.35	19.85	106	-16.64	-5.81	27.74
SGD	87	-9.64	-2.99	20.62	87	-9.64	-2.99	20.62	87	-9.64	-2.99	20.62	87	-9.64	-2.99	20.62
SIT	33	-25.64	-1.28	3.77					33	-25.64	-1.28	3.77				
SKK	71	-9.64	-2.42	12.83					71	-9.64	-2.42	12.83				
THB	174	-3.50	-8.20	17.58	174	-3.50	-8.20	17.58								
TRY	174	-3.72	-3.42	31.18	171	-5.76	-4.62	38.29	114	-8.75	-10.25	61.67	114	-8.75	-10.25	61.67
UAH	141	-0.28	-2.29	20.82												
ZAR	174	-11.55	-11.68	33.61	174	-11.55	-11.68	33.61								
pooled	5857	-0.38	-4.23	4.52	3467	-5.65	-6.68	20.70	4202	-5.08	-6.09	17.00	2404	-6.20	-5.03	18.74
pooled (doc)	5857	-0.38	-4.14	5.09	3467	-5.65	-6.67	21.01	4202	-5.08	-6.08	17.40	2404	-6.20	-5.04	18.98
sovFE	5857	-0.38	-4.13	5.11	3467	-5.65	-6.65	21.86	4202	-5.07	-5.98	18.48	2404	-6.14	-5.04	22.65
timeFE	5857	-0.27	-5.72	40.93	3467	-2.95	-4.72	45.71	4202	-2.25	-2.51	53.93	2404	-2.64	-2.35	47.12
sovFEtimeFE	5857	-0.26	-5.72	41.69	3467	-2.92	-4.71	47.09	4202	-2.18	-2.44	55.22	2404	-2.50	-2.33	50.63

Table 3: Currency excess returns and global versus local sovereign risk

This table reports estimates for regressions of currency excess returns on global CDS spread changes ("Global shocks") and both global and local shocks ("Local and global shocks"). Global shocks are the cross-country average of CDS spread changes (excluding the country used as dependent variable). Local shocks are country-specific CDS spread changes orthogonalized to global shocks. We report the slope coefficients (b), adjusted R^2, incremental adjusted R^2 between "Local and global shocks" and "Global shocks" (R^2_{loc}), and the number of observations (N) for the full sample ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1%, respectively, based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding statistical significance is based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies							Floating FX & Open CA						
		Global shocks		Local and global shocks					Global shocks		Local and global shocks			
	N	b	R^2	b^{loc}	b^{glob}	R^2	R^2_{loc}	N	b	R^2	b^{loc}	b^{glob}	R^2	R^2_{loc}
ARS	126	-1.65^{**}	1.83	-0.24^{**}	-1.65^{***}	11.47	9.65							
AUD	167	-3.65^{**}	17.15	-14.66^{**}	-3.65^{***}	27.46	10.31	167	-14.19^{***}	38.34	-0.65	-14.19^{***}	37.98	-0.36
BGN	160	-2.31^{***}	11.26	-2.68^{***}	-2.31^{***}	19.28	8.02							
BRL	160	-4.18^{***}	16.28	-6.29^{***}	-4.18^{***}	41.51	25.23	71	-10.65^{***}	26.7	-6.11^{***}	-10.65^{***}	38.94	12.23
CAD	133	-2.63^{**}	17.19	-12.16^{***}	-2.63^{**}	20.19	3	133	-11.95^{***}	40.16	-3.37	-11.95^{***}	39.95	-0.2
CHF	100	-1.9^{**}	7.84	-9.57^{***}	-1.9^{***}	12.94	5.1	58	-4.33^{***}	4.42	-2.94	-4.33^{***}	3.19	-1.23
CLP	160	-2.57	10.24	-9.95^{***}	-2.57^{***}	26.95	16.72	160	-9.62^{**}	20.46	-10.54^{***}	-9.62^{***}	26.56	6.09
CNY	174	0.06	-0.43	-0.34	0.06	-0.37	0.06							
COP	160	-3.4^{***}	13.36	-5.69^{***}	-3.4^{***}	30.54	17.18							
CYP	37	-0.37	-2.82	-21.91	-0.37	-1.68	1.14							
CZK	174	-2.6^{***}	8.91	-7.86^{***}	-2.6^{***}	18.29	9.38							
DKK	172	-2.37^{***}	12.03	-5.11^{***}	-2.37^{***}	14.57	2.53							
EEK	154	-2.31^{***}	11.46	-1.55^{*}	-2.31^{***}	12.93	1.47							
GBP	133	-1.98^{**}	12.22	-12.46^{***}	-1.98^{***}	25.65	13.43	133	-6.6^{***}	19.81	-10.38^{***}	-6.6^{***}	25.7	5.89
HKD	157	-0.01	-0.59	-0.09	-0.01	-1.03	-0.44							
HRK	160	-2.57^{***}	13.31	-2.31^{***}	-2.57^{***}	18.9	5.58							
HUF	66	-1.79^{*}	6.38	-6.09^{***}	-1.79^{***}	42.23	35.85							
IDR	164	-2.98^{***}	8.66	-3.81^{***}	-2.98^{***}	18.87	10.22	43	14.8	-0.31	-4.16^{***}	14.8	1.53	1.83
ILS	160	-1.75^{***}	9.65	-3.89^{**}	-1.75^{***}	14.31	4.66	160	-5.77^{***}	15.02	-1.73	-5.77^{***}	14.95	-0.06
ISK	154	-2.7^{*}	6.85	-3.01^{**}	-2.7^{***}	20.94	14.09	39	-9.38^{**}	0.63	-10.65	-9.38^{*}	3.54	2.91
JPY	174	0.49	0.01	-1.09	0.49	-0.45	-0.45	174	1.7	0.46	-3.29	1.7	0.7	0.24
KRW	174	-2.81^{**}	12.04	-8.12^{***}	-2.81^{***}	39.86	27.82	114	-14.13^{***}	41.91	-4.06^{***}	-14.13^{***}	42.93	1.02
LTL	160	-2.3^{***}	11.16	-1.27^{*}	-2.3^{***}	12.58	1.42							
LVL	151	-2.41^{***}	12.29	-1.35^{***}	-2.41^{***}	15.83	3.53	53	-6.96^{***}	19.64	-1.66^{***}	-6.96^{***}	21.55	1.9
MTL	131	-2.22^{***}	11.74	-5.35^{***}	-2.22^{***}	19.86	8.12							
MXN	174	-3.15^{**}	19.18	-7.8^{***}	-3.15^{***}	47.84	28.66	174	-12.64^{***}	40.27	-7.05^{***}	-12.64^{***}	47.95	7.68
MYR	174	-1.88^{***}	8.56	-6.58^{***}	-1.88^{***}	26.63	18.07							
NOK	165	-3.12^{***}	16.54	-20.22^{***}	-3.12^{***}	20.47	3.93	165	-9.64^{***}	23.97	-3.24	-9.64^{***}	23.57	-0.4
NZD	158	-3.03^{**}	10.66	-12.85^{**}	-3.03^{***}	18.83	8.17	158	-13.12^{***}	29.8	1.9	-13.12^{***}	29.44	-0.36
PHP	174	-1.11^{**}	7.52	-2.19^{***}	-1.11^{***}	21.76	14.24	101	-3.63^{***}	13.01	-1.88^{**}	-3.63^{***}	17.37	4.36
PLN	174	-4.3^{***}	18.41	-10.44^{***}	-4.3^{***}	38.1	19.69	109	-13.97^{***}	31.88	-11.32^{***}	-13.97^{***}	39.63	7.75
RUB	160	-1.27	1.04	-5.76^{***}	-1.27	41.15	40.11	85	-11.27^{***}	22.53	-6.21^{***}	-11.27^{***}	41.74	19.21
SEK	163	-2.98^{***}	14.9	-12.36^{***}	-2.98^{***}	22.48	7.58	106	-12.37^{***}	46.52	-0.51	-12.37^{***}	46.01	-0.51
SGD	87	-2.37^{***}	24.45	-3.77	-2.37^{***}	24.99	0.54	87	-5.37^{***}	36.75	0.9	-5.37^{***}	36.07	-0.68
SIT	33	0.01	-3.23	-25.68	0.01	-2.64	0.59							
SKK	71	-3.88^{***}	13.16	-1.04	-3.88^{***}	11.9	-1.26							
THB	174	-0.56	1.44	-3.86^{***}	-0.56^{**}	17.21	15.77							
TRY	174	-4.13^{***}	17.33	-3.13^{***}	-4.13^{***}	36.76	19.43	114	-14.12^{***}	44.6	-8.42^{***}	-14.12^{***}	61.01	16.42
UAH	141	-4.37^{*}	2.44	-0.27^{**}	-4.37^{**}	21.09	18.65							
ZAR	174	-4.31^{***}	10.87	-11.33^{***}	-4.31^{***}	32.86	21.99							
pooled	5857	-2.41^{***}	8.84	-0.35^{***}	-2.41^{***}	12.35	3.51	2404	-9.50^{***}	22.32	-4.86^{***}	-9.50^{***}	25.71	3.39
pooled (doc)	5857	-2.38^{***}	9.23	-0.35^{***}	-2.38^{***}	12.71	3.48	2404	-9.50^{***}	22.54	-4.86^{***}	-9.50^{***}	25.94	3.39
sovFE	5857	-2.41^{***}	9.58	-0.34^{***}	-2.41^{***}	13.00	3.42	2404	-9.46^{***}	26.20	-4.81^{***}	-9.46^{***}	29.89	3.27

Table 4: Currency excess returns and sovereign risk: Controlling for global macro-finance variables

This table reports estimates for pooled and panel regressions of currency excess returns on CDS spread changes in Panel A (as in Table 2) and innovations in global sovereign risk in Panel B (as in Table 3) while controlling for global macro-finance variables, i.e., (i) log changes on the VIX index, (ii) US stock market returns, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets, and (iii) all control variables together. We report the slope coefficient (b), t-statistic (t_b), adjusted R^2, incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of countries. t_b is based on standard errors clustered by currency and time dimension. We report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The sample is monthly from 01/2003 – 07/2017.

Panel A: Sovereign CDS changes and control variables

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
(i) Controls: VIX index																				
pooled	5857	-0.35	-5.52	11.37	6.84	3467	-4.92	-6.52	23.50	2.80	4202	-4.32	-5.70	20.77	3.76	2404	-5.30	-4.82	22.25	3.50
pooled (doc)	5857	-0.35	-5.39	11.94	6.85	3467	-4.91	-6.55	23.81	2.81	4202	-4.32	-5.70	21.16	3.76	2404	-5.30	-4.82	22.48	3.51
sovFE	5857	-0.35	-5.39	12.00	6.89	3467	-4.91	-6.50	24.68	2.82	4202	-4.30	-5.60	22.32	3.84	2404	-5.23	-4.84	26.26	3.61
(ii) Controls: US stock market, US high-yield market, and Baltic Dry Index																				
pooled	5857	-0.30	-8.21	20.85	16.32	3467	-3.42	-4.47	27.91	7.21	4202	-2.63	-3.03	26.23	9.23	2404	-3.18	-2.81	28.32	9.57
pooled (doc)	5857	-0.29	-8.13	21.39	16.30	3467	-3.41	-4.49	28.22	7.21	4202	-2.64	-3.04	26.58	9.18	2404	-3.19	-2.82	28.55	9.57
sovFE	5857	-0.29	-8.13	21.56	16.45	3467	-3.40	-4.48	29.16	7.30	4202	-2.58	-2.96	27.99	9.51	2404	-3.07	-2.80	32.49	9.84
(iii) Controls: VIX index, US stock market, US high-yield market, and Baltic Dry Index																				
pooled	5857	-0.29	-8.24	20.91	16.39	3467	-3.40	-4.44	27.90	7.20	4202	-2.61	-2.97	26.23	9.23	2404	-3.13	-2.75	28.34	9.60
pooled (doc)	5857	-0.29	-8.13	21.45	16.36	3467	-3.40	-4.45	28.21	7.21	4202	-2.61	-2.98	26.58	9.18	2404	-3.14	-2.76	28.57	9.60
sovFE	5857	-0.29	-8.17	21.63	16.52	3467	-3.38	-4.44	29.15	7.29	4202	-2.55	-2.89	27.99	9.52	2404	-3.02	-2.74	32.52	9.87

Panel B: Global sovereign CDS changes and control variables

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
(i) Controls: VIX index																				
pooled	5857	-1.89	-2.77	12.53	3.69	3467	-7.67	-7.10	22.94	0.81	4202	-6.76	-6.76	21.82	1.66	2404	-8.29	-6.40	23.48	1.36
pooled (doc)	5857	-1.86	-2.65	12.97	3.74	3467	-7.66	-7.08	23.25	0.82	4202	-6.77	-6.70	22.20	1.66	2404	-8.29	-6.38	23.71	1.37
sovFE	5857	-1.89	-2.76	13.29	3.71	3467	-7.64	-7.09	24.16	0.83	4202	-6.80	-6.77	23.64	1.68	2404	-8.24	-6.42	27.81	1.40
(ii) Controls: US stock market, US high-yield market, and Baltic Dry Index																				
pooled	5857	-0.78	-1.78	18.84	10.00	3467	-4.53	-3.38	24.65	2.52	4202	-3.47	-2.59	24.51	4.35	2404	-4.13	-3.17	26.43	4.32
pooled (doc)	5857	-0.73	-1.69	19.35	10.12	3467	-4.51	-3.38	24.96	2.53	4202	-3.49	-2.61	24.85	4.31	2404	-4.13	-3.17	26.66	4.32
sovFE	5857	-0.78	-1.78	19.64	10.05	3467	-4.47	-3.32	25.90	2.57	4202	-3.48	-2.63	26.39	4.43	2404	-4.03	-3.13	30.79	4.38
(iii) Controls: VIX index, US stock market, US high-yield market, and Baltic Dry Index																				
pooled	5857	-0.76	-1.71	18.88	10.04	3467	-4.50	-3.29	24.63	2.50	4202	-3.43	-2.52	24.49	4.33	2404	-3.98	-2.97	26.43	4.32
pooled (doc)	5857	-0.71	-1.62	19.39	10.16	3467	-4.48	-3.28	24.94	2.51	4202	-3.46	-2.55	24.83	4.29	2404	-3.98	-2.97	26.66	4.32
sovFE	5857	-0.76	-1.71	19.68	10.10	3467	-4.43	-3.23	25.88	2.55	4202	-3.43	-2.55	26.38	4.41	2404	-3.89	-2.93	30.79	4.38

Table 5: Sovereign risk and currency excess returns: Default expectations and distress risk premia

This table reports estimates for regressions of currency excess returns on CDS spread changes, decomposed into changes in default expectations and changes in distress risk premia. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the model-implied CDS spread (ΔCDS_t^Q), changes in default expectations under the physical measure (ΔCDS_t^P), and changes in the CDS implied distress risk premium ($\Delta CDSRP_t = \Delta CDS_t^Q - \Delta CDS_t^P$). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2003 – 07/2017.

	ΔCDS_t^Q				ΔCDS_t^P			$\Delta CDSRP_t$		
	N	b	t_b	R^2	b	t_b	R^2	b	t_b	R^2
AUD	70	-14.04	-2.73	17.06	-18.31	-6.11	24.28	19.72	0.86	2.20
BRL	119	-6.35	-6.71	35.62	-6.53	-6.74	33.84	-15.45	-2.80	6.58
CAD	46	-21.65	-3.17	22.22	-17.33	-3.36	20.03	8.81	0.87	1.14
CHF	88	-24.11	-9.66	22.62	-24.79	-8.03	21.70	-9.09	-0.73	0.57
CLP	119	-10.80	-2.99	28.00	-13.04	-3.80	32.03	-9.34	-0.88	1.29
CNY	133	0.03	0.10	0.01	-0.02	-0.06	0.00	1.55	0.60	0.87
COP	119	-5.55	-5.00	28.51	-5.74	-5.80	28.23	-5.36	-1.00	1.17
CZK	133	-8.76	-5.87	19.93	-8.81	-5.66	20.78	18.95	6.33	1.60
DKK	142	-8.16	-5.19	10.58	-7.70	-4.59	8.95	-16.39	-1.09	2.21
GBP	111	-14.40	-6.13	25.72	-13.29	-5.45	21.01	-21.68	-3.04	4.44
HUF	29	-7.10	-3.54	58.51	-6.89	-3.76	58.37	24.43	0.92	5.57
IDR	120	-4.13	-9.42	23.71	-3.82	-11.60	22.25	2.25	0.23	0.21
ILS	119	-5.06	-4.20	14.28	-5.96	-4.09	17.20	2.20	0.43	0.14
ISK	136	-3.26	-2.86	22.62	-2.88	-3.08	20.54	0.51	0.17	0.11
JPY	168	-0.69	-0.20	0.06	-0.51	-0.14	0.03	-4.37	-0.40	0.14
KRW	133	-7.65	-16.24	45.36	-7.43	-14.34	43.87	-3.09	-0.20	0.08
MXN	133	-7.50	-7.37	50.80	-7.46	-6.76	49.43	-6.44	-0.70	0.97
MYR	133	-6.07	-5.68	26.97	-6.11	-5.94	25.30	-16.53	-2.54	4.92
NOK	132	-31.11	-6.97	14.57	-22.71	-2.25	8.43	-23.02	-2.59	2.24
NZD	48	-8.69	-1.75	9.81	-9.79	-5.49	11.05	-0.07	-0.01	0.00
PHP	133	-2.26	-6.45	24.66	-2.03	-6.64	21.36	-1.74	-0.48	0.70
PLN	133	-11.30	-8.27	40.96	-11.29	-9.15	41.01	1.26	0.09	0.01
SEK	137	-17.08	-7.21	23.64	-16.98	-9.50	24.12	9.43	1.15	0.34
SGD	38	-22.55	-5.30	42.99	-20.59	-3.97	36.98	-4.79	-0.35	0.53
THB	133	-3.50	-7.63	18.89	-3.45	-8.40	17.28	-11.63	-2.12	4.61
TRY	133	-3.49	-3.26	30.70	-2.98	-2.84	29.14	8.88	2.22	8.53
ZAR	133	-4.47	-4.03	14.75	-4.11	-4.03	13.54	-0.55	-0.07	0.00

Table 6: Sovereign bond yields spreads and the CDS-bond basis

This table reports estimates for pooled and panel regressions of currency excess returns on changes in sovereign CDS spreads in Panel A, changes in sovereign bond yield spreads over riskfree rates in Panel B, changes in the sovereign CDS-bond basis (i.e., the difference between sovereign CDS and bond yields spreads) in Panel C, and changes in CDS spreads while controlling for changes in the CDS bond basis in Panel D. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on standard errors clustered by currency and time. Estimates are for pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The sample is monthly from 01/2003 – 07/2017.

Panel A. Changes in sovereign CDS spreads

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	3357	-5.68	-6.02	18.37	2459	-6.38	-4.62	19.04	2497	-6.88	-7.21	20.87	1761	-7.59	-6.39	21.00
pooled (doc)	3357	-5.69	-6.02	18.54	2459	-6.39	-4.62	19.25	2497	-6.90	-7.22	21.06	1761	-7.60	-6.42	21.25
sovFE	3357	-5.68	-5.98	18.11	2459	-6.42	-4.58	18.93	2497	-6.94	-7.06	20.68	1761	-7.67	-6.40	21.02
timeFE	3357	-3.17	-4.00	46.03	2459	-3.28	-3.47	47.39	2497	-3.91	-3.73	52.39	1761	-3.49	-2.89	51.58
sovFEtimeFE	3357	-3.16	-4.01	45.98	2459	-3.27	-3.43	47.32	2497	-3.88	-3.70	52.33	1761	-3.48	-2.84	51.50

Panel B. Changes in bond yield spreads

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	3357	-1.33	-2.25	0.88	2459	-1.36	-2.03	0.74	2497	-2.25	-2.43	1.58	1761	-2.00	-2.05	1.07
pooled (doc)	3357	-1.33	-2.24	0.97	2459	-1.36	-2.02	0.86	2497	-2.25	-2.41	1.68	1761	-1.98	-2.01	1.23
sovFE	3357	-1.32	-2.21	0.51	2459	-1.38	-2.03	0.45	2497	-2.28	-2.45	1.36	1761	-2.02	-2.08	0.85
timeFE	3357	-0.63	-1.76	42.96	2459	-0.49	-1.15	44.65	2497	-1.06	-2.82	18.97	1761	-1.10	-2.20	49.60
sovFEtimeFE	3357	-0.61	-1.69	42.90	2459	-0.51	-1.13	44.61	2497	-1.08	-2.69	49.05	1761	-1.13	-2.18	49.59

Panel C. Changes in the sovereign CDS-bond basis

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	3357	-2.43	-4.15	6.18	2459	-2.79	-3.36	6.70	2497	-3.69	-5.33	8.51	1761	-3.59	-3.64	7.87
pooled (doc)	3357	-2.44	-4.17	6.30	2459	-2.80	-3.36	6.86	2497	-3.71	-5.38	8.67	1761	-3.60	-3.67	8.10
sovFE	3357	-2.43	-4.12	5.87	2459	-2.82	-3.33	6.47	2497	-3.73	-5.22	8.24	1761	-3.65	-3.58	7.73
timeFE	3357	-0.84	-2.48	43.35	2459	-0.98	-2.89	45.20	2497	-1.31	-4.11	49.43	1761	-0.79	-1.77	49.54
sovFEtimeFE	3357	-0.85	-2.50	43.32	2459	-0.97	-2.71	45.13	2497	-1.27	-4.23	49.44	1761	-0.76	-1.62	49.48

Panel D. Changes in sovereign CDS spreads controlled for changes in the sovereign CDS-bond basis

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	3357	-6.79	-5.63	19.02	2459	-7.54	-4.80	19.60	2497	-7.59	-6.07	21.05	1761	-9.07	-6.46	21.63
pooled (doc)	3357	-6.80	-5.63	19.19	2459	-7.55	-4.80	19.80	2497	-7.59	-6.06	21.24	1761	-9.07	-6.45	21.87
sovFE	3357	-6.78	-5.59	18.76	2459	-7.53	-4.78	19.46	2497	-7.58	-5.97	20.84	1761	-9.07	-6.40	21.59
timeFE	3357	-3.82	-3.74	46.23	2459	-3.75	-3.37	47.46	2497	-4.36	-3.56	52.46	1761	-4.38	-3.28	51.80
sovFEtimeFE	3357	-3.79	-3.74	46.16	2459	-3.72	-3.35	47.38	2497	-4.31	-3.53	52.40	1761	-4.34	-3.25	51.72

Table 7: Options-implied higher order FX moments and sovereign risk

This table reports estimates for pooled and panel regressions of changes in (risk-neutral) higher order FX moments on changes in sovereign CDS spreads. Higher order FX moments (i.e., *ivol*, *iskew*, and *ikurt*) are described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on standard errors clustered by currency and time. Estimates are for pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The sample is monthly from 01/2003 – 07/2017.

Panel A. Changes in *ivol* (volatility risk)

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	4274	5.47	4.35	24.75	3227	5.12	4.25	21.11	3111	6.12	3.68	25.33	2310	5.54	3.47	21.12
pooled (doc)	4274	5.47	4.35	24.72	3227	5.12	4.24	21.07	3111	6.12	3.67	25.29	2310	5.55	3.47	21.06
sovFE	4274	5.48	4.35	24.31	3227	5.13	4.26	20.62	3111	6.14	3.69	24.88	2310	5.57	3.48	20.61
timeFE	4274	3.62	4.25	49.41	3227	2.92	5.15	51.95	3111	3.95	3.57	53.99	2310	2.78	3.92	57.78
sovFEtimeFE	4274	3.63	4.26	49.09	3227	2.93	5.21	51.64	3111	3.97	3.59	53.68	2310	2.81	3.96	57.47

Panel B. Changes in *iskew* (skewness or crash risk)

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	4274	2.13	3.59	25.71	3227	1.83	3.72	19.57	3111	2.52	3.39	27.18	2310	2.27	3.47	21.88
pooled (doc)	4274	2.13	3.59	25.68	3227	1.83	3.72	19.53	3111	2.52	3.39	27.14	2310	2.27	3.47	21.82
sovFE	4274	2.14	3.57	25.28	3227	1.83	3.71	19.07	3111	2.53	3.38	26.77	2310	2.28	3.47	21.40
timeFE	4274	1.76	2.90	41.15	3227	1.26	3.05	38.99	3111	2.16	2.91	43.20	2310	1.71	3.03	41.16
sovFEtimeFE	4274	1.76	2.89	40.79	3227	1.27	3.03	38.57	3111	2.17	2.89	42.84	2310	1.72	3.02	40.72

Panel C. Changes in *ikurt* (kurtosis risk)

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
pooled	4274	0.23	3.08	15.43	3227	0.17	2.70	11.82	3111	0.26	3.58	19.82	2310	0.21	2.54	14.50
pooled (doc)	4274	0.23	3.08	15.39	3227	0.17	2.69	11.76	3111	0.26	3.57	19.76	2310	0.21	2.53	14.43
sovFE	4274	0.23	3.07	14.92	3227	0.17	2.67	11.29	3111	0.26	3.56	19.33	2310	0.21	2.50	13.91
timeFE	4274	0.17	2.43	26.67	3227	0.08	2.43	32.78	3111	0.19	3.08	34.60	2310	0.10	2.05	38.68
sovFEtimeFE	4274	0.17	2.42	26.20	3227	0.08	2.37	32.36	3111	0.19	3.07	34.15	2310	0.10	1.98	38.22

Table 8: Portfolio returns

This table presents descriptive statistics of portfolios sorted by lagged sovereign CDS spreads in Panels A–D (i.e., forwards and options), lagged one-month interest rate differentials in Panel E (i.e., carry), and past one-month exchange rate returns in Panel F (i.e., momentum). Mean excess returns are expressed in percentage per annum, SR denotes the annualized Sharpe Ratio, and MDD is the maximum drawdown in percentage. HML denotes a zero investment strategy that goes long portfolio P3 and short portfolio P1. *Rank* refers to a zero investment strategy constructed as in Asness, Moskowitz, and Pedersen (2013). The t-statistic in squared brackets is based on White (1980) standard errors. We also report the mean of the sorting variable ("mean (sort)") and the corresponding t-statistic (identical for Panels A–D). The sample is monthly 01/2004 - 07/2017.

	P1	P2	P3	HML	Rank
			Panel A. Trading Forwards based on CDS spreads		
mean	0.26	1.49	6.08	5.82	6.27
	[0.11]	[0.62]	[2.45]	[3.35]	[3.62]
SR	0.03	0.17	0.66	0.91	0.98
MDD	-35.08	-34.67	-24.60	-14.37	-12.57
			Panel B. Trading Implied Volatility based on CDS spreads		
mean	1.38	0.26	4.78	3.40	3.29
	[1.05]	[0.20]	[3.34]	[2.70]	[2.47]
SR	0.28	0.05	0.90	0.73	0.67
MDD	-11.58	-15.46	-16.95	-14.23	-15.14
			Panel C. Trading Implied Skewness based on CDS spreads		
mean	0.03	0.87	4.31	4.27	4.59
	[0.03]	[0.68]	[3.27]	[4.31]	[4.33]
SR	0.01	0.18	0.88	1.16	1.17
MDD	-15.12	-14.00	-12.24	-6.19	-5.60
			Panel D. Trading Implied Kurtosis based on CDS spreads		
mean	-0.22	-0.28	0.08	0.30	0.23
	[-0.52]	[-0.70]	[0.19]	[0.60]	[0.47]
SR	-0.14	-0.19	0.05	0.16	0.13
MDD	-7.91	-5.91	-7.62	-10.76	-10.70
mean (*sort*)	0.23	0.56	1.65	1.42	
	[14.93]	[17.05]	[31.18]	[30.32]	
			Panel E. Benchmark Carry Strategy		
mean	-0.08	0.77	6.89	6.98	8.55
	[-0.04]	[0.31]	[2.39]	[3.08]	[3.69]
SR	-0.01	0.08	0.65	0.83	1.00
MDD	-27.40	-29.68	-30.46	-15.99	-17.78
mean (*sort*)	-0.07	0.11	0.78	0.85	
	[-4.86]	[19.63]	[12.26]	[12.83]	
			Panel F. Benchmark Momentum Strategy		
mean	0.35	1.15	6.17	5.82	6.52
	[0.14]	[0.49]	[2.63]	[3.14]	[3.41]
SR	0.04	0.13	0.71	0.85	0.92
MDD	-34.26	-29.59	-25.03	-11.02	-13.26
mean (*sort*)	0.24	0.56	1.66	1.43	
	[14.83]	[16.14]	[26.62]	[26.47]	

Table 9: Asset pricing tests

This table reports SDF loadings (b), risk prices (λ), cross-sectional R^2s, J-stats, and $RMSE$ from GMM-based asset pricing tests. Panel A uses 6 currency portfolios i.e., three currency portfolio based on the lagged one-month interest rate differentials (CAR) and three currency portfolios based on the lagged CDS spreads (CDS). Panel B uses 9 currency portfolios, i.e., three currency portfolios based on the lagged one-month exchange rate returns (MOM) in addition to the ones in Panel A, and 9 currency option portfolios, i.e., three portfolios of delta-neutral straddles (ST), 25-delta risk reversals (RR), and 25-delta butterfly spreads (BF) based on the lagged CDS spreads. We use the dollar (DOL), carry (HML_{FX}) and CDS (HML_{CDS}) factors as pricing factors. The tests are based on a linear discount factor with a unit intercept and all factors are de-meaned. Factor means are estimated along with the other parameters by placing a large weight on these moments in the weighting matrix. All other moments (portfolio returns) receive the same weight (identity weighting matrix) within a one-stage GMM. $RMSE$s are in percent per annum. We report Newey and West (1987) standard errors in parentheses and p-values in squared brackets. The sample is monthly from 01/2004 – 07/2017.

	Panel A: 3 CAR & 3 CDS Portfolios			Panel B: 9 Currency & 9 Option Portfolios		
	(1)	(2)	(3)	(4)	(5)	(6)
	SDF loadings (b)					
DOL	-0.02	0.03	0.01	-0.02	0.03	0.01
	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
HML_{FX}	0.12		0.05	0.13		0.05
	(0.04)		(0.04)	(0.04)		(0.05)
HML_{CDS}		0.16	0.11		0.18	0.12
		(0.06)	(0.05)		(0.06)	(0.05)
	Risk prices (λ)					
DOL	0.21	0.22	0.21	0.21	0.22	0.21
	(0.25)	(0.29)	(0.28)	(0.26)	(0.29)	(0.28)
HML_{FX}	0.68		0.59	0.73		0.62
	(0.27)		(0.27)	(0.28)		(0.27)
HML_{CDS}		0.57	0.50		0.62	0.55
		(0.20)	(0.17)		(0.21)	(0.18)
R^2	0.84	0.92	0.97	0.58	0.64	0.68
J	6.04	4.13	3.26	66.67	62.92	62.08
	[0.53]	[0.77]	[0.78]	[0.00]	[0.00]	[0.00]
$RMSE$	1.14	0.75	0.46	1.61	1.46	1.40

Table 10: Conditional double sorts

This table presents descriptive statistics for portfolios from conditional double sorts by sovereign risk and carry or momentum. In Panel A, we sort first on the lagged CDS spreads and then on the lagged one-month interest rate differentials (carry). In Panel B, we sort first on the lagged CDS spreads and then on the lagged one-month exchange rate returns (momentum). HML denotes excess returns to a high-minus-low strategy. t-statistics in brackets are based on White (1980) standard errors. Mean excess returns are expressed in percentage per annum, SR denotes the annualized Sharpe Ratio, and MDD is the maximum drawdown in percentage. The sample is monthly from 01/2004 – 07/2017.

Panel A: Carry				
		Low Carry	High Carry	HML
Low CDS	*mean*	-1.12	2.77	3.89
		[-0.56]	[0.92]	[2.04]
	SR	-0.15	0.25	0.55
	MDD	-37.70	-34.78	-19.31
High CDS	*mean*	1.23	8.71	7.49
		[0.58]	[2.93]	[3.34]
	SR	0.16	0.79	0.90
	MDD	-28.76	-31.62	-24.91
HML	*mean*	2.35	5.94	
		[1.58]	[2.87]	
	SR	0.43	0.78	
	MDD	-15.73	-20.41	
Panel B: Momentum				
		Low Mom	High Mom	HML
Low CDS	*mean*	-0.65	2.11	2.76
		[-0.25]	[0.89]	[1.61]
	SR	-0.07	0.24	0.44
	MDD	-36.12	-28.80	-12.19
High CDS	*mean*	1.19	8.55	7.36
		[0.48]	[3.36]	[3.52]
	SR	0.13	0.91	0.95
	MDD	-34.75	-25.27	-9.25
HML	*mean*	1.84	6.44	
		[1.03]	[3.50]	
	SR	0.28	0.95	
	MDD	-18.35	-15.24	

Internet Appendix to

"Exchange Rates and Sovereign Risk"

(not for publication)

Abstract

This appendix presents supplementary results not included in the main body of the paper.

A. FX Option Prices and Implied Volatilities

This appendix describes how to obtain prices and implied volatilities of plain-vanilla European options written on US dollar currency pairs (see Section 2.1) starting from the quoted implied volatility of delta-neutral straddles, 25-delta risk reversals, and 25-delta butterfly spreads. We first convert deltas into strike prices and then implied volatilities into Garman and Kohlhagen (1983) call and put option prices.[30]

Recovering implied volatilities in the first step is straightforward as the implied volatility of an at-the-money option is equivalent to the implied volatility of a delta-neutral straddle, i.e., $IV_{ATM} = IV_{ST}$. The implied volatility of 25δ call and 25δ put options, instead, are obtained as linear combinations of the implied volatilities on the quoted instruments, i.e., $IV_{25C} = IV_{ST} + IV_{25BF} + IV_{25RR}/2$ and $IV_{25P} = IV_{ST} + IV_{25BF} - IV_{25RR}/2$.

Next, we translate δ into strike prices (X) by carefully relying on market conventions, according to which OTC options up to a one-year maturity on developed currency pairs are quoted in terms of spot δ. For all other currency pairs and maturity combinations, the market convention is to use the forward δ. When options are quoted in spot δ terms and the US dollars is both the quote currency for the underlying exchange rate and the premium currency for the option price, the strikes of one-month options are obtained as follows

$$X_{ATM,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{ATM,t}\right], \tag{A.1}$$

$$X_{25C,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{25C,t} - N^{-1}(0.25 \cdot \exp(i^\star_t \cdot \tau)) \cdot IV_{25C,t} \cdot \sqrt{\tau}\right] \tag{A.2}$$

$$X_{25P,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{25P,t} + N^{-1}(0.25 \cdot \exp(i^\star_t \cdot \tau)) \cdot IV_{25P,t} \cdot \sqrt{\tau}\right], \tag{A.3}$$

where F_t is the one-month forward exchange rate at time t defined as units of US dollar per unit of foreign currency, $i^\star_t$ is the one-month foreign interest rate in annual terms, τ is the maturity of the options measured as calendar days divided by 365. All implied volatilities, i.e., IV_{ATM}, IV_{25C} and IV_{25P}, are in annual terms and refer to one-month options.

[30] In the following, we omit any currency subscript to ease the notation.

For forward delta options, the corresponding strike prices are given by

$$X_{ATM,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{ATM,t}\right], \tag{A.4}$$

$$X_{25C,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{25C,t} - N^{-1}(0.25) \cdot IV_{25C,t} \cdot \sqrt{\tau}\right], \tag{A.5}$$

$$X_{25P,t} = F_t \cdot \exp\left[\frac{\tau}{2} \cdot IV^2_{25P,t} + N^{-1}(0.25) \cdot IV_{25P,t} \cdot \sqrt{\tau}\right]. \tag{A.6}$$

When the US dollar is the base currency for the underlying exchange rate, the procedure to extract strikes is numerical. See Reiswich and Wystup (2010) for more details.

B. Affine Sovereign Credit Risk Model

To decompose CDS spreads into default expectations and distress risk premia, we follow Longstaff et al. (2011) and use the affine sovereign credit risk model of Pan and Singleton (2008). Below, we first describe the model and then its empirical implementation.

In the model, the spread of an M-year sovereign CDS contract can be represented as follows

$$CDS^Q_t = \frac{2\left(1-R^Q\right)\int_t^{t+M} E^Q_t[\lambda_u e^{-\int_t^u (r_s+\lambda_s)ds}]du}{\sum_{j=1}^{2M} E^Q_t[e^{-\int_t^{t+\frac{j}{2}} (r_s+\lambda_s)ds}]},$$

where R^Q refers to the constant risk-neutral fractional recovery rate on the underlying asset if a relevant credit event takes place (e.g., a sovereign default), r_t is the riskless rate, λ_t is the risk-neutral intensity (i.e., the arrival rate of a credit event), and $E^Q_t[\cdot]$ is the expectational operator under the risk-neutral probability measure. In this expression, the numerator denotes the present value of the contingent payment made by the (protection) seller to the buyer following of a credit event, whereas the denominator is the present value of an M-year semiannual annuity conditional on having no credit event. The discount rate $r_t + \lambda_t$ reflects the survival-dependent nature of the payments.

The default intensity λ_t follows a log-normal process and its dynamics is described by

$$d\ln\lambda_t = \kappa^P\left(\theta^P - \ln\lambda_t\right)dt + \sigma_\lambda dB^P_t$$

$$d\ln\lambda_t = \kappa^Q\left(\theta^Q - \ln\lambda_t\right)dt + \sigma_\lambda dB^Q_t,$$

where the superscripts P and Q denote the objective and risk-neutral probability measures, respectively. These processes are combined together through the market price of risk

$$\eta_t = \delta_0 + \delta_1 \ln \lambda_t,$$

which defines how the parameters of the risk-neutral process differ from those of the objective process, and the change of probability distribution from P to Q implies that[31]

$$\begin{aligned} \kappa^Q &= \kappa^P + \delta_1 \sigma_\lambda \\ \kappa^Q \theta^Q &= \kappa^P \theta^P - \delta_0 \sigma_\lambda. \end{aligned}$$

Pan and Singleton (2008) and Longstaff et al. (2011) assume that r_t and λ_t are independent. Using standard no-arbitrage arguments, the market CDS spread can be then described as the expectation of a risk-neutral investor

$$CDS_t^Q(M) = \frac{2\left(1-R^Q\right)\int_t^{t+M} D(t,u)\, E_t^Q[\lambda_u e^{-\int_t^u \lambda_s ds}]du}{\sum_{j=1}^{2M} D(t,t+j/2)\, E_t^Q[e^{-\int_t^{t+j/2}\lambda_s ds}]} \tag{B.7}$$

with the corresponding CDS spread under the objective probability given by

$$CDS_t^P(M) = \frac{2\left(1-R^Q\right)\int_t^{t+M} D(t,u)\, E_t^P[\lambda e^{-\int_t^u \lambda_s ds}]du}{\sum_{j=1}^{2M} D\left(t,t+\frac{j}{2}\right) E_t^P[e^{-\int_t^{t+\frac{j}{2}}\lambda_s ds}]}, \tag{B.8}$$

where $E_t^Q[\cdot]$ and $E_t^P[\cdot]$ denote the expectations based on the risk-neutral and objective probability process for λ_t presented above, and $D(t,u)$ refers to the price of a default-free zero-coupon bond issued at date t and maturing at time u. The risk premium is then computed as the value of the CDS spread under the Q probability measure (i.e., the observed sovereign CDS spread) minus the value of the same CDS spread under the P probability measure, i.e., $CDSRP_t(M) = CDS_t^Q(M) - CDS_t^P(M)$.[32]

[31] When $\delta_0 = 0$ and $\delta_1 = 0$, the risk-neutral process Q coincides with the objective process P as the market price of distress risk η associated with the unpredictable variation in λ_t equals zero.

[32] The expectations in Equation (B.7) and (B.8) cannot be obtained in closed form and are computed numerically as in Pan and Singleton (2008) using an implicit finite-difference method that solves the associated Feynman-Kac partial differential equation.

Empirically, we estimate the model for all countries for which we have sufficient data for the term structure of sovereign CDS spreads. More specifically, we require daily data on three-year, five-year, and seven-year CDS spreads, where we only consider contracts under the CR-clause, which represents the largest part of our sample. We estimate the model via maximum likelihood, assuming that the 5-year sovereign CDS is correctly priced, and the 3-year and the 7-year contracts are priced with mean-zero normally distributed errors. Following Pan and Singleton (2008), we assume that the recovery rate equals 0.25. The values of the zero-coupon bonds are bootstrapped from LIBOR rates and the swap curve from Bloomberg using a standard cubic spline interpolation algorithm.

In our empirical analysis on the link between sovereign risk and exchange rates, we focus on CDS contracts with a maturity of five years (i.e., $M = 5$). Since our estimation assumes that the five-year CDS is correctly priced, we have that CDS_t^Q corresponds to the CDS spread observed in the data, which we can decompose into

$$CDS_t^Q = CDS_t^P + CDSRP_t \tag{B.9}$$

and

$$\Delta CDS_t^Q = \Delta CDS_t^P + \Delta CDSRP_t. \tag{B.10}$$

We report summary statistics for the CDS spread components in Tables IA.22–IA.24 in the Internet Appendix. These results show that CDS spreads, default expectations, and distress risk premia exhibit substantial variation over time and across countries, and are comparable to those of Longstaff et al. (2011). They, for instance, report that the average risk premium accounts for about a third of the total CDS spread. In our sample with a larger cross-section and a more recent time-series (in which the financial crisis, during which risk premia peaked, plays a relatively smaller role) we find that risk premia on average account for 28% of the CDS spread (see Table IA.24).

C. Higher Moment Swaps

This appendix summarizes results on the higher moments of the FX distribution as evaluated by variance, skewness, and kurtosis swaps. Higher moment swaps pay the difference between realized moments and fixed swap rates. Since the initial cost of such swaps is zero, the fixed swap rate represents the risk-neutral expectation of the realized higher moment. The difference between the ex-post realized higher moment and the fixed swap rate represents the risk premium associated with the higher moment.

To synthesize the swap legs from options, we use the Hellinger swaps (e.g., Schneider and Trojani, 2019a,b, 2020). We denote the price of the zero-coupon bond with maturity T by $p_{t,T}$, the currency forward price (contracted at time t for delivery at time T) by $F_{t,T}$, and the prices of European put and call options with strike price X by $P_{t,T}(X)$ and $C_{t,T}(X)$, respectively. In our empirical analysis, we measure ex-ante moments from FX options with one-month maturity, thereby matching the one-month horizon of our currency trading strategies. We compute options-implied variance ($VAR^{\mathbb{Q}}_{t,T}$), skewness ($SKEW^{\mathbb{Q}}_{t,T}$), and kurtosis ($KURT^{\mathbb{Q}}_{t,T}$) as

$$VAR^{\mathbb{Q}}_{t,T} = \frac{2}{p_{t,T}}\left(\int_0^{F_{t,T}} \frac{\sqrt{\frac{X}{F_{t,T}}}\,P_{t,T}(X)}{X^2}dX + \int_{F_{t,T}}^{\infty} \frac{\sqrt{\frac{X}{F_{t,T}}}\,C_{t,T}(X)}{X^2}dX\right),$$

$$SKEW^{\mathbb{Q}}_{t,T} = \frac{6}{p_{t,T}}\left(\int_{F_{t,T}}^{\infty} \log\left[\frac{X}{F_{t,T}}\right] \frac{\sqrt{\frac{X}{F_{t,T}}}\,C_{t,T}(X)}{X^2}dX - \int_0^{F_{t,T}} \log\left[\frac{F_{t,T}}{X}\right] \frac{\sqrt{\frac{X}{F_{t,T}}}\,P_{t,T}(X)}{X^2}dX\right),$$

$$KURT^{\mathbb{Q}}_{t,T} = \frac{12}{p_{t,T}}\left(\int_{F_{t,T}}^{\infty} \left(\log\left[\frac{X}{F_{t,T}}\right]\right)^2 \frac{\sqrt{\frac{X}{F_{t,T}}}\,C_{t,T}(X)}{X^2}dX + \int_0^{F_{t,T}} \left(\log\left[\frac{X}{F_{t,T}}\right]\right)^2 \frac{\sqrt{\frac{X}{F_{t,T}}}\,P_{t,T}(X)}{X^2}dX\right).$$

To estimate the ex-post realizations of higher moments, we use daily data over the one-month period between initiation and maturity of the swap contracts and compute

$$VAR^{\mathbb{P}}_{t,T} = 2\sum_{\tau=t+1}^{T} 4\left(\frac{1}{2} - \sqrt{\frac{F_\tau}{F_{\tau-1}}} + \frac{1}{2}\frac{F_\tau}{F_{\tau-1}}\right),$$

$$SKEW^{\mathbb{P}}_{t,T} = 6\sum_{\tau=t+1}^{T} 4\left(\frac{F_\tau}{F_{\tau-1}} - 1 - \sqrt{\frac{F_\tau}{F_{\tau-1}}}\log\left[\frac{F_\tau}{F_{\tau-1}}\right]\right),$$

$$KURT^{\mathbb{P}}_{t,T} = 12\sum_{\tau=t+1}^{T} 4\left(4 - 8\sqrt{\frac{F_\tau}{F_{\tau-1}}} + 4\frac{F_\tau}{F_{\tau-1}} - \sqrt{\frac{F_\tau}{F_{\tau-1}}}\left(\log\left[\frac{F_\tau}{F_{\tau-1}}\right]\right)^2\right),$$

where $\frac{F_\tau}{F_{\tau-1}}$ denotes the daily gross return in the forward price with respect to T. Given these

definitions, an investor can obtain insurance against variance risk by going long a variance swap, insurance against skewness risk by selling a skewness swap, and insurance against kurtosis risk by going long a kurtosis swap. Table IA.51 presents summary statistics for higher FX moment swaps in portfolios sorted by sovereign CDS spreads, i.e., the same portfolios used in Section 4.2 of the paper, to complement the results in Table 8.

Panel A shows that prices of swaps to insure against variance, skewness, and kurtosis risk increase from the low to the high sovereign risk portfolio, with the high-minus-low differentials being significantly different from zero. Panel B presents measures of the portfolios' ex-post realized moments, which suggest that higher moment realizations are worse for high sovereign risk currencies than for low sovereign risk currencies. We do not find that the differentials are statistically significant, although this might partly be because the realized higher moments are likely contaminated with noise. Finally, Panel C presents the swap risk premia associated with selling insurance against variance, skewness, and kurtosis risk. We find that risk premium estimates increase with sovereign risk for all three higher moments: Currencies of high sovereign risk countries generate approximately five times the variance and kurtosis risk premia and approximately ten times the skewness risk premia of low sovereign risk countries. These results complement our findings based on straddles, risk reversals and butterfly spreads, and corroborate our conclusion that higher moments of the FX distribution and the associated risk premia earned for selling higher moment insurance are related to sovereign risk. It also seems important to note that the result that the skewness risk premium is statistically insignificant is consistent with our earlier result that the excess return from a hedged risk reversal strategy is statistically insignificant.

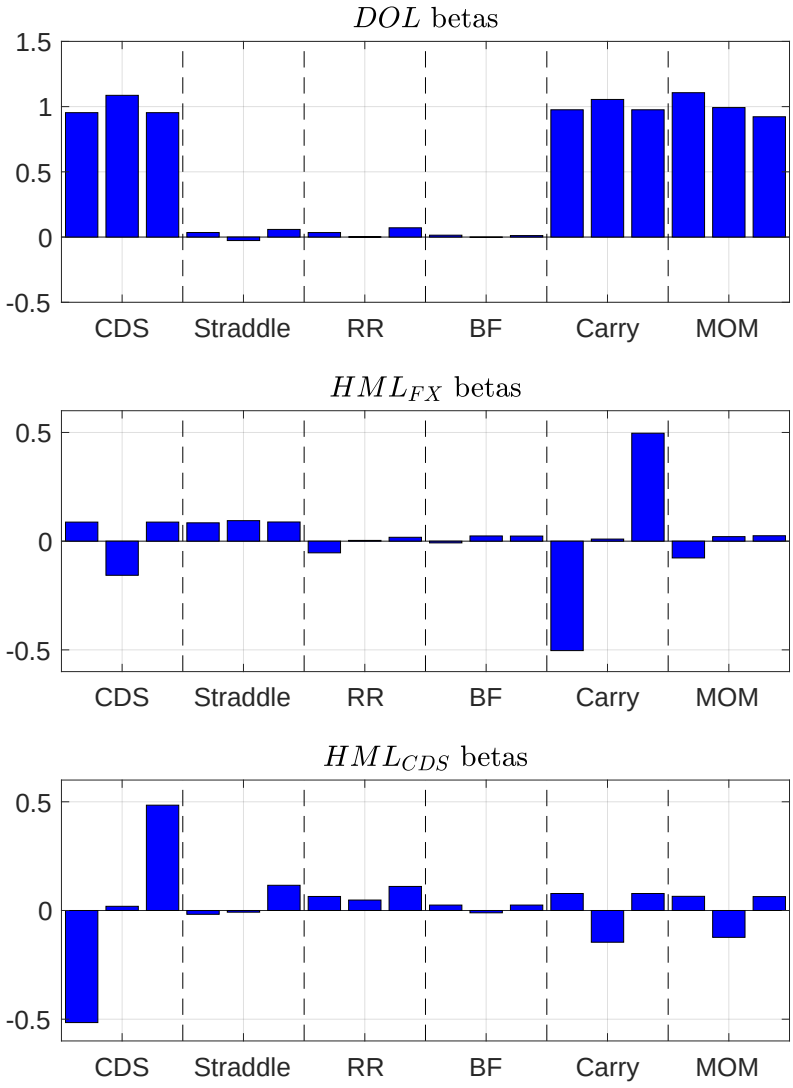

Figure IA.1: Time series betas

This figure shows time-series betas for regressions of the form

$$rx_{i,t+1} = \alpha_i + \beta_i Factors_{i,t+1} + \varepsilon_{i,t+1}$$

where rx_i is the excess return on the currency portfolios presented in Table 8 and $Factors_i$ denotes the the dollar factor (DOL), the carry factor (HML_{FX}), and a high-minus-low CDS portfolio excess return (HML_{CDS}). The upper panel plots DOL betas, the middle panel shows HML_{FX} betas, and the lower panel plots HML_{CDS} betas. In each panel, the first three bars correspond to the excess returns of currency portfolios sorted on lagged CDS spreads (denoted CDS) followed by the excess returns of delta-neutral straddles ($Straddle$), 25-delta risk reversals (RR), and 25-delta butterfly spreads (BF), respectively, sorted on lagged CDS spreads. $Carry$ and MOM refer to carry and momentum portfolios, respectively. The sample is monthly from 01/2004 – 07/2017.

Table IA.1: USD-denominated Sovereign CDS contracts

This table presents a list of 5-year sovereign CDS contracts denominated in US dollars. We report the first observation date (*first*), the last observation date (*last*), and the number of observations (N) for contracts using the following restructuring definitions (doc clauses): the full restructuring clause, in its original definition ("CR") as well as ISDA's 2014 revised definition ("CR14"); the modified restructuring clause, in its original definition ("MR") as well as ISDA's 2014 revised definition ("MR14"); the modified-modified restructuring clause ("MM"); and contracts without restructuring ("XR").

	CR			CR14			MR			MR14			MM			XR		
	first	*last*	N	*first*	*last*	N	*first*	*last*	N	*first*	*last*	N	*first*	*last*	N	*first*	*last*	N
ALL	20010328	20171006	251278	20140922	20171006	60649	20020101	20171006	114634	20140922	20171006	1555	20020101	20120116	93392	20020101	20100819	45368
ARS	20020101	20140730	2708	20160421	20171006	366	20020101	20100819	1448				20031209	20080111	444	20030430	20091002	831
AUD	20030430	20100819	1800				20030430	20171006	3658	20140922	20171006	777						
BGN	20020101	20140919	3319	20140922	20171006	778	20020522	20100819	2152				20030102	20100819	1860	20050513	20100819	955
BRL	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2253				20030102	20090611	966	20020101	20100819	1826
CAD	20030911	20140919	2486	20140924	20171006	766	20030911	20100819	1529									
CHF	20070605	20171006	2269	20140923	20171006	765							20090126	20090217	17			
CLP	20020201	20140919	3296	20140922	20171006	778	20020201	20100819	2229				20031016	20090611	940	20020503	20080111	739
CNY	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2251				20030102	20090615	946	20020101	20100819	1259
COP	20020101	20140919	3319	20140922	20171006	778	20020530	20100819	2146				20030102	20090611	924	20020920	20090408	1456
CYP	20020701	20171006	3765	20140922	20171006	778	20030703	20080111	563				20040325	20100819	845			
CZK	20020201	20140919	3296	20140922	20171006	778	20030101	20080722	1003				20020201	20100819	2228	20060203	20090527	845
DKK	20021126	20171006	3836	20140922	20171006	778	20030101	20090529	1436				20030718	20100819	1612			
EEK	20040609	20140919	2667	20140922	20171006	778	20061030	20090611	379				20090910	20100429	161			
GBP	20060320	20171006	2948	20140922	20171006	778	20060331	20100819	929				20070820	20100819	784			
GRD	20020101	20171006	3750	20140922	20171006	773	20030131	20100819	1808				20030102	20100819	1943	20030130	20080111	215
HKD	20030829	20140919	2661	20140922	20171006	778	20030930	20090317	1108				20040730	20080111	764	20061211	20100819	559
HRK	20020101	20140919	3319	20140922	20171006	778	20020101	20080722	1710				20030102	20100819	1869	20030819	20080111	301
HUF	20120102	20140919	710	20140922	20171006	778												
IDR	20020101	20140919	3027	20140922	20171006	778	20031106	20100819	1550				20031208	20080111	928	20060203	20100819	999
ILS	20020101	20140919	3299	20140922	20171006	778	20020101	20100819	2096				20030102	20100819	1865	20030819	20100819	565
ISK	20040301	20171006	3477	20140922	20171006	778	20040712	20090410	833				20040301	20100819	1649	20080409	20090512	285
JPY	20020101	20171006	4097	20140922	20171006	778	20030331	20100819	1923				20020920	20100819	2052	20020101	20100212	779
KRW	20020101	20140919	3318	20140922	20171006	778	20020101	20100819	2252				20030102	20090615	947	20020920	20100819	1749
LTL	20020415	20140919	3186	20140922	20171006	778	20030101	20080428	1071				20030102	20100819	817	20100301	20100819	124
LVL	20030829	20140919	2557	20140922	20171006	778	20030829	20080115	464				20050204	20091224	464			
MTL	20030718	20140919	2560	20140922	20160217	364							20031020	20100819	917			
MXN	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2253				20030102	20100415	1505	20020101	20100819	1446
MYR	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2253				20030102	20080111	781	20021101	20100819	1253
NOK	20031024	20171006	3614	20140922	20171006	778	20031024	20090317	1384				20031024	20100819	1602			
NZD	20030731	20100819	1366				20030731	20171006	3399	20140922	20171006	778	20060621	20091124	880	20080229	20080609	72
PHP	20020101	20140919	3319	20140922	20171006	778	20020101	20091001	1992				20030102	20100819	1302	20020101	20100819	1932
PLN	20020101	20140919	3319	20140922	20171006	778	20020101	20100430	1968				20030102	20100819	1867	20030819	20100819	1361
RUB	20020101	20140919	3319	20140922	20171006	777	20020101	20100819	2181				20030102	20100819	1874	20050616	20100819	1348
SEK	20020101	20171006	3912	20140922	20171006	778	20031024	20100819	1621				20020101	20100819	2251			
SGD	20030718	20120326	1940	20141208	20141208	1	20030829	20090427	332				20030811	20071203	635			
SIT	20020201	20140919	3290	20140922	20171006	778	20030602	20100819	1226				20030718	20100819	1792			
SKK	20020101	20140919	3316	20140922	20171006	778	20020101	20091218	1567				20030102	20100819	1835	20070423	20080111	190
THB	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2160				20030102	20090611	1126	20020101	20100819	1347
TRY	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2181				20030102	20100819	1915	20060203	20100819	1167
UAH	20020926	20140919	2883	20140922	20171006	430	20030829	20100819	1522				20030729	20100819	1679	20060203	20100819	1163
USD	20030430	20140919	2929	20140922	20171006	778	20030808	20100819	1699				20050525	20100810	650	20060203	20100810	743
USD	20031201	20171006	3547	20140922	20171006	738	20031127	20100819	1756				20031201	20100819	1748	20080828	20100819	491
ZAR	20020101	20140919	3319	20140922	20171006	778	20020418	20100819	2105				20030102	20100819	1867	20060203	20100819	709

Table IA.2: EUR-denominated Sovereign CDS contracts

This table presents a list of 5-year sovereign CDS contracts denominated in euro. We report the first observation date ($first$), the last observation date ($last$), and the number of observations (N) for contracts using the following restructuring definitions (doc clauses): the full restructuring clause, in its original definition ("CR") as well as ISDA's 2014 revised definition ("CR14"); the modified restructuring clause, in its original definition ("MR") as well as ISDA's 2014 revised definition ("MR14"); the modified-modified restructuring clause ("MM"); and contracts without restructuring ("XR").

	CR			CR14			MR			MR14			MM			XR		
	first	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*
ALL	20010328	20171006	224735	20140922	20171006	50423	20020101	20171006	61655	20141210	20171006	720	20020101	20100819	94195	20020920	20100819	16901
ARS	20020101	20140730	2708	20160711	20171006	246	20031121	20080813	907				20031209	20080111	384	20081114	20090731	119
AUD	20030430	20100819	1107				20080321	20171006	2299	20141210	20171006	720	20060920	20060926	5			
BGN	20020101	20140919	3315	20140922	20171006	778	20030101	20100819	1672				20030102	20100819	1859	20070423	20080111	190
BRL	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	1865				20030102	20090317	737	20020920	20100819	1949
CAD	20070725	20140919	1674	20140924	20171006	766							20030911	20100819	763			
CHF	20070605	20171006	2269	20140923	20171006	765	20090220	20100812	358				20070605	20100819	425			
CLP	20020503	20140919	3161	20140922	20171006	778	20030718	20100819	1847				20030819	20090527	503			
CNY	20020101	20140919	3319	20140922	20171006	778	20030819	20080111	192				20030102	20100819	1076	20091027	20100819	213
COP	20020101	20140919	3319	20140922	20171006	778	20040512	20100819	1577				20030102	20080111	687	20060203	20080111	308
CYP	20020701	20171006	3765	20140922	20171006	777	20030703	20080111	647				20020701	20100819	1921	20070119	20081217	499
CZK	20020201	20140919	3296	20140922	20171006	778	20030101	20080111	300				20030613	20100819	1850	20061211	20080111	282
DKK	20021126	20171006	3818	20140922	20171006	778	20090220	20100812	368				20030718	20100819	1815			
EEK	20040609	20140919	2667	20140922	20171006	774	20100225	20100819	126				20040609	20100819	1596			
GBP	20060320	20171006	2948	20140922	20171006	778	20090220	20100819	390				20060630	20100819	941			
GRD	20020101	20171006	3708	20140922	20171006	749	20030703	20100819	1304				20020101	20100819	2240	20060203	20090302	783
HKD	20030829	20100819	1304				20081230	20090611	118				20040730	20080111	500			
HRK	20020101	20140919	3310	20140922	20171006	778	20020101	20080111	1272				20020920	20100819	2055	20060203	20100819	591
HUF	20120102	20140919	702	20140922	20171006	778												
IDR	20020101	20140919	3026	20140922	20171006	778							20031208	20090317	1027	20080707	20090914	305
ILS	20020101	20140919	3298	20140922	20171006	778	20040305	20100819	1200				20020415	20100819	2171	20070423	20080111	190
ISK	20040301	20171006	3488	20140922	20171006	778	20070614	20100812	601				20040301	20100819	1653			
JPY	20020101	20171006	4097	20140922	20171006	778	20040126	20100819	1692				20030102	20100819	1719	20070423	20080111	190
KRW	20020101	20140919	3318	20140922	20171006	778	20040512	20100118	1121				20030102	20090317	1369			
LTL	20020415	20140919	3186	20140922	20171006	778	20030101	20100819	1198				20030102	20100819	1851			
LVL	20030829	20140919	2557	20140922	20171006	778	20030829	20080115	272				20030829	20100819	1488			
MTL	20030718	20140919	2558	20140922	20160217	364							20040721	20100819	1475			
MXN	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2163				20030102	20090317	1112	20060203	20080111	308
MYR	20020101	20140919	3319	20140922	20171006	778	20051121	20080111	293				20030102	20080111	691	20091027	20100819	213
NOK	20031024	20171006	3577	20140922	20171006	553	20090220	20100812	368				20031126	20100819	1747			
NZD	20060816	20100819	1040				20051115	20171006	2369				20070423	20080111	182			
PHP	20020101	20140919	3319	20140922	20171006	778	20030611	20080111	624				20030102	20090317	1375	20070423	20080111	190
PLN	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2234				20020920	20100819	2056	20070423	20090529	213
RUB	20020101	20140919	3319	20140922	20171006	778	20030829	20100819	1457				20030102	20100819	1870			
SEK	20020101	20171006	3883	20140922	20171006	777	20090220	20100812	368				20030102	20100819	1592			
SGD	20030718	20071203	636										20030811	20071203	544	20090225	20091102	115
SIT	20020201	20140919	3021	20140922	20171006	778	20060502	20080111	443				20020201	20100819	2224			
SKK	20020101	20140919	3316	20140922	20171006	778	20020101	20100819	2193				20030102	20100819	1835	20061211	20080111	282
THB	20020101	20140919	3319	20140922	20171006	778							20030102	20091102	822			
TRY	20020101	20140919	3319	20140922	20171006	778	20020101	20100819	2238				20030102	20100819	1867	20060203	20100819	1152
UAH	20031117	20140919	2825	20140922	20171006	362	20060502	20080111	444				20040701	20100819	1454			
USD	20040909	20140919	2582	20140922	20171006	778							20050525	20080111	291	20090810	20100819	269
USD	20031201	20171006	3540	20140922	20171006	777	20040909	20100819	1551				20040909	20100819	1351	20090316	20100628	263
ZAR	20020101	20140919	3319	20140922	20171006	778	20020423	20100819	1739				20030102	20100819	1867	20060203	20080111	294

Table IA.3: JPY-denominated sovereign CDS contracts

This table presents a list of 5-year sovereign CDS contracts denominated in Japanese yen. We report the first observation date ($first$), the last observation date ($last$), and the number of observations (N) for contracts using the following restructuring definitions (doc clauses): the full restructuring clause, in its original definition ("CR") as well as ISDA's 2014 revised definition ("CR14"); the modified restructuring clause, in its original definition ("MR") as well as ISDA's 2014 revised definition ("MR14"); the modified-modified restructuring clause ("MM"); and contracts without restructuring ("XR").

	CR			CR14			MR			MR14			MM			XR		
	first	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*
ALL	20020101	20171006	82920	20140922	20171006	20041	20020101	20171006	6728	20140922	20171006	1493	20040924	20100819	8421	20021108	20100212	424
ARS	20030729	20100819	1348	20160621	20171006	326												
AUD							20120925	20171006	1295	20140922	20171006	778						
BGN																		
BRL	20020101	20140919	2661	20140922	20171006	778												
CAD																		
CHF																		
CLP	20050520	20140919	1650	20140922	20171006	778							20060526	20060707	31			
CNY	20031128	20140919	2188	20140922	20171006	777	20030512	20040713	253									
COP	20030819	20140919	2811	20140922	20171006	778							20060526	20060707	30			
CYP																		
CZK																		
DKK	20120925	20171006	1297	20141111	20150119	30												
EEK	20080304	20100212	134															
GBP	20100305	20171006	1543	20161129	20171006	214												
GRD	20030930	20170309	2993	20140922	20161125	441							20040924	20100819	1059			
HKD	20070831	20100118	484															
HRK	20020101	20140919	2981	20140924	20161215	71	20020101	20040315	390				20041012	20100819	1483			
HUF	20120102	20140919	710	20140922	20170817	79												
IDR	20020102	20100819	1928	20160615	20171006	330												
ILS	20090929	20091225	32															
ISK	20071130	20140128	627															
JPY	20020101	20171006	4097	20140922	20171006	778	20030101	20031128	118				20080129	20100805	613	20021108	20100212	331
KRW	20031128	20140919	2755	20140924	20150119	59												
LTL	20080304	20100212	197															
LVL	20080225	20100212	185															
MTL																		
MXN	20030224	20140919	3020	20140922	20171006	778										20090625	20091102	93
MYR	20030929	20140919	2436	20140922	20171006	778	20070706	20090319	307									
NOK																		
NZD							20040311	20171006	2559	20141111	20171006	715						
PHP	20030718	20140919	2901	20140922	20171006	778												
PLN	20050118	20140919	2403	20140924	20150119	59							20050118	20100819	1402			
RUB	20020101	20140919	2701	20140922	20171006	778							20050509	20100819	1349			
SEK	20030718	20111026	1083															
SGD																		
SIT																		
SKK	20071115	20080813	195															
THB	20040311	20140919	1954	20140922	20171006	777												
TRY	20020101	20140919	2901	20140922	20171006	773							20060526	20060707	31			
UAH	20070827	20100819	758				20060502	20071001	366									
USD	20050607	20100819	1354	20150611	20171006	591												
USD																		
ZAR	20021031	20140919	2474	20140922	20171006	778	20020423	20040317	312				20050509	20100819	1321			

Table IA.4: Local currency-denominated sovereign CDS contracts

This table presents a list of 5-year sovereign CDS contracts denominated in local currency. We report the first observation date ($first$), the last observation date ($last$), and the number of observations (N) for contracts using the following restructuring definitions (doc clauses): the full restructuring clause, in its original definition ("CR") as well as ISDA's 2014 revised definition ("CR14"); the modified restructuring clause, in its original definition ("MR") as well as ISDA's 2014 revised definition ("MR14"); the modified-modified restructuring clause ("MM"); and contracts without restructuring ("XR").

	CR			CR14			MR			MR14			MM			XR		
	first	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*	*first*	*last*	*N*
ALL	20020101	20171006	49902	20140922	20171006	11836	20030101	20141208	6462									
ARS	20050228	20120601	1832															
AUD							20040721	20100819	1567									
BGN																		
BRL	20060403	20140919	1999	20140922	20150515	137												
CAD	20061102	20100819	679															
CHF	20100326	20171006	894															
CLP	20070313	20100318	758															
CNY	20080807	20100819	471	20141208	20141208	1												
COP	20070822	20140919	1428	20140922	20171006	531												
CYP																		
CZK	20060116	20130328	204															
DKK	20090429	20100819	342															
EEK																		
GBP	20060320	20171006	2944	20141203	20160707	371	20080417	20080609	38									
GRD																		
HKD	20051130	20100819	1232															
HRK																		
HUF	20120102	20140919	709	20140922	20171006	581												
IDR	20060626	20140919	1988	20140924	20171006	753												
ILS	20060403	20140919	1461	20140922	20171006	775												
ISK	20090429	20100819	342															
JPY	20020101	20171006	4097	20140922	20171006	778	20030101	20031128	118									
KRW	20030430	20140919	2249	20140922	20171006	777												
LTL																		
LVL																		
MTL																		
MXN	20060403	20140919	2207	20140922	20171006	769												
MYR																		
NOK	20090429	20100819	342															
NZD							20041213	20141208	1284									
PHP	20090722	20140128	993	20141208	20141208	1												
PLN	20040303	20140919	1900	20140922	20171006	775												
RUB	20070226	20140919	1961	20140922	20171006	778												
SEK	20081126	20100819	452															
SGD	20030718	20100819	942															
SIT	20050517	20090608	793															
SKK	20040108	20050318	295															
THB				20160315	20160708	84												
TRY	20060314	20140919	2129	20140922	20171006	778												
UAH																		
USD	20030430	20140919	2929	20140922	20171006	778	20030808	20100819	1699									
USD	20031201	20171006	3547	20140922	20171006	738	20031127	20100819	1756									
ZAR	20030718	20140919	2338	20140922	20171006	764												

Table IA.5: Exchange rate returns and changes in sovereign CDS spreads

This table reports estimates for regressions of log exchange rate returns on CDS spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	126	-0.21	-2.18	15.29												
AUD	167	-19.13	-4.29	24.60	167	-19.13	-4.29	24.60	167	-19.13	-4.29	24.60	167	-19.13	-4.29	24.60
BGN	160	-3.31	-5.66	18.67					138	-3.33	-5.65	20.35				
BRL	160	-6.95	-7.20	38.80	160	-6.95	-7.20	38.80	71	-6.97	-5.69	39.51	71	-6.97	-5.69	39.51
CAD	133	-16.76	-4.00	7.07	133	-16.76	-4.00	7.07	133	-16.76	-4.00	7.07	133	-16.76	-4.00	7.07
CHF	100	-12.11	-3.14	10.65	58	-6.69	-3.23	4.99	100	-12.11	-3.14	10.65	58	-6.69	-3.23	4.99
CLP	160	-10.76	-3.43	27.49	160	-10.76	-3.43	27.49	160	-10.76	-3.43	27.49	160	-10.76	-3.43	27.49
CNY	174	-0.32	-1.32	0.75												
COP	160	-6.48	-6.45	29.29	160	-6.48	-6.45	29.29								
CYP	37	-19.37	-3.29	3.42					37	-19.37	-3.29	3.42				
CZK	174	-9.08	-5.74	18.16					174	-9.08	-5.74	18.16				
DKK	172	-8.26	-5.11	9.74					172	-8.26	-5.11	9.74				
EEK	154	-2.77	-3.23	9.93					154	-2.77	-3.23	9.93				
GBP	133	-14.82	-5.99	24.45	133	-14.82	-5.99	24.45	133	-14.82	-5.99	24.45	133	-14.82	-5.99	24.45
HKD	157	-0.05	-0.30	0.10					157	-0.05	-0.30	0.10				
HRK	160	-3.19	-5.42	16.09					160	-3.19	-5.42	16.09				
HUF	66	-6.30	-4.17	40.08					66	-6.30	-4.17	40.08				
IDR	164	-4.03	-9.65	43.72	83	-5.43	-5.58	35.67	85	-4.11	-12.47	50.57	43	-4.65	-5.74	33.55
ILS	160	-5.28	-4.38	13.08	160	-5.28	-4.38	13.08	160	-5.28	-4.38	13.08	160	-5.28	-4.38	13.08
ISK	154	-3.26	-2.78	21.13	154	-3.26	-2.78	21.13	39	-12.37	-1.71	8.20	39	-12.37	-1.71	8.20
JPY	174	0.01	0.00	0.00	174	0.01	0.00	0.00	174	0.01	0.00	0.00	174	0.01	0.00	0.00
KRW	174	-7.87	-12.54	40.33	174	-7.87	-12.54	40.33	114	-7.95	-10.90	42.26	114	-7.95	-10.90	42.26
LTL	160	-2.32	-3.07	10.10					160	-2.32	-3.07	10.10				
LVL	151	-2.02	-4.13	13.62	53	-2.01	-3.94	24.73	151	-2.02	-4.13	13.62	53	-2.01	-3.94	24.73
MTL	131	-6.69	-9.67	14.90					131	-6.69	-9.67	14.90				
MXN	174	-8.07	-7.86	48.06	174	-8.07	-7.86	48.06	174	-8.07	-7.86	48.06	174	-8.07	-7.86	48.06
MYR	174	-6.34	-8.27	37.73	144	-6.56	-8.25	39.03								
NOK	165	-32.18	-6.29	13.47	165	-32.18	-6.29	13.47	165	-32.18	-6.29	13.47	165	-32.18	-6.29	13.47
NZD	158	-15.50	-4.11	19.04	158	-15.50	-4.11	19.04	158	-15.50	-4.11	19.04	158	-15.50	-4.11	19.04
PHP	174	-2.25	-6.16	21.05	150	-2.63	-6.19	23.70	125	-1.76	-5.04	15.87	101	-2.07	-4.64	17.45
PLN	174	-11.70	-8.68	37.49	109	-11.94	-6.68	40.39	174	-11.70	-8.68	37.49	109	-11.94	-6.68	40.39
RUB	160	-5.06	-3.14	36.40	86	-4.96	-3.30	32.30	102	-7.25	-4.09	53.72	85	-5.04	-3.37	40.66
SEK	163	-16.66	-9.31	19.81	106	-16.65	-5.84	27.80	163	-16.66	-9.31	19.81	106	-16.65	-5.84	27.80
SGD	87	-9.63	-3.00	20.62	87	-9.63	-3.00	20.62	87	-9.63	-3.00	20.62	87	-9.63	-3.00	20.62
SIT	33	-23.28	-1.17	3.08					33	-23.28	-1.17	3.08				
SKK	71	-9.29	-2.32	12.12					71	-9.29	-2.32	12.12				
THB	174	-3.47	-7.93	17.48	174	-3.47	-7.93	17.48								
TRY	174	-3.59	-3.46	31.52	171	-5.42	-3.90	36.32	114	-8.74	-9.75	61.73	114	-8.74	-9.75	61.73
UAH	141	-0.29	-2.34	32.32												
ZAR	174	-11.15	-12.08	42.68	174	-11.15	-12.08	42.68								
pooled	5857	-0.39	-4.35	5.04	3467	-5.50	-6.68	21.30	4202	-5.01	-6.03	17.28	2404	-6.08	-4.96	19.43
pooled (doc)	5857	-0.38	-4.30	5.36	3467	-5.50	-6.68	21.64	4202	-5.01	-6.02	17.58	2404	-6.08	-4.96	19.65
sovFE	5857	-0.38	-4.30	5.00	3467	-5.56	-6.68	21.42	4202	-5.04	-6.02	17.46	2404	-6.16	-5.02	19.85
timeFE	5857	-0.27	-5.71	44.67	3467	-2.77	-4.57	48.08	4202	-2.14	-2.46	55.56	2404	-2.43	-2.27	49.42
sovFEtimeFE	5857	-0.27	-5.61	44.88	3467	-2.83	-4.63	48.12	4202	-2.16	-2.44	55.68	2404	-2.50	-2.31	49.59

Table IA.6: Currency excess returns and changes in sovereign CDS spreads: Weekly and daily

This table reports estimates for regressions of currency excess returns on CDS spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies for the sample ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled") and pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is weekly and daily from 01/2003 – 07/2017.

	Weekly data								Daily data							
	All currencies				Floating FX & open CA				All currencies				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	556	-0.06	-1.97	2.46					2770	-0.01	-0.49	0.07				
AUD	719	-11.53	-3.16	8.92	719	-11.53	-3.16	8.92	3598	-9.70	-5.90	4.67	3598	-9.70	-5.90	4.67
BGN	692	-2.55	-10.71	12.08					3463	-2.15	-8.07	7.02				
BRL	692	-6.14	-10.92	39.56	312	-6.26	-13.99	44.14	3463	-5.19	-11.85	25.63	1564	-5.54	-8.81	30.09
CAD	615	-1.70	-0.93	0.08	615	-1.70	-0.93	0.08	3151	-2.50	-2.36	0.22	3151	-2.50	-2.36	0.22
CHF	443	-1.65	-0.64	0.18	264	0.19	0.07	0.00	2215	-0.62	-0.45	0.03	1322	1.31	1.80	0.22
CLP	692	-7.02	-6.01	15.85	692	-7.02	-6.01	15.85	3463	-5.54	-8.39	11.33	3463	-5.54	-8.39	11.33
CNY	757	-0.28	-2.40	0.91					3786	-0.31	-5.32	0.99				
COP	692	-3.55	-3.09	15.17	52	-1.40	-2.61	7.87	3463	-3.52	-6.97	14.32	261	-2.40	-4.17	16.94
CYP	173	-11.39	-1.22	0.79					883	-4.61	-1.21	0.13				
CZK	757	-8.23	-7.91	13.61					3786	-6.95	-8.14	8.55				
DKK	751	-8.72	-9.41	7.46					3757	-7.52	-9.30	4.03				
GBP	576	-10.46	-4.43	11.47	576	-10.46	-4.43	11.47	2895	-8.57	-5.93	6.35	2895	-8.57	-5.93	6.35
HKD	675	-0.16	-2.36	1.13					3386	-0.05	-1.77	0.12				
HRK	692	-2.73	-9.48	11.15					3463	-2.41	-10.74	7.37				
HUF	287	-5.67	-9.14	23.39					1438	-5.10	-11.16	16.16				
IDR	715	-1.23	-2.17	6.32	192	-3.81	-3.42	10.62	3580	-1.02	-2.99	7.19	966	-1.66	-3.36	3.76
ILS	692	-3.63	-4.28	5.39	692	-3.63	-4.28	5.39	3463	-3.14	-6.48	3.35	3463	-3.14	-6.48	3.35
ISK	680	-1.64	-2.76	2.78	183	-15.02	-3.10	5.86	3396	-1.02	-1.54	0.98	913	-5.50	-2.10	0.57
JPY	757	4.19	2.47	2.02	757	4.19	2.47	2.02	3786	3.29	3.34	0.91	3786	3.29	3.34	0.91
KRW	757	-6.29	-8.61	42.07	496	-6.36	-7.22	45.13	3786	-4.86	-7.18	22.14	2482	-4.90	-7.01	24.46
MTL	579	-2.17	-2.35	2.11					2896	-0.79	-1.89	0.40				
MXN	757	-5.51	-5.81	33.80	757	-5.51	-5.81	33.80	3786	-4.50	-5.29	21.04	3786	-4.50	-5.29	21.04
MYR	757	-2.94	-3.24	13.99	52	-1.17	-4.19	17.09	3786	-2.54	-2.94	12.51	261	-0.89	-4.36	12.00
NOK	708	-20.45	-4.57	4.18	708	-20.45	-4.57	4.18	3554	-11.63	-4.10	2.07	3554	-11.63	-4.10	2.07
NZD	660	-7.28	-2.08	5.40	660	-7.28	-2.08	5.40	3336	-6.25	-3.58	3.02	3336	-6.25	-3.58	3.02
PHP	757	-1.74	-4.12	22.53	443	-1.65	-3.65	25.78	3786	-1.25	-3.37	11.25	2219	-1.09	-3.13	11.51
PLN	757	-10.28	-10.79	27.85	478	-10.37	-9.22	31.77	3786	-8.55	-13.93	20.37	2390	-8.42	-12.73	23.15
RUB	692	-2.06	-1.85	14.92	376	-4.85	-7.12	34.33	3461	-2.56	-3.01	13.83	1877	-4.51	-12.18	26.74
SEK	715	-13.59	-8.13	11.27	461	-13.64	-8.07	14.89	3591	-10.91	-7.39	4.11	2308	-11.01	-7.43	5.44
SGD	372	-3.15	-1.47	2.13	372	-3.15	-1.47	2.13	1894	-2.31	-2.19	1.11	1894	-2.31	-2.19	1.11
SIT	143	-14.59	-2.71	1.86					719	-1.06	-0.24	0.01				
SKK	313	-5.58	-4.98	5.54					1565	-3.17	-5.66	1.47				
THB	757	-1.57	-2.82	5.93					3786	-0.93	-2.42	1.93				
TRY	757	-4.20	-7.00	39.37	496	-5.34	-11.57	48.17	3786	-4.56	-13.84	35.92	2482	-5.08	-9.36	39.75
UAH	613	-0.09	-2.82	2.21					3086	-0.00	-0.33	0.01				
ZAR	757	-8.36	-9.76	32.43					3786	-6.74	-8.64	20.78				
pooled	23464	-0.17	-2.33	0.99	10353	-4.80	-5.70	14.86	117595	-0.06	-1.15	0.14	51971	-4.10	-6.33	9.82
pooled (doc)	23464	-0.17	-2.31	1.13	10353	-4.80	-5.70	14.89	117595	-0.06	-1.15	0.17	51971	-4.10	-6.33	9.82

Table IA.7: Currency excess returns and changes in EUR-denominated sovereign CDS spreads

This table reports estimates for regressions of currency excess returns on CDS (EUR-denominated) spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	121	-0.22	-2.31	12.95												
AUD	102	-18.76	-4.08	30.09	102	-18.76	-4.08	30.09	102	-18.76	-4.08	30.09	102	-18.76	-4.08	30.09
BGN	158	-3.38	-5.62	18.73					136	-3.40	-5.61	20.43				
BRL	160	-7.08	-7.53	40.36	160	-7.08	-7.53	40.36	71	-7.01	-5.64	40.20	71	-7.01	-5.64	40.20
CAD	104	-16.00	-3.71	7.02	104	-16.00	-3.71	7.02	104	-16.00	-3.71	7.02	104	-16.00	-3.71	7.02
CHF	100	-12.18	-3.15	10.74	58	-6.73	-3.25	5.04	100	-12.18	-3.15	10.74	58	-6.73	-3.25	5.04
CLP	160	-10.93	-3.39	28.02	160	-10.93	-3.39	28.02	160	-10.93	-3.39	28.02	160	-10.93	-3.39	28.02
CNY	174	-0.19	-0.59	0.26												
COP	160	-6.51	-6.54	29.78	160	-6.51	-6.54	29.78								
CYP	37	-20.19	-2.83	3.75					37	-20.19	-2.83	3.75				
CZK	174	-8.94	-5.86	17.36					174	-8.94	-5.86	17.36				
DKK	168	-8.50	-5.22	9.78					168	-8.50	-5.22	9.78				
EEK	154	-2.75	-3.48	9.91					154	-2.75	-3.48	9.91				
GBP	133	-14.72	-5.95	24.40	133	-14.72	-5.95	24.40	133	-14.72	-5.95	24.40	133	-14.72	-5.95	24.40
HKD	59	0.06	0.37	0.13					59	0.06	0.37	0.13				
HRK	158	-2.28	-4.53	13.59					158	-2.28	-4.53	13.59				
HUF	66	-6.94	-4.89	43.77					66	-6.94	-4.89	43.77				
IDR	164	-4.12	-8.37	19.36	83	-4.52	-2.09	5.47	85	-4.18	-6.96	20.33	43	-1.80	-1.03	1.04
ILS	160	-5.26	-4.39	13.17	160	-5.26	-4.39	13.17	160	-5.26	-4.39	13.17	160	-5.26	-4.39	13.17
ISK	156	-3.20	-2.72	20.41	156	-3.20	-2.72	20.41	41	-11.78	-1.63	7.14	41	-11.78	-1.63	7.14
JPY	174	-0.09	-0.03	0.00	174	-0.09	-0.03	0.00	174	-0.09	-0.03	0.00	174	-0.09	-0.03	0.00
KRW	174	-7.86	-13.56	40.53	174	-7.86	-13.56	40.53	114	-7.92	-11.94	42.36	114	-7.92	-11.94	42.36
LTL	160	-2.35	-2.99	10.07					160	-2.35	-2.99	10.07				
LVL	151	-2.05	-4.24	13.53	53	-2.03	-4.14	24.35	151	-2.05	-4.24	13.53	53	-2.03	-4.14	24.35
MTL	131	-6.60	-9.52	14.73					131	-6.60	-9.52	14.73				
MXN	174	-8.11	-7.94	48.42	174	-8.11	-7.94	48.42	174	-8.11	-7.94	48.42	174	-8.11	-7.94	48.42
MYR	174	-6.84	-7.26	27.34	144	-6.56	-8.94	40.00								
NOK	162	-29.72	-6.84	12.44	162	-29.72	-6.84	12.44	162	-29.72	-6.84	12.44	162	-29.72	-6.84	12.44
NZD	102	-27.07	-10.09	30.56	102	-27.07	-10.09	30.56	102	-27.07	-10.09	30.56	102	-27.07	-10.09	30.56
PHP	174	-2.34	-6.70	22.44	150	-2.71	-6.48	24.72	125	-1.85	-5.38	17.54	101	-2.16	-4.91	18.85
PLN	174	-12.13	-8.29	38.49	109	-12.10	-6.39	40.90	174	-12.13	-8.29	38.49	109	-12.10	-6.39	40.90
RUB	160	-5.03	-3.03	38.78	86	-5.11	-3.48	37.09	102	-7.27	-4.61	54.57	85	-5.17	-3.93	41.93
SEK	163	-15.79	-21.72	17.58	106	-15.76	-6.59	24.86	163	-15.79	-21.72	17.58	106	-15.76	-6.59	24.86
SGD	27	-2.50	-0.26	0.16	27	-2.50	-0.26	0.16	27	-2.50	-0.26	0.16	27	-2.50	-0.26	0.16
SIT	33	-25.64	-1.28	3.77					33	-25.64	-1.28	3.77				
SKK	71	-9.64	-2.42	12.83					71	-9.64	-2.42	12.83				
THB	174	-3.56	-8.08	17.92	174	-3.56	-8.08	17.92								
TRY	174	-3.72	-3.42	31.25	171	-5.76	-4.63	38.37	114	-8.73	-10.33	61.71	114	-8.73	-10.33	61.71
UAH	140	-0.31	-8.21	20.04												
ZAR	174	-11.53	-11.79	33.64	174	-11.53	-11.79	33.64								
pooled	5534	-0.42	-4.23	4.79	3256	-5.59	-6.59	21.15	3885	-4.88	-5.89	16.89	2193	-6.11	-4.97	19.39
pooled (doc)	5534	-0.42	-4.11	5.33	3256	-5.58	-6.59	21.48	3885	-4.88	-5.88	17.26	2193	-6.11	-4.98	19.63
sovFE	5534	-0.42	-4.08	5.31	3256	-5.58	-6.56	22.36	3885	-4.86	-5.78	18.38	2193	-6.05	-4.99	23.58
timeFE	5534	-0.27	-4.72	40.55	3256	-3.00	-4.73	45.11	3885	-2.11	-2.48	54.58	2193	-2.67	-2.26	46.12
sovFEtimeFE	5534	-0.26	-4.64	41.31	3256	-2.96	-4.74	46.58	3885	-2.05	-2.43	55.94	2193	-2.54	-2.26	49.91

Table IA.8: Currency excess returns and changes in JPY-denominated sovereign CDS spreads

This table reports estimates for regressions of currency excess returns on CDS (JPY-denominated) spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	70	-0.16	-8.36	5.45												
AUD	56	-23.35	-4.25	19.40	56	-23.35	-4.25	19.40	56	-23.35	-4.25	19.40	56	-23.35	-4.25	19.40
BRL	139	-6.53	-7.52	40.05	139	-6.53	-7.52	40.05	67	-6.87	-5.50	39.48	67	-6.87	-5.50	39.48
CLP	107	-8.78	-2.10	19.85	107	-8.78	-2.10	19.85	107	-8.78	-2.10	19.85	107	-8.78	-2.10	19.85
CNY	133	-0.22	-0.41	0.27												
COP	160	-6.50	-6.48	29.58	160	-6.50	-6.48	29.58								
DKK	58	-4.72	-1.60	0.84					58	-4.72	-1.60	0.84				
GBP	62	-21.34	-3.20	18.51	62	-21.34	-3.20	18.51	62	-21.34	-3.20	18.51	62	-21.34	-3.20	18.51
HKD	21	0.08	0.57	0.45					21	0.08	0.57	0.45				
HRK	121	-3.00	-4.86	15.17					121	-3.00	-4.86	15.17				
HUF	35	-6.69	-4.06	59.04					35	-6.69	-4.06	59.04				
IDR	93	-4.22	-7.80	20.21	56	-2.42	-1.27	1.58	80	-4.25	-7.15	21.46	43	-2.06	-1.17	1.42
ISK	26	-2.63	-20.49	29.61	26	-2.63	-20.49	29.61								
JPY	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04
KRW	129	-7.95	-13.35	44.63	129	-7.95	-13.35	44.63	81	-7.98	-10.11	48.39	81	-7.98	-10.11	48.39
MXN	173	-8.08	-7.69	47.94	173	-8.08	-7.69	47.94	173	-8.08	-7.69	47.94	173	-8.08	-7.69	47.94
MYR	145	-6.15	-8.80	33.48	141	-6.12	-9.07	36.32								
NZD	113	-11.29	-6.49	11.37	113	-11.29	-6.49	11.37	113	-11.29	-6.49	11.37	113	-11.29	-6.49	11.37
PHP	166	-2.53	-6.87	24.11	150	-2.77	-6.71	25.12	117	-2.02	-5.31	19.00	101	-2.22	-4.95	19.32
PLN	108	-11.21	-6.88	42.56	78	-11.84	-5.30	45.83	108	-11.21	-6.88	42.56	78	-11.84	-5.30	45.83
RUB	146	-5.16	-3.10	39.21	86	-5.13	-3.39	36.74	102	-7.31	-4.58	54.67	85	-5.21	-3.83	41.84
SEK	42	-14.28	-7.74	17.13	24	-13.73	-5.80	24.74	42	-14.28	-7.74	17.13	24	-13.73	-5.80	24.74
THB	118	-3.08	-6.52	16.59	118	-3.08	-6.52	16.59								
TRY	149	-6.63	-5.00	42.03	149	-6.63	-5.00	42.03	108	-8.71	-9.71	61.39	108	-8.71	-9.71	61.39
UAH	34	-0.28	-1.33	5.90												
ZAR	146	-10.94	-11.80	53.39	146	-10.94	-11.80	53.39								
pooled	2724	-0.80	-2.08	4.57	2087	-6.41	-8.93	27.37	1625	-6.22	-7.92	26.84	1272	-7.01	-8.04	25.83
pooled (doc)	2724	-0.80	-2.08	5.09	2087	-6.39	-8.82	27.78	1625	-6.21	-7.86	27.31	1272	-7.00	-7.93	26.13
sovFE	2724	-0.79	-2.06	6.08	2087	-6.34	-8.73	30.02	1625	-6.21	-7.57	30.05	1272	-6.85	-7.78	31.80
timeFE	2724	-0.20	-1.09	36.86	2087	-4.43	-5.68	46.20	1625	-4.68	-3.96	45.93	1272	-5.07	-3.33	42.92
sovFEtimeFE	2724	-0.19	-1.05	38.30	2087	-4.36	-5.61	48.50	1625	-4.57	-3.76	48.39	1272	-4.83	-3.27	47.21

Table IA.9: Changes in sovereign CDS and quanto spreads: Full Sample

This table shows that the currency of denomination of CDS contracts does not affect the relationship between exchange rates and sovereign risk. Panel A reports estimates from regressing currency excess returns on a single explanatory variable, i.e., changes in the USD-denominated CDS spreads ΔC_t^*, changes in the EUR-quanto spreads ΔQ_t^{EUR}, or changes in the JPY-quanto spreads ΔQ_t^{JPY}. Panel A reports estimates from regressing currency excess returns on multiple explanatory variables, i.e., ΔC_t^* along with ΔQ_t^{EUR} and/or ΔQ_t^{JPY}. The EUR-quanto (JPY-quanto) spreads is calculated as USD-denominated minus EUR-denominated (JPY-denominated) CDS spreads. We report the slope coefficient (b), t-statistics (t_b), R^2, and the number of observations (N) for the sample ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based standard errors clustered by country and time dimension. In Panel B, we only report estimates for ΔC_t^*. The sample period uses all available data from 01/2003 – 07/2017.

Panel A. Currency excess returns regressed on ΔC_t^*, ΔQ_t^{EUR}, or ΔQ_t^{JPY}

		All currencies				Floating FX & open CA			
		ΔC_t^*	ΔQ_t^{EUR}	ΔC_t^*	ΔQ_t^{JPY}	ΔC_t^*	ΔQ_t^{EUR}	ΔC_t^*	ΔQ_t^{JPY}
Monthly	N	5712	5712	2709	2709	2186	2186	1241	1241
	b	-0.47	-0.14	-0.78	0.26	-6.12	-0.74	-6.78	-0.05
	t_b	-4.88	-9.59	-2.09	0.17	-4.96	-0.11	-7.69	-0.01
	R^2	5.42	0.09	4.50	-0.04	19.46	-0.05	25.73	-0.08
Weekly	N	22898	22898	11786	11786	9438	9438	5562	5562
	b	-0.19	-0.04	-1.30	-0.84	-4.81	-1.05	-4.65	-0.43
	t_b	-2.21	-26.40	-2.50	-0.84	-5.63	-0.23	-5.35	-0.25
	R^2	1.02	0.04	7.59	0.01	15.91	-0.01	21.94	-0.01
Daily	N	114762	114762	59374	59374	47385	47385	27987	27987
	b	-0.07	0.02	-1.09	-0.41	-4.09	-0.68	-3.98	-0.27
	t_b	-1.14	41.42	-2.04	-2.06	-6.25	-0.64	-5.90	-0.58
	R^2	0.17	0.01	4.38	0.03	10.53	0.00	14.86	0.00

Panel B. Currency excess returns regressed on ΔC_t^*, controlling for ΔQ_t^{EUR} and/or ΔQ_t^{JPY}

		All currencies			Floating FX & open CA		
Controls:		ΔQ_t^{EUR}	ΔQ_t^{JPY}	*Both*	ΔQ_t^{EUR}	ΔQ_t^{JPY}	*Both*
Monthly	N	5712	2709	2709	2186	1241	1241
	b	-0.48	-0.78	-0.78	-6.12	-6.87	-6.88
	t_b	-4.77	-2.09	-2.09	-4.96	-7.87	-7.89
	R^2	5.43	4.47	4.45	19.43	26.02	25.98
Weekly	N	22898	11786	11786	9438	5562	5562
	b	-0.22	-1.30	-1.30	-4.81	-4.66	-4.66
	t_b	-2.10	-2.50	-2.50	-5.63	-5.36	-5.36
	R^2	1.13	7.59	7.60	15.90	21.94	21.94
Daily	N	114762	59374	59374	47385	27987	27987
	b	-0.11	-1.09	-1.09	-4.09	-4.00	-4.00
	t_b	-1.41	-2.04	-2.04	-6.25	-5.93	-5.93
	R^2	0.35	4.38	4.38	10.53	14.91	14.91

Table IA.10: Changes in sovereign CDS and quanto spreads: Restricted sample

This table shows that the currency of denomination of CDS contracts does not affect the relationship between exchange rates and sovereign risk. Panel A reports estimates from regressing currency excess returns on a single explanatory variable, i.e., changes in the USD-denominated CDS spreads ΔC_t^*, changes in the EUR-quanto spreads ΔQ_t^{EUR}, or changes in the JPY-quanto spreads ΔQ_t^{JPY}. Panel A reports estimates from regressing currency excess returns on multiple explanatory variables, i.e., ΔC_t^* along with ΔQ_t^{EUR} and/or ΔQ_t^{JPY}. The EUR-quanto (JPY-quanto) spreads is calculated as USD-denominated minus EUR-denominated (JPY-denominated) CDS spreads. We report the slope coefficient (b), t-statistics (t_b), R^2, and the number of observations (N) for the sample ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based standard errors clustered by country and time dimension. In Panel B, we only report estimates for ΔC_t^*. Following Augustin, Chernov, and Song (2020), we restrict the sample to 08/2010 – 07/2017 and to observations with non-zero quanto spreads.

Panel A. Currency excess returns regressed on ΔC_t^*, ΔQ_t^{EUR}, or ΔQ_t^{JPY}

		All currencies				Floating FX & open CA			
		ΔC_t^*	ΔQ_t^{EUR}	ΔC_t^*	ΔQ_t^{JPY}	ΔC_t^*	ΔQ_t^{EUR}	ΔC_t^*	ΔQ_t^{JPY}
Monthly	N	1553	1553	206	206	400	400	96	96
	b	-0.39	-0.14	-9.27	-19.01	-13.10	-1.92	-12.00	-22.73
	t_b	-14.94	-6.85	-6.25	-2.95	-14.09	-0.52	-10.08	-2.46
	R^2	13.46	0.39	47.39	2.28	38.37	-0.24	62.82	5.40
Weekly	N	5707	5707	953	953	1766	1766	458	458
	b	-0.09	-0.04	-5.96	-1.95	-8.53	-1.01	-7.31	-2.10
	t_b	-6.75	-20.30	-6.79	-0.77	-9.74	-0.20	-7.42	-0.74
	R^2	0.92	0.18	25.98	-0.03	17.63	-0.05	30.43	-0.11
Daily	N	28723	28723	5051	5051	8923	8923	2396	2396
	b	-0.01	0.02	-5.97	-0.03	-8.14	-0.82	-7.13	-0.05
	t_b	-1.04	29.48	-7.44	-0.06	-11.13	-0.73	-7.97	-0.07
	R^2	0.01	0.05	20.09	-0.02	13.92	0.01	23.30	-0.04

Panel B. Currency excess returns regressed on ΔC_t^*, controlling for ΔQ_t^{EUR} and/or ΔQ_t^{JPY}

		All currencies			Floating FX & open CA		
Controls:		ΔQ_t^{EUR}	ΔQ_t^{JPY}	*Both*	ΔQ_t^{EUR}	ΔQ_t^{JPY}	*Both*
Monthly	N	1553	206	206	400	96	96
	b	-0.40	-9.15	-9.15	-13.13	-11.82	-12.00
	t_b	-14.38	-6.10	-6.27	-13.87	-8.94	-10.63
	R^2	13.43	47.45	47.41	38.29	62.63	62.98
Weekly	N	5707	953	953	1766	458	458
	b	-0.09	-5.97	-5.97	-8.53	-7.43	-7.47
	t_b	-5.30	-6.90	-6.84	-9.62	-8.84	-9.70
	R^2	0.90	25.92	25.84	17.58	30.60	31.03
Daily	N	28723	5051	5051	8923	2396	2396
	b	-0.03	-6.00	-6.00	-8.15	-7.22	-7.22
	t_b	-2.42	-7.47	-7.47	-11.10	-8.30	-8.44
	R^2	0.15	20.17	20.17	13.91	23.54	23.59

Table IA.11: Changes in USD- and LC-denominated sovereign CDS spreads: Full sample

This table reports estimates for regressions of currency excess returns on changes in CDS spreads denominated in US dollars (Panel A) or in local currency (Panel B). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

Panel A: CDS contracts denominated in US dollars

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	84	-0.16	-7.80	5.96												
AUD	72	-15.60	-2.24	19.58	72	-15.60	-2.24	19.58	72	-15.60	-2.24	19.58	72	-15.60	-2.24	19.58
BRL	89	-10.40	-7.37	47.61	89	-10.40	-7.37	47.61	51	-8.21	-6.33	41.37	51	-8.21	-6.33	41.37
CAD	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35
CHF	35	-22.33	-3.24	17.29	16	-13.47	-6.70	4.25	35	-22.33	-3.24	17.29	16	-13.47	-6.70	4.25
CLP	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08
CNY	19	0.37	1.44	13.14												
COP	87	-8.32	-8.50	41.57	87	-8.32	-8.50	41.57								
DKK	15	-38.06	-3.16	43.95					15	-38.06	-3.16	43.95				
GBP	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39
HKD	56	0.11	0.71	0.69					56	0.11	0.71	0.69				
HUF	56	-6.48	-4.38	44.55					56	-6.48	-4.38	44.55				
IDR	121	-4.50	-12.21	35.74	50	-9.62	-5.16	22.34	49	-4.40	-12.23	40.69	12	-0.56	-0.58	0.44
ILS	100	-5.00	-4.20	16.46	100	-5.00	-4.20	16.46	100	-5.00	-4.20	16.46	100	-5.00	-4.20	16.46
ISK	15	-0.78	-4.59	8.53	15	-0.78	-4.59	8.53								
JPY	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00
KRW	133	-7.75	-12.44	35.91	133	-7.75	-12.44	35.91	98	-7.74	-8.96	37.87	98	-7.74	-8.96	37.87
MXN	135	-8.43	-6.92	50.98	135	-8.43	-6.92	50.98	135	-8.43	-6.92	50.98	135	-8.43	-6.92	50.98
NOK	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51
NZD	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98
PHP	44	-4.55	-6.05	46.83	44	-4.55	-6.05	46.83								
PLN	117	-11.96	-10.13	47.86	52	-12.17	-6.31	54.51	117	-11.96	-10.13	47.86	52	-12.17	-6.31	54.51
RUB	125	-5.12	-2.96	39.53	86	-5.16	-3.42	37.47	102	-7.31	-4.62	54.90	85	-5.22	-3.87	42.38
SEK	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86
SGD	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33
TRY	131	-8.83	-10.86	57.03	131	-8.83	-10.86	57.03	114	-8.75	-10.25	61.67	114	-8.75	-10.25	61.67
ZAR	132	-10.57	-12.97	41.22	132	-10.57	-12.97	41.22								
pooled	2061	-0.92	-1.39	4.60	1637	-7.27	-6.53	28.07	1495	-7.27	-10.42	30.82	1230	-7.77	-8.95	28.08
pooled (doc)	2061	-0.92	-1.39	4.94	1637	-7.27	-6.52	28.32	1495	-7.28	-10.39	31.13	1230	-7.78	-8.97	28.29
sovFE	2061	-0.93	-1.38	4.11	1637	-7.35	-6.74	28.17	1495	-7.31	-10.06	31.76	1230	-7.71	-8.93	30.81
timeFE	2061	-0.16	-0.55	39.01	1637	-4.23	-2.80	49.53	1495	-5.13	-4.73	50.40	1230	-4.77	-3.80	47.99
sovFEtimeFE	2061	-0.16	-0.55	38.97	1637	-4.29	-2.85	50.01	1495	-5.14	-4.65	51.08	1230	-4.64	-3.76	50.43

Panel B: CDS contracts denominated in local currency

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	84	-0.16	-7.80	5.96												
AUD	72	-15.06	-2.37	18.07	72	-15.06	-2.37	18.07	72	-15.06	-2.37	18.07	72	-15.06	-2.37	18.07
BRL	89	-7.04	-6.24	26.22	89	-7.04	-6.24	26.22	51	-8.15	-6.43	41.22	51	-8.15	-6.43	41.22
CAD	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35	24	-17.67	-3.14	10.35
CHF	35	-3.81	-5.03	0.77	16	-13.47	-6.70	4.25	35	-3.81	-5.03	0.77	16	-13.47	-6.70	4.25
CLP	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08	31	-0.48	-0.16	0.08
CNY	19	0.37	1.44	13.14												
COP	87	-8.40	-7.17	39.40	87	-8.40	-7.17	39.40								
DKK	15	-38.06	-3.16	43.95					15	-38.06	-3.16	43.95				
GBP	133	-12.62	-4.84	20.05	133	-12.62	-4.84	20.05	133	-12.62	-4.84	20.05	133	-12.62	-4.84	20.05
HKD	56	0.11	0.71	0.69					56	0.11	0.71	0.69				
HUF	56	-6.48	-4.38	44.55					56	-6.48	-4.38	44.55				
IDR	121	-4.50	-12.21	35.74	50	-9.62	-5.16	22.34	49	-4.40	-12.23	40.69	12	-0.56	-0.58	0.44
ILS	100	-3.89	-4.04	10.70	100	-3.89	-4.04	10.70	100	-3.89	-4.04	10.70	100	-3.89	-4.04	10.70
ISK	15	-0.78	-4.59	8.53	15	-0.78	-4.59	8.53								
JPY	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04	174	-0.75	-0.14	0.04
KRW	133	-7.61	-13.81	34.57	133	-7.61	-13.81	34.57	98	-7.61	-9.24	36.52	98	-7.61	-9.24	36.52
MXN	135	-7.84	-7.23	39.69	135	-7.84	-7.23	39.69	135	-7.84	-7.23	39.69	135	-7.84	-7.23	39.69
NOK	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51	15	-26.72	-0.87	7.51
NZD	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98	57	-11.18	-2.52	14.98
PHP	44	-4.76	-6.89	46.77	44	-4.76	-6.89	46.77								
PLN	117	-11.94	-10.19	47.48	52	-12.15	-6.28	53.98	117	-11.94	-10.19	47.48	52	-12.15	-6.28	53.98
RUB	125	-4.49	-2.50	25.10	86	-4.18	-3.20	18.76	102	-7.03	-3.04	36.54	85	-4.25	-3.52	21.44
SEK	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86	20	-13.47	-6.62	24.86
SGD	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33	41	-7.30	-3.97	20.33
TRY	131	-9.19	-9.13	49.56	131	-9.19	-9.13	49.56	114	-9.20	-7.85	52.03	114	-9.20	-7.85	52.03
ZAR	132	-11.18	-8.33	36.41	132	-11.18	-8.33	36.41								
pooled	2061	-0.83	-1.43	3.70	1637	-6.85	-5.95	22.86	1495	-7.10	-9.66	26.33	1230	-7.60	-7.73	23.88
pooled (doc)	2061	-0.83	-1.43	4.03	1637	-6.85	-5.93	23.09	1495	-7.10	-9.62	26.63	1230	-7.61	-7.75	24.07
sovFE	2061	-0.83	-1.42	3.20	1637	-6.93	-6.12	22.90	1495	-7.15	-9.24	27.27	1230	-7.55	-7.67	26.64
timeFE	2061	-0.12	-0.46	38.94	1637	-3.37	-2.56	47.94	1495	-4.65	-4.63	48.59	1230	-4.14	-3.17	46.66
sovFEtimeFE	2061	-0.12	-0.46	38.90	1637	-3.41	-2.57	48.40	1495	-4.67	-4.54	49.27	1230	-4.02	-3.11	49.16

Table IA.12: Changes in USD- and LC-denominated sovereign CDS spreads: Restricted sample

This table reports estimates for regressions of currency excess returns on changes in CDS spreads denominated in US dollars (Panel A) or in local currency (Panel B). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. Following Augustin, Chernov, and Song (2020), we restrict the sample to 08/2010 – 07/2017 and to observations with a non-zero difference between USD-denominated and local currency-denominated CDS spreads.

Panel A: CDS contracts denominated in US dollars

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	19	-0.09	-1.90	5.55												
BRL	41	-15.37	-7.94	65.08	41	-15.37	-7.94	65.08								
CHF	19	-28.69	-3.72	41.72					19	-28.69	-3.72	41.72				
COP	52	-10.51	-11.09	34.03	52	-10.51	-11.09	34.03								
GBP	83	-14.59	-3.71	16.97	83	-14.59	-3.71	16.97	83	-14.59	-3.71	16.97	83	-14.59	-3.71	16.97
ILS	76	-8.25	-4.93	22.84	76	-8.25	-4.93	22.84	76	-8.25	-4.93	22.84	76	-8.25	-4.93	22.84
JPY	83	0.50	0.25	0.04	83	0.50	0.25	0.04	83	0.50	0.25	0.04	83	0.50	0.25	0.04
KRW	67	-11.97	-5.70	20.20	67	-11.97	-5.70	20.20	67	-11.97	-5.70	20.20	67	-11.97	-5.70	20.20
MXN	83	-13.86	-14.60	59.55	83	-13.86	-14.60	59.55	83	-13.86	-14.60	59.55	83	-13.86	-14.60	59.55
PHP	32	-4.29	-5.73	53.90	32	-4.29	-5.73	53.90								
RUB	83	-9.83	-13.45	67.90	66	-8.37	-9.23	55.99	83	-9.83	-13.45	67.90	66	-8.37	-9.23	55.99
TRY	83	-9.56	-12.16	60.13	83	-9.56	-12.16	60.13	83	-9.56	-12.16	60.13	83	-9.56	-12.16	60.13
ZAR	60	-11.63	-6.45	51.45	60	-11.63	-6.45	51.45								
pooled	781	-4.46	-1.61	20.16	726	-9.71	-8.58	39.34	577	-9.89	-13.92	45.48	541	-9.32	-8.17	35.84
pooled (doc)	781	-4.46	-1.62	20.50	726	-9.70	-8.59	39.48	577	-9.88	-13.92	45.60	541	-9.31	-8.19	35.89
sovFE	781	-4.69	-1.68	20.71	726	-9.68	-8.51	38.91	577	-9.88	-13.87	45.12	541	-9.30	-8.11	35.63
timeFE	781	-2.28	-0.80	40.98	726	-8.28	-8.69	54.52	577	-8.99	-13.98	58.64	541	-7.82	-11.85	50.40
sovFEtimeFE	781	-2.47	-0.84	40.85	726	-8.25	-8.56	54.18	577	-8.97	-13.81	58.38	541	-7.80	-11.80	50.31

Panel B: CDS contracts denominated in local currency

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
ARS	19	-0.09	-1.90	5.54												
BRL	41	-5.01	-3.29	11.55	41	-5.01	-3.29	11.55								
CHF	19	-0.62	-0.37	0.04					19	-0.62	-0.37	0.04				
COP	52	-12.48	-5.80	29.20	52	-12.48	-5.80	29.20								
GBP	83	-9.71	-3.40	10.43	83	-9.71	-3.40	10.43	83	-9.71	-3.40	10.43	83	-9.71	-3.40	10.43
ILS	76	-4.32	-1.56	7.89	76	-4.32	-1.56	7.89	76	-4.32	-1.56	7.89	76	-4.32	-1.56	7.89
JPY	83	2.62	0.60	0.33	83	2.62	0.60	0.33	83	2.62	0.60	0.33	83	2.62	0.60	0.33
KRW	67	-9.71	-4.63	12.65	67	-9.71	-4.63	12.65	67	-9.71	-4.63	12.65	67	-9.71	-4.63	12.65
MXN	83	-14.92	-5.17	43.69	83	-14.92	-5.17	43.69	83	-14.92	-5.17	43.69	83	-14.92	-5.17	43.69
PHP	32	-4.50	-7.12	53.52	32	-4.50	-7.12	53.52								
RUB	83	-11.59	-4.54	50.92	66	-9.19	-3.18	27.07	83	-11.59	-4.54	50.92	66	-9.19	-3.18	27.07
TRY	83	-13.45	-10.17	50.17	83	-13.45	-10.17	50.17	83	-13.45	-10.17	50.17	83	-13.45	-10.17	50.17
ZAR	60	-21.94	-6.09	45.33	60	-21.94	-6.09	45.33								
pooled	781	-3.31	-1.34	9.34	726	-8.80	-5.08	20.90	577	-11.16	-9.98	32.82	541	-10.31	-5.54	22.96
pooled (doc)	781	-3.32	-1.34	9.65	726	-8.79	-5.05	21.01	577	-11.15	-9.91	32.90	541	-10.30	-5.55	22.95
sovFE	781	-3.53	-1.39	9.21	726	-8.80	-5.07	20.23	577	-11.15	-9.91	32.27	541	-10.27	-5.51	22.56
timeFE	781	-1.08	-0.51	38.16	726	-4.40	-2.65	45.60	577	-8.55	-6.52	49.91	541	-6.09	-4.19	43.40
sovFEtimeFE	781	-1.20	-0.55	37.71	726	-4.37	-2.57	45.14	577	-8.52	-6.42	49.52	541	-6.05	-4.16	43.21

Table IA.13: Sovereign CDS spreads and global macro-finance variables

This table presents estimates for regressions of changes in sovereign CDS spreads on global variables. The sovereign CDS contracts have a maturity of 5 years and are denominated in US dollars. We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The sample is monthly from 05/2003 – 07/2017.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
ARS	126	-3.20	3.57	6.68	3.39	-1.27	-0.14	-0.78	-0.94	1.27	42.00	11.43
AUD	167	-2.61	-0.87	1.85	1.78	-0.13	1.94	1.60	1.74	-0.55	49.15	0.84
BGN	107	-3.95	-1.21	1.92	3.56	1.04	2.99	2.06	2.53	-0.52	64.61	0.07
BRL	152	-5.46	2.46	2.55	1.13	0.68	-0.50	1.35	1.14	-0.15	37.22	17.68
CAD	133	-1.57	-2.14	1.97	-0.24	0.61	1.70	1.30	1.24	-0.29	8.72	-2.01
CHF	100	-1.27	0.39	-1.06	1.85	-0.30	-0.12	-0.12	0.84	0.61	19.63	3.69
CLP	160	-4.67	1.75	0.96	2.95	0.11	-0.14	1.15	1.53	-0.28	64.97	1.63
CNY	171	-3.64	-2.17	-0.34	4.89	1.04	1.84	3.95	1.45	-3.04	59.50	4.23
COP	160	-4.91	1.98	1.75	0.51	0.22	-1.35	1.47	1.27	0.88	51.61	7.92
CYP	36	-0.35	-1.91	2.24	0.75	-0.00	-1.19	2.41	0.61	0.01	50.39	2.46
CZK	171	-2.49	1.67	-0.68	1.87	-0.77	0.75	-0.08	0.83	0.02	44.07	3.05
DKK	169	-3.09	0.79	0.18	2.78	-0.35	2.11	-1.47	0.25	-0.96	41.77	0.66
EEK	154	-3.35	1.03	0.88	3.26	-1.92	-1.01	0.85	1.76	1.74	59.71	-0.48
GBP	133	-1.60	-0.43	0.00	1.36	-0.17	1.67	0.32	0.33	-0.73	34.89	3.79
HKD	140	-3.54	0.77	3.55	1.09	1.04	0.35	0.84	0.34	0.58	58.94	2.94
HRK	107	-5.45	-1.20	0.98	1.86	0.70	2.15	1.05	2.48	-1.83	54.49	-1.19
HUF	66	0.56	-0.78	1.45	1.46	0.52	0.96	1.11	0.76	-1.23	10.76	26.23
IDR	164	-2.68	1.95	3.62	5.59	0.97	0.31	-0.05	0.16	0.33	61.21	11.55
ILS	158	-2.10	0.96	0.07	3.54	-0.20	-0.09	3.95	-0.44	1.42	44.79	1.93
ISK	134	-2.92	-0.26	1.19	1.79	-1.76	-1.68	0.47	2.12	0.84	47.12	5.29
JPY	171	-1.99	-0.81	1.50	1.47	2.04	2.05	2.94	-0.43	-0.76	39.24	4.71
KRW	171	-3.91	1.14	0.41	3.85	-0.33	-0.08	1.33	1.50	1.69	60.90	2.96
LTL	132	-2.10	0.07	1.04	3.23	-0.73	0.33	1.31	1.65	0.47	59.32	-0.00
LVL	126	-1.69	0.57	0.16	2.65	-0.84	-0.05	0.38	0.21	-0.16	58.09	0.44
MTL	96	0.31	-0.86	1.88	1.03	2.50	2.54	-0.17	-0.18	-1.20	29.18	3.93
MXN	171	-4.03	1.65	0.63	2.79	-0.84	-0.10	1.94	0.35	-0.13	63.58	8.34
MYR	171	-4.46	0.21	-0.23	3.53	1.37	0.22	1.42	1.04	-2.64	56.94	7.78
NOK	165	-2.88	1.66	-0.95	1.35	-0.36	-0.42	-2.52	-0.86	-1.19	44.06	-0.14
NZD	158	-2.57	-0.05	3.30	2.44	-0.07	1.44	1.97	1.72	0.34	56.89	-0.29
PHP	171	-3.38	0.44	1.61	3.24	1.83	-0.02	2.56	-0.26	0.51	40.11	6.96
PLN	169	-2.28	0.49	0.50	3.05	-0.01	1.83	0.74	0.30	-1.39	51.09	7.06
RUB	160	-5.20	1.22	0.64	2.95	-1.04	1.35	0.85	2.74	0.23	56.79	14.03
SEK	160	-3.13	1.04	0.60	2.35	-0.90	1.16	-0.71	0.86	-0.41	45.34	2.35
SGD	87	-2.07	0.85	0.23	0.61	-0.43	-0.02	0.69	-1.67	-0.01	36.23	-0.20
SKK	54	1.71	0.95	5.12	0.23	3.04	-2.17	0.52	-1.91	-0.43	85.28	0.35
THB	171	-4.68	-0.30	0.20	3.12	1.76	1.20	1.19	0.78	-1.72	59.16	2.88
TRY	171	-3.59	0.60	0.89	2.22	-0.01	-0.26	1.57	0.35	-0.23	29.33	20.11
UAH	88	-2.49	1.39	3.47	-0.95	-0.95	-0.37	-0.67	1.62	1.02	-6.40	43.73
ZAR	171	-4.45	0.46	0.81	3.60	-0.33	0.23	1.17	0.49	-1.05	59.40	7.76

Table IA.14: Global sovereign risk and global macro-finance variables: All currencies

This table presents estimates for regressions of innovations in global sovereign risk on other global variables. Global sovereign risk is defined as in Table 3. We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The data is monthly from 05/2003 – 07/2017 and covers all currencies in our sample.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
ARS	126	-3.47	1.40	4.26	2.13	-0.46	-0.06	0.99	2.07	-0.51	72.31	-0.33
AUD	167	-3.30	2.58	6.68	3.92	-1.08	-0.13	0.77	1.62	1.28	32.73	-0.57
BGN	107	-3.77	2.16	5.80	2.15	-1.11	-0.47	-0.30	1.67	1.34	30.80	0.55
BRL	152	-3.31	2.40	6.58	3.47	-1.14	-0.11	0.78	1.71	1.41	31.92	0.89
CAD	133	-2.76	1.75	4.69	2.58	-0.38	0.01	1.02	1.32	1.16	27.82	-1.16
CHF	100	-2.46	1.19	2.35	1.77	-0.78	0.23	0.15	0.91	0.84	8.14	0.97
CLP	160	-3.41	2.53	6.48	3.74	-1.13	-0.17	0.83	1.57	1.37	32.57	0.53
CNY	171	-3.31	2.46	6.50	3.87	-1.08	-0.10	0.75	1.58	1.26	32.14	-0.72
COP	160	-3.35	2.50	6.38	3.80	-1.14	-0.15	0.80	1.56	1.35	32.14	1.11
CYP	36	-0.27	2.19	1.99	3.32	-0.23	0.25	0.88	0.95	0.02	45.32	9.49
CZK	171	-3.37	2.43	6.59	3.89	-1.06	-0.07	0.81	1.59	1.24	32.25	0.25
DKK	169	-3.24	2.40	6.31	3.74	-1.06	-0.10	0.81	1.59	1.24	32.26	4.98
EEK	154	-3.62	2.42	6.27	3.32	-1.07	-0.18	0.66	1.67	1.36	32.12	0.03
GBP	133	-3.62	2.41	5.95	2.78	-1.06	-0.31	0.30	1.77	1.31	32.85	-0.02
HKD	140	-3.82	2.51	6.58	2.83	-0.92	-0.13	0.77	1.77	1.51	32.37	1.16
HRK	107	-3.72	2.15	5.89	2.14	-1.11	-0.45	-0.29	1.68	1.37	31.00	0.63
HUF	66	-0.86	0.89	-0.02	0.25	-0.24	0.24	0.11	1.03	1.07	-8.56	9.40
IDR	164	-3.40	2.40	6.54	3.52	-1.10	-0.18	0.89	1.66	1.30	31.63	1.37
ILS	158	-3.50	2.61	6.33	3.66	-1.14	-0.17	0.74	1.53	1.35	32.32	-0.35
ISK	134	-2.72	2.72	8.06	2.52	-0.67	-0.34	-0.48	1.04	1.26	31.60	0.41
JPY	171	-3.33	2.44	6.34	3.93	-1.08	-0.08	0.77	1.60	1.24	32.38	-0.95
KRW	171	-3.30	2.43	6.55	3.81	-1.06	-0.06	0.76	1.57	1.23	31.73	-0.35
LTL	132	-2.84	2.62	7.78	2.64	-0.65	-0.38	-0.31	1.25	1.38	31.13	4.34
LVL	126	-2.73	2.31	7.32	2.20	-0.70	-0.46	-0.50	1.14	1.26	30.57	0.26
MTL	96	-2.15	1.95	4.12	0.78	-0.88	0.11	1.00	0.55	1.25	32.79	-1.68
MXN	171	-3.31	2.44	6.53	3.90	-1.05	-0.06	0.76	1.60	1.24	31.80	0.80
MYR	171	-3.30	2.44	6.34	3.88	-1.07	-0.07	0.77	1.58	1.26	32.00	0.46
NOK	165	-3.35	2.42	6.38	3.82	-1.10	-0.14	0.90	1.61	1.31	33.03	-0.49
NZD	158	-3.48	2.40	6.29	3.44	-1.07	-0.20	0.70	1.72	1.29	32.73	0.26
PHP	171	-3.28	2.46	6.51	3.86	-1.09	-0.06	0.74	1.61	1.23	31.79	-1.03
PLN	169	-3.39	2.51	6.26	3.87	-1.08	-0.09	0.75	1.54	1.25	31.53	1.39
RUB	160	-3.35	2.49	6.73	3.45	-1.11	-0.21	0.81	1.50	1.35	31.25	2.20
SEK	160	-3.29	2.42	6.36	3.56	-1.02	-0.09	0.67	1.63	1.22	32.46	0.41
SGD	87	-3.64	3.68	4.46	3.15	-0.75	-0.29	0.22	0.24	0.09	76.32	2.63
SKK	54	0.35	2.27	8.26	1.99	1.77	-0.97	0.06	-1.60	-0.77	90.64	-0.45
THB	171	-3.29	2.44	6.32	3.86	-1.08	-0.09	0.77	1.59	1.25	31.96	1.03
TRY	171	-3.22	2.47	6.61	3.84	-1.04	-0.05	0.74	1.59	1.23	31.61	2.07
UAH	88	-4.72	2.05	3.07	3.18	-0.43	0.16	-0.02	0.71	0.53	73.92	-0.58
ZAR	171	-3.30	2.47	6.50	3.83	-1.06	-0.07	0.77	1.59	1.25	31.68	0.16

Table IA.15: Global sovereign risk and global macro-finance variables: Floating FX & Open CA

This table presents estimates for regressions of innovations in global sovereign risk on other global variables. Global sovereign risk is defined as in Table 3. We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The data is monthly from 05/2003 – 07/2017 and covers all observations of countries with floating exchange rates and open capital accounts in our sample.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
AUD	167	-2.73	1.20	0.39	6.04	-0.37	0.55	2.35	1.27	0.26	66.58	0.79
BRL	63	-3.08	2.07	0.51	5.09	-0.70	-0.09	2.31	-0.37	0.64	71.40	-1.35
CAD	133	-2.54	0.37	8.21	4.55	2.01	0.47	3.03	0.85	0.01	76.47	0.88
CHF	58	-3.40	-0.12	-3.99	2.65	-0.96	-0.96	2.00	1.05	0.16	72.69	3.29
CLP	160	-2.92	1.12	0.42	4.58	-0.52	0.54	2.52	1.33	0.72	67.00	0.34
GBP	133	-3.48	1.36	0.50	4.03	-0.40	0.25	2.04	1.75	0.54	70.80	-0.40
IDR	43	0.41	1.24	1.93	0.82	2.76	-0.09	0.59	0.86	0.86	12.39	17.22
ILS	158	-3.17	1.60	0.49	5.44	-0.66	0.85	2.18	1.07	0.44	67.99	0.89
ISK	36	-0.60	1.68	1.22	0.69	-0.05	0.20	-0.52	0.44	0.41	34.12	-4.57
JPY	171	-2.94	0.82	0.35	5.44	-0.47	0.56	2.34	1.37	0.12	65.76	0.65
KRW	114	-3.28	0.80	0.50	4.09	-0.38	0.27	1.96	1.73	0.29	70.58	2.50
LVL	45	-8.02	1.65	-0.87	1.64	-1.75	-0.36	2.83	-0.91	-4.17	81.02	6.47
MXN	171	-2.71	0.82	0.39	4.93	-0.34	0.77	2.50	1.37	0.14	65.63	3.95
NOK	165	-2.98	1.07	0.46	5.05	-0.46	0.59	2.81	1.41	0.56	67.98	-0.61
NZD	158	-3.21	1.22	0.45	5.07	-0.37	0.39	2.30	1.63	0.61	68.50	-0.20
PHP	101	-3.65	1.70	0.55	4.82	-0.86	-0.92	2.35	0.82	2.54	70.87	-0.74
PLN	104	-3.10	1.41	0.21	5.65	-0.33	2.25	2.71	-0.68	-0.40	68.25	2.76
RUB	85	-3.80	0.88	-0.66	2.79	-0.60	0.46	0.60	1.89	-0.81	64.60	-1.00
SEK	106	-3.26	2.72	0.53	3.92	-0.59	-0.24	1.08	1.58	0.62	71.45	3.12
SGD	87	-3.23	2.62	0.31	4.24	-0.22	2.58	1.70	-0.58	-1.14	73.01	4.41
TRY	114	-3.45	0.94	0.43	3.86	-0.53	0.08	1.74	2.01	1.07	70.81	2.00

Table IA.16: Currency excess returns and changes in sovereign CDS spreads: Controlling for VIX

This table reports estimates for regressions of currency excess returns on changes in CDS spreads while controlling for the log changes in the VIX index. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variable (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-0.18	-2.10	14.59	2.56															
AUD	167	-15.71	-3.42	31.06	6.94	167	-15.71	-3.42	31.06	6.94	167	-15.71	-3.42	31.06	6.94	167	-15.71	-3.42	31.06	6.94
BGN	160	-2.74	-4.85	21.11	2.85						138	-2.72	-4.74	23.33	3.49					
BRL	160	-6.57	-5.87	40.48	0.61	160	-6.57	-5.87	40.48	0.61	71	-5.40	-6.75	42.64	3.31	71	-5.40	-6.75	42.64	3.31
CAD	133	-13.20	-3.30	15.90	9.52	133	-13.20	-3.30	15.90	9.52	133	-13.20	-3.30	15.90	9.52	133	-13.20	-3.30	15.90	9.52
CHF	100	-10.83	-3.00	12.57	2.90	58	-6.25	-3.66	3.06	-0.18	100	-10.83	-3.00	12.57	2.90	58	-6.25	-3.66	3.06	-0.18
CLP	160	-9.08	-2.49	28.30	1.28	160	-9.08	-2.49	28.30	1.28	160	-9.08	-2.49	28.30	1.28	160	-9.08	-2.49	28.30	1.28
CNY	174	0.13	0.40	2.20	2.52															
COP	160	-5.69	-5.30	30.19	0.86	160	-5.69	-5.30	30.19	0.86										
CYP	37	-27.08	-2.10	2.81	1.81						37	-27.08	-2.10	2.81	1.81					
CZK	174	-8.24	-5.13	19.25	1.38						174	-8.24	-5.13	19.25	1.38					
DKK	172	-6.63	-3.78	13.72	4.61						172	-6.63	-3.78	13.72	4.61					
EEK	154	-2.12	-3.13	15.54	5.94						154	-2.12	-3.13	15.54	5.94					
GBP	133	-13.42	-5.66	25.91	2.10	133	-13.42	-5.66	25.91	2.10	133	-13.42	-5.66	25.91	2.10	133	-13.42	-5.66	25.91	2.10
HKD	157	-0.06	-0.67	-1.02	-0.63						157	-0.06	-0.67	-1.02	-0.63					
HRK	160	-2.61	-4.32	19.43	3.62						160	-2.61	-4.32	19.43	3.62					
HUF	66	-5.84	-4.77	47.07	6.52						66	-5.84	-4.77	47.07	6.52					
IDR	164	-4.15	-6.83	18.58	-0.50	83	-4.44	-1.66	3.42	-1.12	85	-3.85	-4.39	18.67	-0.66	43	-1.31	-0.94	-2.82	-1.44
ILS	160	-4.14	-3.51	17.09	4.57	160	-4.14	-3.51	17.09	4.57	160	-4.14	-3.51	17.09	4.57	160	-4.14	-3.51	17.09	4.57
ISK	154	-2.90	-2.80	22.77	1.90	154	-2.90	-2.80	22.77	1.90	39	-13.12	-1.75	4.12	-1.13	39	-13.12	-1.75	4.12	-1.13
JPY	174	-2.25	-0.69	2.87	3.45	174	-2.25	-0.69	2.87	3.45	174	-2.25	-0.69	2.87	3.45	174	-2.25	-0.69	2.87	3.45
KRW	174	-7.49	-7.38	40.30	0.15	174	-7.49	-7.38	40.30	0.15	114	-7.32	-6.23	42.36	0.56	114	-7.32	-6.23	42.36	0.56
LTL	160	-1.73	-2.51	15.39	5.98						160	-1.73	-2.51	15.39	5.98					
LVL	151	-1.63	-4.00	19.12	6.06	53	-1.77	-5.44	23.90	1.04	151	-1.63	-4.00	19.12	6.06	53	-1.77	-5.44	23.90	1.04
MTL	131	-5.45	-4.21	19.21	5.17						131	-5.45	-4.21	19.21	5.17					
MXN	174	-7.23	-7.08	49.58	1.57	174	-7.23	-7.08	49.58	1.57	174	-7.23	-7.08	49.58	1.57	174	-7.23	-7.08	49.58	1.57
MYR	174	-6.09	-6.26	27.90	0.97	144	-5.92	-7.33	40.68	1.11										
NOK	165	-24.28	-3.39	17.83	4.98	165	-24.28	-3.39	17.83	4.98	165	-24.28	-3.39	17.83	4.98	165	-24.28	-3.39	17.83	4.98
NZD	158	-12.42	-3.61	23.94	5.57	158	-12.42	-3.61	23.94	5.57	158	-12.42	-3.61	23.94	5.57	158	-12.42	-3.61	23.94	5.57
PHP	174	-2.12	-5.51	22.31	0.37	150	-2.50	-4.78	24.15	-0.04	125	-1.78	-4.86	16.34	-0.54	101	-2.11	-4.19	17.23	-0.80
PLN	174	-10.48	-7.53	40.28	2.75	109	-10.72	-6.28	41.76	1.61	174	-10.48	-7.53	40.28	2.75	109	-10.72	-6.28	41.76	1.61
RUB	160	-4.65	-2.77	39.21	0.65	86	-4.59	-3.41	39.37	2.64	102	-6.70	-3.82	55.72	1.26	85	-4.74	-3.71	43.66	1.97
SEK	163	-14.63	-7.24	25.30	5.95	106	-14.47	-6.00	35.96	8.91	163	-14.63	-7.24	25.30	5.95	106	-14.47	-6.00	35.96	8.91
SGD	87	-8.04	-3.03	24.17	4.48	87	-8.04	-3.03	24.17	4.48	87	-8.04	-3.03	24.17	4.48	87	-8.04	-3.03	24.17	4.48
SIT	33	-25.59	-1.31	-1.99	-2.66						33	-25.59	-1.31	-1.99	-2.66					
SKK	71	-8.77	-2.15	10.89	-0.67						71	-8.77	-2.15	10.89	-0.67					
THB	174	-3.88	-7.23	17.28	0.18	174	-3.88	-7.23	17.28	0.18										
TRY	174	-3.29	-3.33	35.20	4.42	171	-5.25	-4.81	39.95	2.02	114	-8.20	-8.46	62.00	0.68	114	-8.20	-8.46	62.00	0.68
UAH	141	-0.29	-2.81	21.49	1.25															
ZAR	174	-10.44	-8.82	33.96	0.73	174	-10.44	-8.82	33.96	0.73										
pooled	5857	-0.35	-5.52	11.37	6.84	3467	-4.92	-6.52	23.50	2.80	4202	-4.32	-5.70	20.77	3.76	2404	-5.30	-4.82	22.25	3.50
pooled (doc)	5857	-0.35	-5.39	11.94	6.85	3467	-4.91	-6.55	23.81	2.81	4202	-4.32	-5.70	21.16	3.76	2404	-5.30	-4.82	22.48	3.51
sovFE	5857	-0.35	-5.39	12.00	6.89	3467	-4.91	-6.50	24.68	2.82	4202	-4.30	-5.60	22.32	3.84	2404	-5.23	-4.84	26.26	3.61

Table IA.17: Currency excess returns and changes in sovereign CDS spreads: Other controls

This table reports estimates for regressions of currency excess returns on changes in CDS spreads while controlling for the US stock market return, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-0.27	-2.04	12.82	0.78															
AUD	167	-6.15	-0.92	41.74	17.62	167	-6.15	-0.92	41.74	17.62	167	-6.15	-0.92	41.74	17.62	167	-6.15	-0.92	41.74	17.62
BGN	160	-1.26	-1.35	24.80	6.54						138	-1.45	-1.49	24.93	5.09					
BRL	160	-5.61	-5.75	42.39	2.52	160	-5.61	-5.75	42.39	2.52	71	-4.03	-3.12	46.60	7.27	71	-4.03	-3.12	46.60	7.27
CAD	133	-6.78	-2.33	42.15	35.76	133	-6.78	-2.33	42.15	35.76	133	-6.78	-2.33	42.15	35.76	133	-6.78	-2.33	42.15	35.76
CHF	100	-6.39	-2.54	14.66	4.99	58	-2.74	-1.06	5.27	2.03	100	-6.39	-2.54	14.66	4.99	58	-2.74	-1.06	5.27	2.03
CLP	160	-7.43	-2.05	29.22	2.20	160	-7.43	-2.05	29.22	2.20	160	-7.43	-2.05	29.22	2.20	160	-7.43	-2.05	29.22	2.20
CNY	174	0.02	0.06	-1.56	-1.24															
COP	160	-5.29	-4.57	29.47	0.15	160	-5.29	-4.57	29.47	0.15										
CYP	37	-12.95	-0.59	-2.18	-3.18						37	-12.95	-0.59	-2.18	-3.18					
CZK	174	-5.60	-3.23	23.43	5.56						174	-5.60	-3.23	23.43	5.56					
DKK	172	-2.02	-0.67	22.95	13.84						172	-2.02	-0.67	22.95	13.84					
EEK	154	0.52	0.66	23.00	13.40						154	0.52	0.66	23.00	13.40					
GBP	133	-10.12	-3.88	32.64	8.82	133	-10.12	-3.88	32.64	8.82	133	-10.12	-3.88	32.64	8.82	133	-10.12	-3.88	32.64	8.82
HKD	157	0.09	0.59	0.07	0.46						157	0.09	0.59	0.07	0.46					
HRK	160	-1.11	-1.24	24.11	8.29						160	-1.11	-1.24	24.11	8.29					
HUF	66	-5.47	-4.44	48.40	7.85						66	-5.47	-4.44	48.40	7.85					
IDR	164	-2.63	-2.71	19.78	0.70	83	-2.40	-1.11	4.93	0.39	85	-0.60	-0.55	25.87	6.55	43	1.33	0.64	6.14	7.51
ILS	160	-1.63	-0.94	22.35	9.84	160	-1.63	-0.94	22.35	9.84	160	-1.63	-0.94	22.35	9.84	160	-1.63	-0.94	22.35	9.84
ISK	154	-1.65	-2.02	29.40	8.53	154	-1.65	-2.02	29.40	8.53	39	-8.75	-0.78	10.02	4.77	39	-8.75	-0.78	10.02	4.77
JPY	174	-4.47	-1.14	3.73	4.32	174	-4.47	-1.14	3.73	4.32	174	-4.47	-1.14	3.73	4.32	174	-4.47	-1.14	3.73	4.32
KRW	174	-4.72	-2.67	45.30	5.15	174	-4.72	-2.67	45.30	5.15	114	-3.84	-1.82	48.29	6.49	114	-3.84	-1.82	48.29	6.49
LTL	160	0.36	0.37	23.67	14.27						160	0.36	0.37	23.67	14.27					
LVL	151	-0.17	-0.31	24.54	11.48	53	-1.42	-2.58	26.68	3.82	151	-0.17	-0.31	24.54	11.48	53	-1.42	-2.58	26.68	3.82
MTL	131	-3.45	-2.64	27.09	13.04						131	-3.45	-2.64	27.09	13.04					
MXN	174	-6.07	-4.92	49.12	1.11	174	-6.07	-4.92	49.12	1.11	174	-6.07	-4.92	49.12	1.11	174	-6.07	-4.92	49.12	1.11
MYR	174	-6.35	-4.71	25.96	-0.96	144	-6.69	-6.27	38.54	-1.03										
NOK	165	-0.35	-0.06	31.44	18.59	165	-0.35	-0.06	31.44	18.59	165	-0.35	-0.06	31.44	18.59	165	-0.35	-0.06	31.44	18.59
NZD	158	-2.88	-0.52	33.15	14.78	158	-2.88	-0.52	33.15	14.78	158	-2.88	-0.52	33.15	14.78	158	-2.88	-0.52	33.15	14.78
PHP	174	-1.76	-3.94	23.93	1.99	150	-2.08	-3.10	24.58	0.40	125	-1.58	-3.74	17.86	0.98	101	-1.89	-2.53	17.28	-0.75
PLN	174	-8.03	-4.67	44.75	7.22	109	-7.68	-2.93	48.13	7.98	174	-8.03	-4.67	44.75	7.22	109	-7.68	-2.93	48.13	7.98
RUB	160	-6.21	-3.63	45.13	6.57	86	-4.79	-3.56	43.81	7.08	102	-7.62	-5.18	56.36	1.91	85	-4.56	-3.77	42.93	1.24
SEK	163	-6.79	-2.29	37.24	17.89	106	-4.69	-1.36	50.72	23.67	163	-6.79	-2.29	37.24	17.89	106	-4.69	-1.36	50.72	23.67
SGD	87	-2.54	-1.04	35.47	15.77	87	-2.54	-1.04	35.47	15.77	87	-2.54	-1.04	35.47	15.77	87	-2.54	-1.04	35.47	15.77
SIT	33	-22.90	-1.19	12.62	11.95						33	-22.90	-1.19	12.62	11.95					
SKK	71	-1.20	-0.27	20.96	9.40						71	-1.20	-0.27	20.96	9.40					
THB	174	-3.18	-3.96	16.21	-0.89	174	-3.18	-3.96	16.21	-0.89										
TRY	174	-2.69	-3.20	40.83	10.05	171	-4.38	-3.59	42.69	4.76	114	-7.73	-7.35	61.75	0.42	114	-7.73	-7.35	61.75	0.42
UAH	141	-0.28	-2.18	20.49	0.25															
ZAR	174	-9.12	-4.33	33.33	0.10	174	-9.12	-4.33	33.33	0.10										
pooled	5857	-0.30	-8.21	20.85	16.32	3467	-3.42	-4.47	27.91	7.21	4202	-2.63	-3.03	26.23	9.23	2404	-3.18	-2.81	28.32	9.57
pooled (doc)	5857	-0.29	-8.13	21.39	16.30	3467	-3.41	-4.49	28.22	7.21	4202	-2.64	-3.04	26.58	9.18	2404	-3.19	-2.82	28.55	9.57
sovFE	5857	-0.29	-8.13	21.56	16.45	3467	-3.40	-4.48	29.16	7.30	4202	-2.58	-2.96	27.99	9.51	2404	-3.07	-2.80	32.49	9.84

Table IA.18: Currency excess returns and changes in sovereign CDS spreads: All controls

This table reports estimates for regressions of currency excess returns on changes in CDS spreads while controlling for the log changes in the VIX index, US stock market return, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-0.26	-2.08	21.72	9.69															
AUD	167	-5.88	-0.88	41.42	17.30	167	-5.88	-0.88	41.42	17.30	167	-5.88	-0.88	41.42	17.30	167	-5.88	-0.88	41.42	17.30
BGN	160	-1.26	-1.48	24.31	6.05						138	-1.59	-1.79	24.53	4.68					
BRL	160	-5.62	-5.75	42.04	2.17	160	-5.62	-5.75	42.04	2.17	71	-3.81	-3.06	46.59	7.26	71	-3.81	-3.06	46.59	7.26
CAD	133	-6.09	-2.10	43.24	36.85	133	-6.09	-2.10	43.24	36.85	133	-6.09	-2.10	43.24	36.85	133	-6.09	-2.10	43.24	36.85
CHF	100	-6.52	-2.63	13.78	4.11	58	-2.76	-1.03	3.45	0.21	100	-6.52	-2.63	13.78	4.11	58	-2.76	-1.03	3.45	0.21
CLP	160	-7.55	-2.14	29.31	2.29	160	-7.55	-2.14	29.31	2.29	160	-7.55	-2.14	29.31	2.29	160	-7.55	-2.14	29.31	2.29
CNY	174	-0.09	-0.25	0.96	1.28															
COP	160	-5.24	-4.37	29.48	0.15	160	-5.24	-4.37	29.48	0.15										
CYP	37	-6.67	-0.38	9.29	8.29						37	-6.67	-0.38	9.29	8.29					
CZK	174	-5.33	-3.30	23.08	5.21						174	-5.33	-3.30	23.08	5.21					
DKK	172	-1.60	-0.56	22.81	13.69						172	-1.60	-0.56	22.81	13.69					
EEK	154	0.73	0.99	22.63	13.03						154	0.73	0.99	22.63	13.03					
GBP	133	-9.83	-3.28	32.18	8.37	133	-9.83	-3.28	32.18	8.37	133	-9.83	-3.28	32.18	8.37	133	-9.83	-3.28	32.18	8.37
HKD	157	0.11	0.72	0.04	0.43						157	0.11	0.72	0.04	0.43					
HRK	160	-1.11	-1.19	23.62	7.80						160	-1.11	-1.19	23.62	7.80					
HUF	66	-5.52	-4.53	48.69	8.15						66	-5.52	-4.53	48.69	8.15					
IDR	164	-2.63	-2.63	19.75	0.67	83	-2.66	-0.92	5.34	0.80	85	-0.66	-0.57	25.97	6.65	43	1.15	0.45	4.58	5.96
ILS	160	-1.64	-0.81	21.85	9.33	160	-1.64	-0.81	21.85	9.33	160	-1.64	-0.81	21.85	9.33	160	-1.64	-0.81	21.85	9.33
ISK	154	-1.65	-1.92	28.93	8.05	154	-1.65	-1.92	28.93	8.05	39	-6.16	-0.70	19.62	14.37	39	-6.16	-0.70	19.62	14.37
JPY	174	-4.35	-1.05	3.73	4.31	174	-4.35	-1.05	3.73	4.31	174	-4.35	-1.05	3.73	4.31	174	-4.35	-1.05	3.73	4.31
KRW	174	-4.37	-2.41	45.83	5.68	174	-4.37	-2.41	45.83	5.68	114	-3.58	-1.74	48.26	6.45	114	-3.58	-1.74	48.26	6.45
LTL	160	0.51	0.58	23.32	13.92						160	0.51	0.58	23.32	13.92					
LVL	151	-0.13	-0.24	24.03	10.97	53	-1.66	-1.51	25.32	2.46	151	-0.13	-0.24	24.03	10.97	53	-1.66	-1.51	25.32	2.46
MTL	131	-3.43	-2.15	26.54	12.50						131	-3.43	-2.15	26.54	12.50					
MXN	174	-6.24	-4.52	49.26	1.25	174	-6.24	-4.52	49.26	1.25	174	-6.24	-4.52	49.26	1.25	174	-6.24	-4.52	49.26	1.25
MYR	174	-6.60	-5.06	27.14	0.22	144	-6.93	-6.59	40.57	1.00										
NOK	165	0.52	0.09	31.30	18.45	165	0.52	0.09	31.30	18.45	165	0.52	0.09	31.30	18.45	165	0.52	0.09	31.30	18.45
NZD	158	-2.39	-0.39	32.86	14.49	158	-2.39	-0.39	32.86	14.49	158	-2.39	-0.39	32.86	14.49	158	-2.39	-0.39	32.86	14.49
PHP	174	-1.75	-3.69	23.53	1.59	150	-2.08	-2.95	24.10	-0.09	125	-1.58	-3.50	17.20	0.32	101	-1.88	-2.44	16.43	-1.59
PLN	174	-8.17	-4.70	44.47	6.94	109	-7.61	-2.93	47.64	7.48	174	-8.17	-4.70	44.47	6.94	109	-7.61	-2.93	47.64	7.48
RUB	160	-6.37	-3.89	46.84	8.28	86	-5.09	-3.96	43.74	7.00	102	-7.66	-4.78	57.73	3.28	85	-4.91	-3.72	43.19	1.50
SEK	163	-5.49	-1.84	37.37	18.02	106	-3.83	-1.22	50.50	23.45	163	-5.49	-1.84	37.37	18.02	106	-3.83	-1.22	50.50	23.45
SGD	87	-1.99	-0.92	35.51	15.81	87	-1.99	-0.92	35.51	15.81	87	-1.99	-0.92	35.51	15.81	87	-1.99	-0.92	35.51	15.81
SIT	33	-17.46	-0.70	26.32	25.65						33	-17.46	-0.70	26.32	25.65					
SKK	71	-0.36	-0.09	21.43	9.87						71	-0.36	-0.09	21.43	9.87					
THB	174	-3.13	-3.90	17.71	0.61	174	-3.13	-3.90	17.71	0.61										
TRY	174	-2.69	-3.04	40.48	9.70	171	-4.38	-3.38	42.34	4.41	114	-7.77	-6.58	61.62	0.29	114	-7.77	-6.58	61.62	0.29
UAH	141	-0.28	-3.04	27.01	6.76															
ZAR	174	-9.33	-4.56	33.26	0.03	174	-9.33	-4.56	33.26	0.03										
pooled	5857	-0.29	-8.24	20.91	16.39	3467	-3.40	-4.44	27.90	7.20	4202	-2.61	-2.97	26.23	9.23	2404	-3.13	-2.75	28.34	9.60
pooled (doc)	5857	-0.29	-8.13	21.45	16.36	3467	-3.40	-4.45	28.21	7.21	4202	-2.61	-2.98	26.58	9.18	2404	-3.14	-2.76	28.57	9.60
sovFE	5857	-0.29	-8.17	21.63	16.52	3467	-3.38	-4.44	29.15	7.29	4202	-2.55	-2.89	27.99	9.52	2404	-3.02	-2.74	32.52	9.87

Table IA.19: Currency excess returns and innovations in global sovereign risk: Controlling for VIX

This table reports estimates for regressions of currency excess returns on innovations in global sovereign risk (defined as in Table 3) while controlling for the log changes in the VIX index. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variable (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-0.30	-0.52	6.91	5.08															
AUD	167	-2.82	-2.11	25.51	8.37	167	-11.20	-6.14	42.51	0.94	167	-10.46	-5.86	38.42	2.57	167	-12.45	-5.14	40.06	1.98
BGN	160	-1.79	-3.18	16.44	5.18						138	-6.03	-4.26	23.59	2.32					
BRL	160	-3.39	-2.74	21.72	5.44	160	-12.26	-4.06	32.09	0.45	71	-5.96	-4.05	35.65	10.23	71	-6.95	-3.71	35.64	9.55
CAD	133	-2.14	-1.66	22.44	5.25	133	-10.18	-7.65	42.04	-0.43	133	-9.55	-6.83	40.01	0.12	133	-11.35	-7.67	40.02	-0.15
CHF	100	-1.62	-1.98	10.33	2.49	58	-4.09	-3.56	4.81	-1.38	100	-6.19	-2.99	16.12	0.09	58	-3.91	-3.76	3.41	-1.01
CLP	160	-1.80	-1.33	18.81	8.57	160	-6.67	-1.94	25.09	2.71	160	-6.28	-1.83	23.72	4.24	160	-7.48	-1.74	24.23	3.86
CNY	174	0.15	1.42	3.10	3.53															
COP	160	-2.58	-2.30	20.80	7.44	160	-9.30	-5.34	28.47	1.79										
CYP	37	-2.30	-0.91	-2.51	0.31						37	2.42	0.44	-3.32	-2.10					
CZK	174	-2.14	-3.42	11.14	2.23						174	-7.54	-5.56	17.23	0.14					
DKK	172	-1.93	-3.38	15.44	3.41						172	-5.97	-4.41	20.11	0.91					
EEK	154	-1.78	-3.17	16.70	5.23						154	-6.06	-4.46	21.95	1.73					
GBP	133	-1.64	-1.89	15.02	2.80	133	-5.25	-3.09	19.74	-0.13	133	-5.42	-3.48	21.75	0.22	133	-5.94	-2.87	20.25	0.25
HKD	157	-0.00	-0.27	-1.15	-0.56						157	-0.04	-0.66	-1.00	-0.63					
HRK	160	-2.05	-3.63	18.19	4.88						160	-6.56	-5.12	22.85	1.69					
HUF	66	-1.43	-1.74	17.98	11.60						66	-19.67	-4.97	36.54	1.21					
IDR	164	-2.57	-2.55	9.85	1.19	83	-8.84	-1.69	1.76	-1.04	85	-8.70	-3.13	16.99	0.13	43	21.31	1.31	0.68	0.99
ILS	160	-1.31	-2.72	15.05	5.40	160	-3.56	-3.08	16.30	2.15	160	-4.13	-3.62	18.39	2.41	160	-4.44	-3.11	17.18	2.46
ISK	154	-1.98	-1.79	11.27	4.42	154	-6.76	-1.26	13.65	1.21	39	-22.42	-2.75	2.36	1.42	39	-15.69	-3.17	1.65	1.02
JPY	174	0.13	0.22	2.33	2.33	174	-0.09	-0.05	2.30	2.16	174	0.83	0.43	2.55	1.56	174	0.43	0.19	2.35	1.86
KRW	174	-2.22	-2.23	16.88	4.84	174	-10.54	-7.50	36.34	-0.21	114	-10.50	-6.77	40.41	0.80	114	-12.79	-6.26	41.08	0.62
LTL	160	-1.77	-3.14	16.53	5.37						160	-6.03	-4.38	21.33	1.91					
LVL	151	-1.86	-3.24	17.95	5.66	53	-4.55	-1.94	15.83	-0.79	151	-6.52	-5.05	23.53	1.80	53	-5.90	-2.84	18.14	-0.56
MTL	131	-1.71	-3.05	16.74	5.00						131	-5.55	-3.90	21.64	1.57					
MXN	174	-2.37	-2.39	30.25	11.07	174	-8.58	-6.23	42.13	2.89	174	-9.27	-7.09	45.22	3.86	174	-10.81	-6.31	44.32	3.81
MYR	174	-1.35	-3.04	14.86	6.30	144	-4.68	-3.79	27.51	2.54										
NOK	165	-2.55	-2.35	21.41	4.86	165	-7.39	-4.28	26.43	0.89	165	-7.98	-5.11	28.50	1.38	165	-8.25	-4.45	25.45	1.55
NZD	158	-2.19	-1.79	18.16	7.50	158	-10.35	-6.80	32.10	0.64	158	-9.72	-8.77	30.64	1.99	158	-11.42	-7.80	31.16	1.52
PHP	174	-0.84	-2.41	11.64	4.12	150	-3.84	-4.53	21.63	0.15	125	-2.64	-4.36	10.55	0.18	101	-3.23	-4.23	12.52	-0.05
PLN	174	-3.46	-3.19	24.73	6.32	109	-10.25	-3.89	31.96	0.51	174	-11.96	-6.02	35.10	1.71	109	-12.24	-4.54	32.52	0.73
RUB	160	-0.20	-0.14	12.37	11.32	86	-9.52	-3.58	28.39	1.62	102	-7.46	-5.18	23.07	8.89	85	-9.18	-5.26	25.24	2.70
SEK	163	-2.40	-2.49	19.65	4.74	106	-10.32	-14.83	47.33	0.43	163	-9.13	-9.73	32.88	0.62	106	-11.15	-13.42	47.29	1.15
SGD	87	-2.02	-2.50	25.55	1.09	87	-4.45	-4.30	35.04	-0.61	87	-4.23	-3.70	34.24	-0.05	87	-4.99	-3.72	35.64	-0.35
SIT	33	-0.66	-0.17	-5.92	-2.70						33	9.42	1.54	-2.27	-3.30					
SKK	71	-3.67	-2.77	12.05	-1.11						71	-7.20	-2.48	11.70	-1.21					
THB	174	-0.43	-0.70	1.84	0.39	174	-3.47	-5.14	12.96	-0.30										
TRY	174	-3.34	-2.78	23.20	5.87	171	-12.61	-4.70	36.57	0.10	114	-10.24	-4.87	45.84	2.28	114	-12.44	-3.58	46.30	2.11
UAH	141	-7.50	-4.14	6.88	4.44															
ZAR	174	-3.18	-2.55	17.92	7.05	174	-12.31	-4.99	26.28	1.57										
pooled	5857	-1.89	-2.77	12.53	3.69	3467	-7.67	-7.10	22.94	0.81	4202	-6.76	-6.76	21.82	1.66	2404	-8.29	-6.40	23.48	1.36
pooled (doc)	5857	-1.86	-2.65	12.97	3.74	3467	-7.66	-7.08	23.25	0.82	4202	-6.77	-6.70	22.20	1.66	2404	-8.29	-6.38	23.71	1.37
sovFE	5857	-1.89	-2.76	13.29	3.71	3467	-7.64	-7.09	24.16	0.83	4202	-6.80	-6.77	23.64	1.68	2404	-8.24	-6.42	27.81	1.40

Table IA.20: Currency excess returns and innovations in global sovereign risk: Other controls

This table reports estimates for regressions of currency excess returns on innovations in global sovereign risk (defined as in Table 3) while controlling for the US stock market return, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-2.66	-1.10	1.49	-0.34															
AUD	167	-0.90	-1.13	41.00	23.85	167	-7.41	-3.27	45.25	3.67	167	-5.65	-2.83	43.11	7.26	167	-7.57	-3.06	44.23	6.15
BGN	160	-0.75	-1.27	24.51	13.24						138	-3.16	-1.54	24.62	3.35					
BRL	160	-1.91	-1.01	27.66	11.38	160	-11.12	-2.72	31.85	0.21	71	-0.18	-0.08	39.63	14.21	71	-1.49	-0.55	39.79	13.69
CAD	133	-0.75	-1.24	42.22	25.03	133	-5.88	-4.18	45.13	2.66	133	-5.47	-3.09	45.26	5.37	133	-6.28	-3.75	45.02	4.84
CHF	100	-1.14	-1.57	15.21	7.37	58	-0.37	-0.18	4.59	-1.61	100	-4.33	-1.69	15.05	-0.99	58	0.85	0.49	4.66	0.24
CLP	160	-0.58	-0.68	24.65	14.41	160	-3.95	-1.13	25.92	3.54	160	-2.90	-0.79	25.15	5.67	160	-3.99	-0.87	25.54	5.17
CNY	174	0.15	1.61	-0.75	-0.32															
COP	160	-1.64	-1.47	21.76	8.40	160	-9.66	-3.81	26.07	-0.61										
CYP	37	4.08	1.13	-0.52	2.29						37	17.01	2.78	10.39	11.61					
CZK	174	-1.07	-1.94	20.58	11.67						174	-4.97	-2.18	21.68	4.58					
DKK	172	-0.93	-1.46	23.96	11.92						172	-2.97	-1.58	23.90	4.71					
EEK	154	-0.78	-1.35	23.81	12.35						154	-2.96	-1.56	24.01	3.79					
GBP	133	-0.62	-1.07	26.19	13.97	133	-1.72	-0.93	25.79	5.92	133	-2.99	-1.94	27.09	5.57	133	-2.69	-1.38	26.38	6.38
HKD	157	0.01	0.87	0.04	0.63						157	0.06	0.64	0.10	0.46					
HRK	160	-1.10	-2.37	24.93	11.62						160	-3.70	-2.14	24.83	3.67					
HUF	66	-1.29	-2.10	24.35	17.97						66	-19.11	-4.59	38.41	3.08					
IDR	164	-1.10	-1.74	17.26	8.61	83	-2.59	-0.44	4.02	1.22	85	1.28	0.47	25.80	8.95	43	27.99	2.03	12.95	13.26
ILS	160	-0.50	-1.10	22.19	12.53	160	0.30	0.21	21.61	7.46	160	-0.98	-0.52	21.79	5.81	160	-0.36	-0.19	21.61	6.88
ISK	154	0.01	0.01	25.95	19.10	154	2.52	0.49	26.29	13.85	39	0.10	0.01	6.41	5.47	39	2.58	0.38	6.57	5.94
JPY	174	-0.30	-0.86	2.12	2.11	174	-3.25	-1.66	3.77	3.64	174	-1.42	-0.75	2.29	1.29	174	-2.60	-1.36	2.84	2.35
KRW	174	-0.36	-0.41	38.99	26.94	174	-5.40	-2.64	41.92	5.37	114	-4.16	-1.15	46.18	6.57	114	-5.37	-1.35	46.44	5.98
LTL	160	-0.74	-1.26	24.43	13.27						160	-2.54	-1.33	24.39	4.96					
LVL	151	-0.82	-1.57	25.59	13.30	53	1.33	0.38	23.72	7.11	151	-3.07	-1.86	25.68	3.95	53	-1.87	-0.58	23.87	5.17
MTL	131	-0.67	-1.17	24.66	12.92						131	-2.13	-1.15	24.55	4.47					
MXN	174	-1.12	-1.82	40.30	21.12	174	-5.76	-3.12	42.91	3.66	174	-7.02	-3.66	44.95	3.60	174	-7.96	-3.76	44.59	4.08
MYR	174	-0.82	-1.83	16.50	7.94	144	-4.37	-1.95	24.75	-0.23										
NOK	165	-1.07	-2.14	32.86	16.32	165	-1.89	-0.89	31.87	6.33	165	-3.07	-1.55	32.55	5.43	165	-1.69	-0.80	31.70	7.80
NZD	158	-0.31	-0.48	32.85	22.20	158	-5.19	-2.47	34.65	3.19	158	-4.21	-2.70	34.20	5.54	158	-5.33	-3.16	34.50	4.86
PHP	174	-0.35	-1.54	16.69	9.17	150	-3.26	-2.33	20.65	-0.83	125	-1.60	-1.72	10.65	0.27	101	-2.38	-1.78	11.46	-1.11
PLN	174	-1.98	-3.00	38.86	20.45	109	-4.50	-1.40	42.69	11.24	174	-8.47	-2.58	40.69	7.29	109	-6.02	-1.58	43.18	11.40
RUB	160	1.05	1.21	18.58	17.53	86	-5.64	-2.39	30.99	4.22	102	-2.42	-0.97	22.33	8.15	85	-3.85	-1.70	28.80	6.26
SEK	163	-0.91	-1.49	36.34	21.43	106	-5.37	-3.43	52.56	5.65	163	-5.02	-3.00	38.21	5.95	106	-5.68	-2.90	52.77	6.63
SGD	87	-0.35	-0.31	34.77	10.32	87	-2.56	-1.51	37.43	1.78	87	-2.24	-1.26	37.05	2.76	87	-2.93	-1.49	37.98	1.99
SIT	33	7.14	2.06	17.64	20.87						33	21.74	4.17	29.84	28.81					
SKK	71	0.13	0.07	20.86	7.70						71	1.37	0.26	21.00	8.09					
THB	174	0.23	0.60	10.12	8.67	174	-2.36	-2.33	12.40	-0.86										
TRY	174	-1.96	-1.95	30.11	12.78	171	-12.00	-3.57	36.28	-0.19	114	-8.40	-2.96	44.09	0.53	114	-10.47	-2.56	44.58	0.39
UAH	141	-4.84	-1.42	1.26	-1.18															
ZAR	174	-1.11	-1.20	25.04	14.17	174	-7.61	-1.95	26.86	2.16										
pooled	5857	-0.78	-1.78	18.84	10.00	3467	-4.53	-3.38	24.65	2.52	4202	-3.47	-2.59	24.51	4.35	2404	-4.13	-3.17	26.43	4.32
pooled (doc)	5857	-0.73	-1.69	19.35	10.12	3467	-4.51	-3.38	24.96	2.53	4202	-3.49	-2.61	24.85	4.31	2404	-4.13	-3.17	26.66	4.32
sovFE	5857	-0.78	-1.78	19.64	10.05	3467	-4.47	-3.32	25.90	2.57	4202	-3.48	-2.63	26.39	4.43	2404	-4.03	-3.13	30.79	4.38

Table IA.21: Currency excess returns and innovations in global sovereign risk: All controls

This table reports estimates for regressions of currency excess returns on innovations in global sovereign risk (defined as in Table 3) while controlling for the log changes in the VIX index, US stock market return, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets. We report the slope coefficient (b), t-statistic (t_b), R^2, the incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
ARS	126	-4.35	-1.23	14.09	12.26															
AUD	167	-0.86	-1.08	40.82	23.67	167	-7.36	-3.26	44.91	3.34	167	-5.60	-2.76	42.76	6.91	167	-7.53	-3.02	43.89	5.80
BGN	160	-0.74	-1.15	24.06	12.80						138	-3.47	-1.98	24.19	2.92					
BRL	160	-1.92	-1.18	27.20	10.92	160	-11.58	-2.91	31.66	0.03	71	-1.92	-0.70	40.75	15.34	71	-2.91	-0.96	41.05	14.96
CAD	133	-0.72	-1.36	43.44	26.25	133	-5.52	-3.71	45.92	3.45	133	-5.02	-3.12	45.81	5.92	133	-5.84	-3.68	45.75	5.57
CHF	100	-1.14	-1.77	14.33	6.49	58	-0.36	-0.16	2.75	-3.44	100	-4.53	-1.91	14.22	-1.81	58	0.98	0.55	2.85	-1.57
CLP	160	-0.64	-0.72	24.64	14.41	160	-4.46	-1.43	26.24	3.85	160	-3.71	-1.13	25.53	6.06	160	-4.84	-1.29	25.95	5.59
CNY	174	0.13	1.36	1.48	1.92															
COP	160	-1.74	-1.26	22.22	8.86	160	-10.74	-4.68	27.53	0.85										
CYP	37	2.98	0.77	10.49	13.31						37	14.82	2.06	19.51	20.72					
CZK	174	-1.00	-1.83	20.72	11.81						174	-4.52	-1.95	21.46	4.36					
DKK	172	-0.88	-1.43	23.83	11.80						172	-2.69	-1.58	23.60	4.40					
EEK	154	-0.77	-1.16	23.31	11.85						154	-3.04	-1.80	23.50	3.29					
GBP	133	-0.56	-1.05	26.46	14.24	133	-1.22	-0.64	25.97	6.10	133	-2.54	-1.63	26.91	5.38	133	-2.12	-0.99	26.36	6.35
HKD	157	0.02	0.99	-0.03	0.56						157	0.09	0.93	0.23	0.59					
HRK	160	-1.09	-2.02	24.45	11.14						160	-3.81	-2.11	24.36	3.21					
HUF	66	-1.25	-2.01	23.59	17.20						66	-19.35	-4.41	38.54	3.20					
IDR	164	-1.03	-1.84	17.12	8.46	83	-2.38	-0.35	4.15	1.34	85	2.80	0.79	26.18	9.33	43	26.93	1.65	10.93	11.24
ILS	160	-0.50	-1.15	21.69	12.03	160	0.37	0.23	21.12	6.97	160	-0.97	-0.47	21.28	5.30	160	-0.29	-0.14	21.11	6.39
ISK	154	0.04	0.04	25.54	18.69	154	2.84	0.57	25.95	13.51	39	-6.32	-0.64	18.34	17.40	39	-2.08	-0.33	17.93	17.30
JPY	174	-0.24	-0.63	2.15	2.15	174	-2.98	-1.44	3.53	3.40	174	-0.95	-0.45	2.19	1.19	174	-2.21	-0.99	2.66	2.16
KRW	174	-0.25	-0.29	40.54	28.50	174	-4.77	-1.85	42.81	6.26	114	-3.49	-0.76	46.13	6.52	114	-4.62	-0.98	46.38	5.92
LTL	160	-0.73	-1.12	23.96	12.80						160	-2.54	-1.47	23.90	4.47					
LVL	151	-0.82	-1.27	25.09	12.79	53	1.47	0.39	22.58	5.96	151	-3.14	-2.06	25.17	3.45	53	-1.59	-0.52	22.57	3.87
MTL	131	-0.66	-1.00	24.11	12.36						131	-2.08	-1.28	23.95	3.88					
MXN	174	-1.14	-1.79	40.07	20.89	174	-6.10	-3.34	42.98	3.73	174	-7.75	-3.89	45.53	4.17	174	-8.62	-3.98	44.97	4.46
MYR	174	-0.89	-1.87	17.08	8.52	144	-5.17	-2.45	26.91	1.93										
NOK	165	-1.03	-1.94	32.63	16.08	165	-1.67	-0.78	31.62	6.08	165	-2.86	-1.46	32.20	5.08	165	-1.36	-0.65	31.46	7.56
NZD	158	-0.25	-0.40	32.67	22.02	158	-4.98	-2.39	34.29	2.83	158	-3.99	-2.51	33.81	5.15	158	-5.11	-2.99	34.12	4.48
PHP	174	-0.37	-1.43	16.33	8.82	150	-3.53	-2.39	20.58	-0.91	125	-2.01	-2.00	10.39	0.02	101	-3.00	-2.01	11.23	-1.35
PLN	174	-1.94	-2.82	38.64	20.23	109	-4.17	-1.24	42.60	11.14	174	-8.52	-2.45	40.33	6.94	109	-5.62	-1.41	43.03	11.25
RUB	160	0.97	1.12	18.77	17.72	86	-5.68	-2.40	30.13	3.36	102	-4.63	-2.13	23.69	9.52	85	-4.01	-1.61	27.91	5.38
SEK	163	-0.82	-1.20	37.08	22.17	106	-5.02	-3.47	52.33	5.42	163	-4.42	-2.79	38.34	6.08	106	-5.33	-3.24	52.47	6.33
SGD	87	-0.14	-0.13	35.01	10.55	87	-2.31	-1.55	37.22	1.57	87	-1.95	-1.26	36.70	2.41	87	-2.66	-1.59	37.66	1.68
SIT	33	6.08	1.72	30.54	33.77						33	18.01	2.92	38.17	37.14					
SKK	71	0.63	0.40	21.56	8.40						71	2.42	0.52	21.86	8.95					
THB	174	0.29	0.91	11.95	10.51	174	-2.01	-1.98	13.33	0.07										
TRY	174	-1.96	-1.89	29.69	12.37	171	-12.28	-3.69	36.02	-0.45	114	-9.47	-3.68	44.72	1.17	114	-11.76	-3.06	45.25	1.07
UAH	141	-3.00	-0.99	7.01	4.57															
ZAR	174	-1.14	-1.17	24.67	13.80	174	-8.10	-2.20	26.69	1.99										
pooled	5857	-0.76	-1.71	18.88	10.04	3467	-4.50	-3.29	24.63	2.50	4202	-3.43	-2.52	24.49	4.33	2404	-3.98	-2.97	26.43	4.32
pooled (doc)	5857	-0.71	-1.62	19.39	10.16	3467	-4.48	-3.28	24.94	2.51	4202	-3.46	-2.55	24.83	4.29	2404	-3.98	-2.97	26.66	4.32
sovFE	5857	-0.76	-1.71	19.68	10.10	3467	-4.43	-3.23	25.88	2.55	4202	-3.43	-2.55	26.38	4.41	2404	-3.89	-2.93	30.79	4.38

Table IA.22: Descriptive statistics for affine model implied CDS spreads (CDS_t^Q)

This table provides descriptive statistics (mean, median, and standard deviation) for the model-implied CDS spread from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). CDS_t^Q denotes the model-implied CDS spread, which reflects default expectations under the risk-neutral measure, and ΔCDS_t^Q denotes the change in CDS_t^Q. All numbers are in basis points (*bps*). The sample is monthly from 01/2003 – 07/2017.

	CDS_t^Q (*bps*)			ΔCDS_t^Q (*bps*)		
	mean	med	sd	mean	med	sd
AUD	24.02	4.34	36.28	0.28	0.00	12.35
BRL	184.18	139.08	112.83	-3.53	-3.68	40.11
CAD	36.56	41.49	15.82	-0.83	-0.73	5.03
CHF	33.37	31.51	14.51	-0.22	0.04	5.72
CLP	69.35	70.08	49.50	0.04	-1.11	18.32
CNY	64.99	64.06	46.09	-0.04	-0.55	18.18
COP	174.96	140.48	95.47	-2.50	-7.07	35.99
CZK	57.49	46.91	53.99	-0.08	-0.34	19.39
DKK	32.38	22.00	34.35	0.04	-0.07	11.99
GBP	46	37.45	28.70	0.11	-0.12	9.81
HUF	322.57	287.94	120.37	-13.70	-10.17	41.36
IDR	224.99	192.44	119.35	-2.87	-7.24	50.65
ILS	95.93	95.83	59.07	0.23	-1.02	19.10
ISK	226.58	162.66	223.14	0.97	-0.56	66.10
JPY	40.02	35.33	33.75	-0.08	-0.23	10.02
KRW	87.75	71.62	74.23	-0.50	-0.80	30.78
MXN	120.49	109.55	68.25	-1.52	-4.37	28.29
MYR	81.69	80.93	54.72	-0.48	-0.63	20.71
NOK	17.17	15.77	11.15	0.02	-0.07	4.22
NZD	42.40	27.97	46.76	0.63	0.15	18.34
PHP	238.74	180.99	137.70	-3.58	-5.06	37.70
PLN	88.81	64.08	79.33	-0.15	-0.69	24.93
SEK	26.27	18.17	25.08	0.05	-0.08	9.79
SGD	39.62	45.00	29.72	0.83	0.00	5.90
THB	93.79	90.73	58.28	0.01	-1.37	22.01
TRY	270.67	213.42	178.30	-5.94	-5.37	68.25
ZAR	206.13	195.32	148.02	-2.38	-2.78	49.13

Table IA.23: Descriptive statistics for affine model implied default expectations (CDS_t^P)

This table provides descriptive statistics (mean, median, and standard deviation) for model-implied default expectations obtained from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). CDS_t^P denotes the model-implied 'pseudo' spread, which reflects default expectations under the physical probability measure, and ΔCDS_t^P denotes the change in CDS_t^P. We report statistics for the level and changes in CDS_t^P in basis points (*bps*). Additionally, we report the fraction of the CDS spread that can be attributed to default expectations (under the physical probability measure) by computing the ratio CDS_t^P/CDS_t^Q, where CDS_t^Q denotes the model-implied CDS spread, which reflects default expectations under the risk-neutral measure. The sample is monthly from 01/2003 – 07/2017.

	CDS_t^P (*bps*)			CDS_t^P/CDS_t^Q			ΔCDS_t^P (*bps*)		
	mean	med	sd	mean	med	sd	mean	med	sd
AUD	19.81	3.50	31.47	0.84	0.83	0.15	0.19	0.00	11.30
BRL	133.76	101.98	93.34	0.71	0.73	0.10	-3.02	-2.69	38.03
CAD	26.15	27.29	11.84	0.79	0.74	0.35	-0.61	-0.14	5.97
CHF	21.93	17.45	12.38	0.63	0.63	0.09	-0.23	-0.01	5.44
CLP	50.43	46.91	39.41	0.71	0.72	0.06	-0.03	-0.86	16.22
CNY	44.67	38.24	37.21	0.67	0.68	0.09	-0.22	-0.14	16.98
COP	125.17	96.90	80.46	0.70	0.71	0.10	-1.79	-5.40	34.62
CZK	44.92	30.40	49.34	0.73	0.72	0.11	-0.22	-0.30	19.70
DKK	22	10.92	28.37	0.62	0.64	0.15	-0.00	-0.05	11.68
GBP	30.13	20.94	24.81	0.61	0.59	0.13	0.04	-0.07	9.60
HUF	276.34	234.77	129.32	0.83	0.82	0.08	-15.50	-10.93	42.55
IDR	169.08	125.93	129.17	0.70	0.68	0.12	-2.65	-4.21	53.13
ILS	71.79	63.53	51.08	0.72	0.73	0.09	0.05	-1.16	17.81
ISK	216.91	116.91	265.72	0.82	0.74	0.18	0.79	-0.91	71.47
JPY	25.02	18.23	23.64	0.62	0.62	0.09	-0.11	-0.12	9.40
KRW	69.21	49.56	73.42	0.73	0.75	0.13	-0.58	-0.54	31.15
MXN	88.27	75.41	64.81	0.70	0.70	0.09	-1.18	-2.92	28.04
MYR	58.81	53.20	48.06	0.69	0.69	0.10	-0.54	-0.88	19.95
NOK	11.17	8.08	9.28	0.62	0.60	0.13	0.01	0.00	4.39
NZD	35.05	20.69	42.51	0.72	0.73	0.18	0.46	0.08	17.27
PHP	176.64	125.92	122.26	0.69	0.70	0.12	-2.79	-2.75	39.02
PLN	69.04	38.21	71.63	0.72	0.71	0.11	-0.26	-0.66	24.95
SEK	17.64	7.87	21.97	0.60	0.61	0.16	-0.03	-0.10	9.94
SGD	31.37	32.66	23.86	0.97	0.77	0.54	0.78	0.00	5.99
THB	68.89	62.53	51.01	0.71	0.71	0.08	-0.14	-0.48	21.32
TRY	218.29	166.02	178.25	0.77	0.77	0.11	-5.66	-6.18	77.68
ZAR	174.38	139.68	147.49	0.78	0.73	0.12	-2.34	-1.27	51.18

Table IA.24: Descriptive statistics for affine model implied distress risk premia ($CDSRP_t$)

This table provides descriptive statistics (mean, median, and standard deviation) for model-implied distress risk premia obtained from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). Using the model, we obtain estimates for model-implied CDS spreads CDS_t^Q, which reflect default expectations under the risk-neutral measure, and 'pseudo' spreads CDS_t^P, which reflect default expectations under the physical probability measure. The distress risk premium is defined as $CDSRP_t = CDS_t^Q - CDS_t^P$, and $\Delta CDSRP_t$ denotes changes in $CDSRP_t$. We report statistics for the level and changes in $CDSRP_t$ in basis points (*bps*). Additionally, we report the fraction of the CDS spread that can be attributed to distress risk premia by computing the ratio $CDSRP_t/CDS_t^Q$. The sample is monthly from 01/2003 – 07/2017.

	$CDSRP_t$ (*bps*)			$CDSRP_t/CDS_t^Q$			$\Delta CDSRP_t$ (*bps*)		
	mean	med	sd	mean	med	sd	mean	med	sd
AUD	4.21	1.07	5.62	0.16	0.17	0.15	0.09	0.02	3.15
BRL	50.42	38.50	28.85	0.29	0.27	0.10	-0.51	0.00	7.09
CAD	10.41	11.38	6.65	0.21	0.26	0.35	-0.22	-0.28	2.81
CHF	11.44	10.41	3.45	0.37	0.37	0.09	0.01	-0.02	2.41
CLP	18.92	20.05	11.63	0.29	0.28	0.06	0.07	-0.15	4.55
CNY	20.32	16.60	13.77	0.33	0.32	0.09	0.18	0.05	3.03
COP	49.79	37.61	27.89	0.30	0.29	0.10	-0.71	-0.28	7.56
CZK	12.58	9.40	10.13	0.27	0.28	0.11	0.14	0.09	2.54
DKK	10.38	9.71	8.77	0.38	0.36	0.15	0.04	0.05	2.73
GBP	15.88	14.44	8.14	0.39	0.41	0.13	0.06	0.20	2.71
HUF	46.23	50.99	10.76	0.17	0.18	0.08	1.81	1.35	3.71
IDR	55.91	59.56	22.19	0.30	0.32	0.12	-0.22	0.16	8.77
ILS	24.14	25.12	13.28	0.28	0.27	0.09	0.18	0.25	4.40
ISK	9.68	26.55	54.96	0.18	0.26	0.18	0.18	0.06	29.18
JPY	15	14.44	11.90	0.38	0.38	0.09	0.03	-0.08	2.36
KRW	18.54	15.21	11.79	0.27	0.25	0.13	0.08	0.16	3.28
MXN	32.23	32.97	11.74	0.30	0.30	0.09	-0.34	-0.38	4.54
MYR	22.88	21.07	13.82	0.31	0.31	0.10	0.06	-0.13	3.25
NOK	6.01	6.60	3.41	0.38	0.40	0.13	0.01	0.03	2.24
NZD	7.35	8.06	6.19	0.28	0.27	0.18	0.16	0.01	5.49
PHP	62.10	52.30	30.14	0.31	0.30	0.12	-0.79	-0.52	8.23
PLN	19.77	16.92	14.19	0.28	0.29	0.11	0.11	0.20	2.93
SEK	8.63	8.15	5.42	0.40	0.39	0.16	0.08	-0.03	2.11
SGD	8.26	10.31	6.54	0.03	0.23	0.54	0.05	0.00	3.08
THB	24.89	21.38	13.95	0.29	0.29	0.08	0.15	0.10	3.27
TRY	52.39	52.22	22.85	0.23	0.23	0.11	-0.27	0.24	14.12
ZAR	31.75	25.04	23.64	0.22	0.27	0.12	-0.04	0.21	6.67

Table IA.25: Weekly currency excess returns, default expectations, and distress risk premia

This table reports estimates for regressions of currency excess returns on CDS spread changes, decomposed into changes in default expectations and changes in distress risk premia. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the model-implied CDS spread (ΔCDS_t^Q), changes in default expectations under the physical measure (ΔCDS_t^P), and the CDS implied distress risk premium ($\Delta CDSRP_t = \Delta CDS_t^Q - \Delta CDS_t^P$). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is weekly from 01/2003 – 07/2017.

		ΔCDS_t^Q			ΔCDS_t^P			$\Delta CDSRP_t$		
	N	b	t_b	R^2	b	t_b	R^2	b	t_b	R^2
AUD	313	-7.44	-1.70	4.56	-7.68	-2.10	5.10	4.12	0.73	0.22
BRL	539	-5.69	-9.77	39.25	-5.76	-8.16	36.15	-21.60	-5.23	13.46
CAD	239	-3.06	-1.30	0.53	0.93	0.49	0.07	-7.31	-2.21	1.84
CHF	386	-2.35	-0.41	0.17	-1.99	-0.28	0.10	-2.26	-0.58	0.05
CLP	539	-6.59	-4.80	14.74	-7.53	-5.49	17.76	1.29	0.75	0.16
CNY	603	-0.23	-2.21	1.14	-0.23	-2.17	0.99	-0.73	-1.67	0.42
COP	539	-2.80	-3.06	14.41	-2.83	-2.99	12.69	-14.25	-5.71	9.26
CZK	601	-8.24	-7.91	15.74	-7.96	-7.00	13.45	-15.46	-2.38	3.39
DKK	636	-8.68	-9.41	8.01	-7.25	-15.36	5.62	-8.42	-2.27	1.25
GBP	490	-10.37	-4.34	12.14	-9.71	-4.60	10.70	-4.81	-1.11	0.33
HUF	136	-5.93	-9.03	41.74	-5.63	-9.24	40.00	4.52	0.51	0.31
IDR	552	-1.14	-2.18	6.49	-1.17	-2.37	7.14	2.77	1.22	1.17
ILS	539	-3.59	-4.27	6.12	-3.62	-3.89	5.76	-2.15	-0.57	0.24
ISK	603	-1.65	-2.70	2.93	-1.06	-3.21	1.94	0.11	0.07	0.01
JPY	746	4.18	2.46	2.02	3.95	2.13	1.49	9.86	2.16	1.05
KRW	603	-6.25	-7.70	46.48	-6.23	-9.17	46.18	-1.56	-0.26	0.04
MXN	603	-5.07	-7.19	35.03	-5.29	-6.80	34.43	-13.91	-4.25	5.57
MYR	603	-2.43	-3.24	13.82	-2.36	-3.39	12.76	-3.22	-1.57	0.89
NOK	575	-20.46	-4.57	4.78	-16.64	-5.01	3.87	-0.13	-0.03	0.00
NZD	212	-4.91	-1.69	4.01	-3.22	-0.72	1.83	-4.23	-0.68	1.06
PHP	603	-1.69	-4.22	23.72	-1.69	-4.28	22.29	-4.72	-2.99	3.92
PLN	603	-10.26	-10.37	31.42	-10.43	-10.40	29.38	-20.28	-2.43	4.95
SEK	620	-13.61	-8.19	12.45	-12.58	-6.71	11.30	-1.81	-0.29	0.03
SGD	179	-9.57	-3.09	10.28	-8.78	-4.21	9.33	-0.34	-0.10	0.00
THB	603	-1.43	-2.77	5.61	-1.40	-2.85	5.09	-3.29	-2.52	0.90
TRY	603	-3.97	-6.74	42.11	-3.64	-5.48	38.62	0.20	0.06	0.00
ZAR	603	-4.20	-6.51	15.82	-4.01	-6.11	14.71	-2.11	-1.31	0.20

Table IA.26: Exchange rate returns, default expectations, and distress risk premia

This table reports estimates for regressions of exchange rate returns on CDS spread changes, decomposed into changes in default expectations and changes in distress risk premia. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the model-implied CDS spread (ΔCDS_t^Q), changes in default expectations under the physical measure (ΔCDS_t^P), and the CDS implied distress risk premium ($\Delta CDSRP_t = \Delta CDS_t^Q - \Delta CDS_t^P$). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2003 – 07/2017.

		ΔCDS_t^Q			ΔCDS_t^P			$\Delta CDSRP_t$		
	N	b	t_b	R^2	b	t_b	R^2	b	t_b	R^2
AUD	70	-13.98	-2.72	16.89	-18.22	-6.16	24.02	19.46	0.85	2.14
BRL	119	-6.15	-6.40	33.83	-6.29	-6.54	31.88	-15.68	-2.93	6.87
CAD	46	-21.76	-3.23	22.37	-17.44	-3.41	20.22	8.96	0.89	1.18
CHF	88	-24.08	-9.51	22.77	-24.73	-7.87	21.78	-9.25	-0.75	0.60
CLP	119	-10.82	-2.99	28.02	-13.05	-3.80	31.96	-9.58	-0.89	1.36
CNY	133	-0.10	-0.46	0.15	-0.15	-0.68	0.30	1.20	0.59	0.58
COP	119	-5.55	-4.93	28.25	-5.73	-5.72	27.94	-5.44	-1.03	1.20
CZK	133	-8.73	-5.91	19.74	-8.77	-5.62	20.56	18.52	5.44	1.53
DKK	142	-8.18	-5.18	10.74	-7.73	-4.53	9.09	-16.43	-1.09	2.24
GBP	111	-14.46	-6.18	25.80	-13.34	-5.47	21.07	-21.81	-3.04	4.48
HUF	29	-7.07	-3.49	58.36	-6.85	-3.68	58.08	23.22	0.88	5.07
IDR	120	-3.87	-9.15	44.69	-3.70	-10.76	45.03	6.82	1.01	4.17
ILS	119	-5.08	-4.25	14.25	-5.98	-4.08	17.17	2.26	0.44	0.15
ISK	136	-3.25	-2.83	22.38	-2.84	-3.01	20.00	0.37	0.12	0.06
JPY	168	-0.60	-0.17	0.05	-0.42	-0.12	0.02	-4.18	-0.37	0.12
KRW	133	-7.63	-14.97	45.21	-7.41	-13.46	43.68	-3.40	-0.22	0.10
MXN	133	-7.46	-7.28	50.31	-7.43	-6.70	48.95	-6.44	-0.70	0.97
MYR	133	-5.45	-7.48	43.49	-5.62	-7.54	42.79	-9.84	-1.73	3.48
NOK	132	-31.36	-6.69	14.66	-22.90	-2.20	8.48	-23.18	-2.56	2.25
NZD	48	-8.82	-1.73	9.91	-9.95	-5.41	11.18	0.01	0.00	0.00
PHP	133	-2.15	-5.98	22.88	-1.93	-6.17	19.67	-1.83	-0.53	0.79
PLN	133	-11.26	-8.41	40.42	-11.26	-9.43	40.50	1.58	0.12	0.01
SEK	137	-17.09	-7.15	23.68	-16.99	-9.49	24.12	9.17	1.11	0.32
SGD	38	-22.58	-5.36	43.14	-20.69	-4.01	37.36	-4.53	-0.33	0.48
THB	133	-3.46	-7.34	18.72	-3.41	-8.33	17.14	-11.42	-2.03	4.52
TRY	133	-3.34	-3.29	30.77	-2.88	-2.95	29.51	8.96	2.33	9.45
ZAR	133	-4.22	-4.72	18.06	-3.90	-4.64	16.77	0.82	0.10	0.01

Table IA.27: Weekly exchange rate returns, default expectations, and distress risk premia

This table reports estimates for regressions of exchange rate returns on CDS spread changes, decomposed into changes in default expectations and changes in distress risk premia. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the model-implied CDS spread (ΔCDS_t^Q), changes in default expectations under the physical measure (ΔCDS_t^P), and the CDS implied distress risk premium ($\Delta CDSRP_t = \Delta CDS_t^Q - \Delta CDS_t^P$). We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is weekly from 01/2003 – 07/2017.

		ΔCDS_t^Q			ΔCDS_t^P			$\Delta CDSRP_t$		
	N	b	t_b	R^2	b	t_b	R^2	b	t_b	R^2
AUD	313	-7.46	-1.70	4.57	-7.69	-2.10	5.11	4.11	0.72	0.21
BRL	539	-5.67	-9.83	39.12	-5.74	-8.24	36.01	-21.56	-5.21	13.47
CAD	239	-3.08	-1.31	0.53	0.91	0.48	0.07	-7.31	-2.21	1.84
CHF	386	-2.34	-0.41	0.17	-1.99	-0.28	0.09	-2.25	-0.58	0.05
CLP	539	-6.59	-4.80	14.73	-7.53	-5.49	17.75	1.29	0.75	0.16
CNY	603	-0.22	-2.35	1.11	-0.22	-2.33	0.99	-0.64	-1.47	0.33
COP	539	-2.80	-3.07	14.37	-2.83	-3.00	12.64	-14.29	-5.76	9.30
CZK	601	-8.23	-7.85	15.70	-7.95	-6.95	13.42	-15.44	-2.39	3.37
DKK	636	-8.72	-9.36	8.10	-7.28	-18.17	5.67	-8.49	-2.27	1.27
GBP	490	-10.41	-4.36	12.19	-9.74	-4.61	10.73	-4.88	-1.13	0.34
HUF	136	-5.92	-9.01	41.68	-5.62	-9.33	39.91	4.33	0.49	0.29
IDR	552	-1.08	-2.08	8.19	-1.09	-2.27	8.91	2.41	1.14	1.27
ILS	539	-3.60	-4.27	6.13	-3.63	-3.90	5.77	-2.16	-0.57	0.24
ISK	603	-1.64	-2.65	2.89	-1.05	-3.16	1.89	0.09	0.06	0.00
JPY	746	4.20	2.46	2.04	3.96	2.12	1.50	10.01	2.19	1.08
KRW	603	-6.25	-8.15	46.46	-6.23	-9.62	46.13	-1.68	-0.29	0.05
MXN	603	-5.04	-7.18	34.75	-5.26	-6.77	34.15	-13.82	-4.31	5.51
MYR	603	-2.33	-3.22	16.83	-2.29	-3.34	15.89	-2.40	-1.31	0.66
NOK	575	-20.58	-4.61	4.82	-16.77	-5.05	3.92	-0.06	-0.01	0.00
NZD	212	-4.91	-1.69	4.00	-3.26	-0.73	1.87	-4.09	-0.66	0.99
PHP	603	-1.68	-4.23	23.45	-1.68	-4.30	22.01	-4.75	-3.01	3.99
PLN	603	-10.25	-10.42	31.36	-10.42	-10.45	29.34	-20.19	-2.42	4.90
SEK	620	-13.63	-8.22	12.51	-12.59	-6.75	11.33	-1.90	-0.31	0.03
SGD	179	-9.61	-3.08	10.36	-8.82	-4.22	9.43	-0.29	-0.09	0.00
THB	603	-1.43	-2.78	5.60	-1.40	-2.86	5.08	-3.28	-2.50	0.89
TRY	603	-3.94	-6.92	42.52	-3.61	-5.62	39.05	0.29	0.08	0.01
ZAR	603	-4.12	-6.42	16.63	-3.89	-5.94	15.16	-2.85	-1.99	0.40

Table IA.28: Currency excess returns and sovereign risk: Model-implied CDS spreads

This table reports estimates for regressions of currency excess returns on global CDS spread changes ("Global shocks") and both global and local shocks ("Local and global shocks"). Global shocks are the cross-country average (excluding the country used as dependent variable) of changes in model-implied CDS spreads (CDS_t^Q), obtained from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). Local shocks are changes in CDS_t^Q orthogonalized with respect to global shocks. We report the slope coefficients (b), adjusted R^2, incremental adjusted R^2 between "Local and global shocks" and "Global shocks" (R^2_{loc}), and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2003 – 07/2017.

		Global shocks			Local and global shocks					
	N	b	t_b	R^2	b^{loc}	t_b^{loc}	b^{glob}	t_b^{glob}	R^2	R^2_{loc}
AUD	70	-11.04	-5.06	43.66	6.39	0.86	-11.04	-5.45	44.44	0.78
BRL	119	-12.29	-6.23	37.33	-3.37	-3.73	-12.29	-6.44	41.56	4.23
CAD	46	-9.85	-9.61	56.57	2.63	0.59	-9.85	-9.93	55.75	-0.82
CHF	88	-11.18	-9.05	25.14	-12.30	-3.07	-11.18	-11.50	27.57	2.43
CLP	119	-8.66	-2.64	25.53	-7.24	-1.96	-8.66	-2.87	27.59	2.06
CNY	133	0.19	0.97	-0.03	-0.49	-1.47	0.19	0.99	0.26	0.29
COP	119	-10.10	-11.31	32.83	-1.89	-1.37	-10.10	-8.77	33.34	0.52
CZK	133	-7.12	-4.54	16.52	-6.14	-3.19	-7.12	-4.66	19.95	3.44
DKK	142	-6.39	-5.12	20.06	-1.23	-0.39	-6.39	-5.22	19.62	-0.44
GBP	111	-5.92	-12.26	21.49	-9.91	-2.70	-5.92	-9.97	26.66	5.17
HUF	29	-21.22	-3.62	39.23	-6.13	-2.41	-21.22	-3.69	56.12	16.89
IDR	120	-8.67	-3.99	16.61	-4.03	-4.14	-8.67	-5.65	22.41	5.80
ILS	119	-4.66	-4.75	15.54	-2.12	-0.98	-4.66	-4.76	15.77	0.23
ISK	136	-8.11	-1.43	10.54	-2.98	-2.30	-8.11	-2.01	21.75	11.21
JPY	168	1.52	0.92	0.59	-4.03	-0.93	1.52	0.95	1.33	0.74
KRW	133	-10.52	-8.47	41.33	-5.39	-6.70	-10.52	-17.36	45.56	4.23
MXN	133	-9.44	-5.80	46.62	-5.16	-2.65	-9.44	-6.38	51.38	4.76
MYR	133	-4.77	-4.79	18.08	-6.48	-5.20	-4.77	-4.68	25.89	7.80
NOK	132	-8.96	-4.99	28.88	1.36	0.18	-8.96	-5.08	28.34	-0.54
NZD	48	-10.12	-8.21	33.17	11.05	1.71	-10.12	-7.78	37.95	4.79
PHP	133	-3.52	-4.96	18.66	-1.79	-3.84	-3.52	-5.60	24.17	5.52
PLN	133	-12.59	-7.95	38.72	-6.83	-3.96	-12.59	-8.01	43.28	4.56
SEK	137	-9.65	-7.90	36.08	-4.16	-1.34	-9.65	-8.57	36.31	0.24
SGD	38	-7.76	-5.20	57.67	-2.06	-0.50	-7.76	-5.24	56.57	-1.09
THB	133	-2.94	-5.28	12.68	-3.06	-4.24	-2.94	-5.66	17.85	5.16
TRY	133	-13.19	-5.79	38.45	-1.88	-3.19	-13.19	-6.36	44.23	5.78
ZAR	133	-13.66	-8.39	24.53	0.19	0.13	-13.66	-8.53	23.96	-0.57

Table IA.29: Currency excess returns and sovereign risk: Model-implied default expectations

This table reports estimates for regressions of currency excess returns on global CDS spread changes ("Global shocks") and both global and local shocks ("Local and global shocks"). Global shocks are the cross-country average (excluding the country used as dependent variable) of changes in model-implied 'pseudo' spreads that reflect default expectations under the physical probability measure (CDS_t^P), obtained from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). Local shocks are changes in CDS_t^P orthogonalized with respect to global shocks. We report the slope coefficients (b), adjusted R^2, incremental adjusted R^2 between "Local and global shocks" and "Global shocks" (R^2_{loc}), and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2003 – 07/2017.

		Global shocks			Local and global shocks					
	N	b	t_b	R^2	b^{loc}	t_b^{loc}	b^{glob}	t_b^{glob}	R^2	R^2_{loc}
AUD	70	-11.03	-6.66	45.20	6.44	1.20	-11.03	-6.52	45.43	0.23
BRL	119	-12.07	-6.51	36.67	-3.19	-3.26	-12.07	-6.54	39.74	3.08
CAD	46	-10.06	-10.22	56.07	-2.44	-0.67	-10.06	-10.08	55.34	-0.72
CHF	88	-11.38	-9.40	24.59	-12.42	-2.56	-11.38	-10.16	26.81	2.22
CLP	119	-9.15	-3.05	29.23	-8.85	-2.73	-9.15	-3.38	31.74	2.50
CNY	133	0.17	0.94	-0.20	-0.50	-1.45	0.17	0.98	0.13	0.33
COP	119	-9.85	-11.23	31.78	-2.02	-1.37	-9.85	-14.34	32.28	0.50
CZK	133	-7.15	-6.07	17.14	-6.32	-3.32	-7.15	-5.22	20.57	3.43
DKK	142	-6.30	-6.46	20.38	-0.10	-0.03	-6.30	-6.17	19.81	-0.57
GBP	111	-5.99	-15.13	22.98	-6.80	-2.02	-5.99	-12.41	25.22	2.24
HUF	29	-22.41	-3.83	37.93	-6.05	-2.56	-22.41	-3.70	55.83	17.91
IDR	120	-8.86	-4.66	17.43	-3.30	-3.42	-8.86	-7.04	21.07	3.64
ILS	119	-4.62	-5.22	15.59	-3.66	-2.21	-4.62	-5.21	17.44	1.85
ISK	136	-8.03	-1.50	10.35	-2.56	-2.12	-8.03	-2.61	19.75	9.40
JPY	168	1.31	0.82	0.32	-3.48	-0.70	1.31	0.87	0.60	0.28
KRW	133	-10.29	-9.14	40.81	-4.95	-7.46	-10.29	-14.34	44.22	3.41
MXN	133	-9.24	-6.13	46.27	-4.80	-2.00	-9.24	-6.58	50.50	4.23
MYR	133	-4.50	-4.51	16.64	-6.33	-4.62	-4.50	-4.88	24.16	7.52
NOK	132	-9.14	-7.61	30.89	7.27	1.77	-9.14	-7.32	30.90	0.00
NZD	48	-10.03	-16.26	34.42	10.04	2.53	-10.03	-14.97	37.73	3.31
PHP	133	-3.42	-5.05	18.02	-1.43	-3.36	-3.42	-5.41	21.14	3.13
PLN	133	-12.33	-8.85	38.46	-6.92	-4.66	-12.33	-8.36	43.77	5.31
SEK	137	-9.46	-9.18	36.33	-4.11	-1.35	-9.46	-10.14	36.56	0.23
SGD	38	-7.81	-4.98	56.73	-4.93	-0.94	-7.81	-5.98	56.62	-0.10
THB	133	-2.89	-5.62	12.76	-2.67	-3.60	-2.89	-6.91	16.72	3.95
TRY	133	-12.80	-6.10	36.24	-1.68	-3.17	-12.80	-7.06	42.44	6.20
ZAR	133	-13.14	-8.10	23.41	0.10	0.08	-13.14	-8.03	22.82	-0.59

Table IA.30: Currency excess returns and sovereign risk: Model-implied distress risk premia

This table reports estimates for regressions of currency excess returns on global CDS spread changes ("Global shocks") and both global and local shocks ("Local and global shocks"). Global shocks are the cross-country average (excluding the country used as dependent variable) of changes in model-implied 'pseudo' spreads that reflect default expectations under the physical probability measure (CDS_t^P), obtained from country-by-country estimations of the affine sovereign credit risk model proposed by Pan and Singleton (2008). Local shocks are changes in $CDSRP_t$ orthogonalized with respect to global shocks.. We report the slope coefficients (b), adjusted R^2, incremental adjusted R^2 between "Local and global shocks" and "Global shocks" (R^2_{loc}), and the number of observations (N). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2003 – 07/2017.

		Global shocks			Local and global shocks					
	N	b	t_b	R^2	b^{loc}	t_b^{loc}	b^{glob}	t_b^{glob}	R^2	R^2_{loc}
AUD	70	17.27	0.67	1.03	15.09	0.65	17.27	0.57	0.77	-0.25
BRL	119	0.48	0.02	-0.85	-24.38	-6.84	0.48	0.02	8.92	9.77
CAD	46	-32.47	-1.90	3.46	8.52	0.97	-32.47	-1.84	2.34	-1.13
CHF	88	-45.54	-1.95	2.92	-12.49	-1.10	-45.54	-1.92	2.87	-0.05
CLP	119	36.39	1.62	7.94	-14.43	-1.29	36.39	2.02	10.17	2.23
CNY	133	1.04	0.47	-0.36	1.36	0.53	1.04	0.51	-0.51	-0.15
COP	119	-3.85	-0.28	-0.77	-7.00	-0.93	-3.85	-0.23	-0.33	0.44
CZK	133	12.26	0.98	0.21	15.55	1.34	12.26	0.70	0.35	0.15
DKK	142	11.35	0.93	0.44	-16.86	-1.20	11.35	0.97	2.09	1.65
GBP	111	18.73	1.27	2.91	-24.32	-2.90	18.73	1.61	7.62	4.72
HUF	29	-100.71	-2.02	12.94	33.50	1.41	-100.71	-2.55	20.47	7.53
IDR	120	11.31	0.45	-0.29	0.36	0.05	11.31	0.45	-1.14	-0.85
ILS	119	2.50	0.32	-0.76	2.84	0.51	2.50	0.20	-1.40	-0.64
ISK	136	-4.53	-0.16	-0.70	0.75	0.30	-4.53	-0.18	-1.26	-0.56
JPY	168	8.73	0.57	0.15	-6.00	-0.54	8.73	0.50	-0.20	-0.35
KRW	133	4.87	0.58	-0.58	-5.00	-0.31	4.87	0.62	-1.15	-0.57
MXN	133	7.02	0.33	-0.26	-10.98	-1.42	7.02	0.36	1.20	1.46
MYR	133	-5.33	-0.76	-0.31	-17.43	-2.95	-5.33	-0.60	3.53	3.84
NOK	132	22.34	1.38	2.67	-24.40	-3.10	22.34	1.63	4.47	1.80
NZD	48	19.47	0.86	0.87	0.82	0.06	19.47	1.00	-1.32	-2.19
PHP	133	-0.88	-0.13	-0.74	-2.41	-0.75	-0.88	-0.10	-0.64	0.11
PLN	133	9.18	0.49	-0.35	-2.46	-0.14	9.18	0.49	-1.10	-0.75
SEK	137	14.86	1.21	0.81	4.41	0.34	14.86	1.04	0.14	-0.67
SGD	38	-25.69	-1.98	1.66	-5.91	-0.43	-25.69	-1.97	-0.30	-1.96
THB	133	3.33	0.53	-0.44	-15.54	-2.43	3.33	0.70	5.73	6.17
TRY	133	-20.16	-0.55	0.90	11.10	2.70	-20.16	-0.71	12.41	11.51
ZAR	133	-4.52	-0.16	-0.71	0.08	0.01	-4.52	-0.16	-1.48	-0.77

Table IA.31: Model-implied CDS spreads and global macro-finance variables

This table reports estimates for regressions of changes in model-implied CDS spreads on global variables. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the model-implied CDS spread (ΔCDS_t^Q). We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The sample is monthly from 05/2003 – 07/2017.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
AUD	70	-2.58	-0.47	1.92	0.85	-0.29	1.21	2.00	1.45	0.18	50.38	-2.27
BRL	111	-6.03	2.13	2.91	0.79	1.45	0.11	1.86	1.57	1.46	38.89	14.06
CAD	46	-1.33	0.19	1.16	0.17	-0.49	0.29	-0.64	1.76	-0.01	24.81	1.63
CHF	88	0.36	0.17	0.93	1.08	3.05	-0.59	-0.25	0.34	-0.09	30.53	15.08
CLP	119	-4.57	1.59	0.93	2.38	0.50	0.06	0.98	1.15	-0.11	66.16	0.65
CNY	130	-3.55	-2.18	-0.28	7.34	1.50	2.76	3.78	1.86	-3.30	60.40	4.14
COP	119	-5.45	1.77	2.06	-0.19	1.09	-1.34	1.42	1.64	1.54	53.21	5.08
CZK	130	-2.64	1.85	-1.03	1.78	-0.55	1.34	-0.36	-0.24	-1.30	47.70	2.73
DKK	139	-3.27	-0.02	0.20	2.67	-0.12	2.20	-1.29	0.31	-1.03	44.31	0.20
GBP	111	-1.75	-0.97	0.06	1.23	-0.02	1.70	0.52	0.68	-0.72	37.44	2.68
HUF	29	0.53	-0.32	0.52	0.76	0.69	-0.32	0.36	2.23	0.16	25.26	41.54
IDR	120	-2.96	1.45	3.70	4.20	1.34	0.34	-0.09	0.36	0.43	62.69	11.41
ILS	117	-2.40	0.96	0.05	3.15	0.07	0.08	3.65	-0.71	0.67	48.07	1.52
ISK	120	-3.22	-0.48	1.61	1.33	-1.34	-1.80	0.51	2.28	1.18	49.88	5.65
JPY	165	-1.96	-0.76	1.38	1.41	1.87	2.03	2.82	-0.46	-0.80	38.01	5.21
KRW	130	-3.70	1.26	0.36	4.15	-0.03	0.20	1.15	0.57	0.24	63.11	3.04
MXN	130	-3.89	1.67	1.40	2.08	-0.48	0.89	1.65	0.21	0.18	65.98	6.40
MYR	130	-3.82	0.32	-0.31	3.25	1.86	0.73	1.05	0.65	-2.03	62.21	7.81
NOK	132	-3.07	1.52	-0.93	0.99	-0.23	-0.64	-2.31	-0.67	-1.06	45.46	0.02
NZD	48	-2.39	1.26	4.10	2.35	-0.22	0.06	1.92	0.71	0.93	62.67	-1.87
PHP	130	-3.72	0.28	1.65	2.47	2.36	0.13	2.25	-0.10	0.14	40.97	7.60
PLN	128	-2.51	0.54	0.41	2.52	0.26	2.73	0.25	-0.26	-1.98	54.49	6.39
SEK	134	-3.16	-0.03	0.49	2.40	-0.88	0.97	-0.01	0.78	-0.41	47.95	2.48
SGD	38	-1.40	-0.39	4.66	1.03	2.15	2.07	-0.27	-0.41	-3.50	77.56	-1.23
THB	130	-4.33	-0.44	0.17	2.74	2.43	1.46	0.93	0.91	-1.35	60.27	2.41
TRY	130	-4.24	0.10	0.86	1.78	0.37	-0.48	1.38	0.70	-0.11	31.46	17.91
ZAR	130	-5.08	-1.37	0.12	3.71	-0.08	3.57	3.48	0.99	-1.25	63.69	-0.70

Table IA.32: Model-implied default expectations and global macro-finance variables

This table reports estimates for regressions of changes in model-implied CDS spreads on global variables. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the 'pseudo' CDS spread (ΔCDS_t^P), which reflects changes in default expectations under the physical measure. We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The sample is monthly from 05/2003 – 07/2017.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
AUD	70	-1.95	0.27	3.05	1.19	-0.20	1.41	2.28	0.80	0.00	50.59	-1.22
BRL	111	-5.49	2.39	2.47	1.69	1.11	0.15	1.48	1.20	1.56	41.99	11.59
CAD	46	-2.23	0.14	1.85	-0.20	-0.94	-0.77	-0.56	3.16	0.08	24.41	2.45
CHF	88	0.56	0.53	1.55	2.61	2.26	-0.10	-0.47	0.32	0.26	27.59	15.86
CLP	119	-4.15	2.61	0.74	4.73	1.29	0.58	-0.00	0.68	-0.57	69.90	0.95
CNY	130	-3.42	-1.53	-0.35	5.03	1.26	2.40	3.37	1.77	-1.92	58.02	3.10
COP	119	-4.86	2.41	2.76	0.31	0.54	-1.70	0.88	1.54	1.69	56.31	3.78
CZK	130	-2.57	2.30	-0.60	2.01	-0.62	1.52	-0.42	-0.12	-1.07	47.85	3.45
DKK	139	-2.23	-0.86	0.26	3.78	0.06	2.69	0.40	0.26	-1.01	45.81	0.19
GBP	111	-1.92	-0.03	-0.83	0.66	0.01	1.23	-0.14	0.70	-0.09	35.03	2.23
HUF	29	0.72	-0.20	0.29	0.78	0.87	-0.45	0.26	2.29	0.24	25.25	42.68
IDR	120	-2.52	1.53	2.62	4.96	0.62	0.22	-0.62	0.29	0.55	63.68	10.54
ILS	117	-2.21	0.65	-0.38	2.58	-0.19	1.05	3.16	-0.58	0.07	48.13	2.93
ISK	120	-2.57	1.16	3.81	0.25	-0.93	-1.32	-0.86	2.14	1.09	48.05	11.60
JPY	165	-2.14	-0.38	0.81	1.38	1.13	1.76	1.73	-0.24	-0.29	34.60	4.53
KRW	130	-3.56	1.43	0.46	5.95	-0.39	-0.04	0.94	0.76	0.61	62.24	2.18
MXN	130	-3.44	2.55	1.31	3.41	-1.04	1.07	0.77	0.03	0.20	65.47	5.43
MYR	130	-4.15	0.83	-0.08	3.15	1.65	0.60	0.31	0.97	-1.08	64.77	6.81
NOK	132	-2.67	1.96	-1.09	-0.48	0.06	-1.24	-1.66	0.05	-0.96	34.25	3.63
NZD	48	-2.11	0.95	4.34	-0.00	0.51	0.96	2.22	0.91	0.67	65.60	-0.32
PHP	130	-2.92	0.79	1.57	2.33	1.59	0.04	1.01	0.16	0.60	41.84	5.04
PLN	128	-2.47	0.66	0.47	2.31	0.12	2.68	-0.10	-0.18	-2.29	53.70	6.62
SEK	134	-2.32	0.40	0.34	3.21	-0.85	1.05	0.30	0.72	-0.14	47.51	2.49
SGD	38	-0.71	1.21	2.06	2.48	0.78	1.33	-1.74	-0.34	-1.98	64.53	5.69
THB	130	-4.09	-0.11	0.05	2.74	1.52	1.42	0.16	1.02	-1.21	59.37	2.51
TRY	130	-4.49	0.69	1.14	2.18	0.07	-0.53	0.96	0.51	-0.14	36.01	14.89
ZAR	130	-4.70	-0.70	0.55	3.58	-0.29	3.21	2.86	1.12	-1.32	62.10	-0.62

Table IA.33: Model-implied distress risk premia and global macro-finance variables

This table reports estimates for regressions of changes in model-implied CDS spreads on global variables. For each country, we estimate the affine sovereign credit risk model of Pan and Singleton (2008) and then compute changes in the CDS implied distress risk premium ($\Delta CDSRP_t$) as changes in the model-implied CDS spread minus changes in the 'pseudo' CDS spread (or changes in default expectations under the physical measure). We report t-statistics based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection, adjusted R^2, incremental adjusted R^2 from including local variables (R^2_{loc}), and the number of observations (N). As in Longstaff et al. (2011), the set of financial market variables includes the US stock market returns (ret), changes in the 5-year Treasury yields ($treas$) and changes in corporate yield spreads (ig and hy); the set of risk premia comprises the equity premium (ep) measured as changes in the S&P500 price-earnings ratio, the volatility risk premium (vp) measured as changes in the difference between the VIX and realized volatility, and the Cochrane and Piazzesi (2005) factor (tp). Capital flows are defined as flows to US equity (eq) and bonds ($bond$). The sample is monthly from 05/2003 – 07/2017.

		Financial market				Risk premia			Capital flows			
	N	ret	$treas$	ig	hy	ep	vp	tp	eq	$bond$	R^2	R^2_{loc}
AUD	70	-0.77	-1.76	1.47	-0.18	-1.16	0.05	0.97	2.14	0.45	7.87	8.33
BRL	111	-2.62	-1.81	-0.42	-2.57	1.82	-0.18	1.32	2.23	-0.29	10.80	6.99
CAD	46	1.65	0.09	-0.32	0.71	1.88	2.40	0.13	-2.37	-0.11	-6.26	-7.04
CHF	88	-0.27	-1.39	-1.20	-2.37	2.90	-1.23	0.88	-0.01	-0.90	7.32	-1.22
CLP	119	-3.03	-2.73	1.37	-1.69	-1.52	-1.12	1.99	1.31	1.28	26.46	-1.13
CNY	130	-1.26	-1.91	0.60	1.78	0.17	0.71	1.73	0.01	-1.25	13.52	2.78
COP	119	-2.22	-1.99	-2.30	-1.94	2.45	0.37	1.25	0.89	-0.24	9.90	0.68
CZK	130	1.09	-1.84	-3.11	0.71	1.41	-0.41	0.42	-0.59	-0.87	14.46	0.68
DKK	139	-2.21	1.57	-0.45	-1.39	-1.69	-0.85	-1.94	0.17	-0.48	9.07	-0.68
GBP	111	1.56	-3.66	3.55	0.65	-0.27	0.93	1.50	-0.02	-1.16	16.85	0.70
HUF	29	-4.43	-1.64	2.69	-2.99	-4.12	2.23	1.27	-1.11	-1.89	15.62	-4.45
IDR	120	0.05	-1.04	-1.49	-0.97	2.48	1.14	2.25	0.26	-0.56	17.89	-2.23
ILS	117	0.50	1.15	1.18	1.23	0.99	-1.37	1.66	-0.70	1.89	14.06	-0.81
ISK	120	1.52	-2.39	-1.60	1.06	0.18	-0.18	1.97	0.66	0.00	11.95	9.14
JPY	165	0.93	-1.39	3.33	-0.34	2.24	0.40	1.94	-0.76	-1.94	15.85	5.57
KRW	130	2.27	-1.46	0.29	-0.89	2.63	2.60	0.66	-1.33	-1.88	5.55	1.49
MXN	130	-1.47	-2.29	-0.09	-1.65	3.02	-0.28	2.27	0.92	-0.18	7.21	-0.89
MYR	130	-0.00	-2.48	-2.15	0.16	0.56	1.53	3.44	-0.91	-1.63	8.58	1.91
NOK	132	1.30	-0.66	-0.33	1.70	-1.48	1.28	0.62	-1.50	-0.45	4.41	3.58
NZD	48	1.12	0.23	-0.79	1.46	-1.76	-0.52	-0.16	-0.31	0.86	17.18	0.04
PHP	130	0.16	-2.30	-1.85	-1.62	2.58	0.58	3.98	-1.02	-0.95	21.93	2.30
PLN	128	-0.22	-0.39	-0.19	0.09	1.12	-1.30	1.19	-0.53	0.31	4.11	-1.30
SEK	134	-1.32	-0.89	0.57	-0.98	-1.12	0.04	-0.40	0.13	-1.07	6.30	-1.36
SGD	38	-0.64	-4.91	0.79	-2.71	2.60	-0.08	3.17	0.05	-0.68	23.18	19.17
THB	130	-0.99	-1.99	0.85	-0.57	1.91	-0.01	2.70	-0.24	-1.16	17.27	2.40
TRY	130	0.63	-1.64	-1.22	-1.34	1.15	0.15	2.31	0.93	0.10	17.94	0.53
ZAR	130	0.99	-1.73	-2.86	0.11	1.46	-1.62	0.83	-1.17	0.99	24.64	0.17

Table IA.34: Currency excess returns and sovereign CDS spreads (CDS-bond-sample)

This table reports estimates for regressions of currency excess returns on CDS spread changes. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017, covering all observations with matched sovereign CDS and bond data.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	-18.90	-4.43	23.97	167	-18.90	-4.43	23.97	167	-18.90	-4.43	23.97	167	-18.90	-4.43	23.97
BRL	67	-10.16	-7.81	55.63	67	-10.16	-7.81	55.63	22	-8.27	-6.10	45.74	22	-8.27	-6.10	45.74
CAD	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09	133	-16.79	-4.02	7.09
CHF	96	-12.27	-3.34	10.84	58	-6.91	-3.28	5.27	96	-12.27	-3.34	10.84	58	-6.91	-3.28	5.27
CLP	24	-10.43	-3.43	27.91	24	-10.43	-3.43	27.91	24	-10.43	-3.43	27.91	24	-10.43	-3.43	27.91
CNY	100	-0.40	-1.30	1.37												
COP	48	-12.67	-6.75	43.69	48	-12.67	-6.75	43.69								
CZK	160	-9.19	-5.53	19.58					160	-9.19	-5.53	19.58				
DKK	146	-7.71	-6.65	9.84					146	-7.71	-6.65	9.84				
GBP	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39	133	-14.77	-5.93	24.39
HKD	147	-0.07	-0.52	0.22					147	-0.07	-0.52	0.22				
HUF	54	-5.25	-5.45	40.70					54	-5.25	-5.45	40.70				
IDR	115	-4.14	-8.76	47.83	38	-7.23	-3.68	39.42	38	-4.27	-13.46	60.48				
ILS	54	-6.92	-4.62	18.99	54	-6.92	-4.62	18.99	54	-6.92	-4.62	18.99	54	-6.92	-4.62	18.99
ISK	109	-1.89	-2.53	6.63	109	-1.89	-2.53	6.63	13	-7.43	-2.93	10.60	13	-7.43	-2.93	10.60
JPY	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00	174	-0.07	-0.02	0.00
KRW	166	-7.87	-13.14	41.41	166	-7.87	-13.14	41.41	112	-7.95	-11.56	42.27	112	-7.95	-11.56	42.27
MXN	150	-8.51	-6.98	51.18	150	-8.51	-6.98	51.18	150	-8.51	-6.98	51.18	150	-8.51	-6.98	51.18
MYR	115	-5.86	-7.03	32.83	114	-5.84	-7.09	34.55								
NOK	85	-45.57	-5.08	20.24	85	-45.57	-5.08	20.24	85	-45.57	-5.08	20.24	85	-45.57	-5.08	20.24
NZD	154	-14.82	-4.18	17.71	154	-14.82	-4.18	17.71	154	-14.82	-4.18	17.71	154	-14.82	-4.18	17.71
PHP	125	-2.30	-6.15	23.26	107	-2.66	-5.36	25.77	92	-1.86	-5.04	20.89	74	-2.15	-4.86	23.02
PLN	174	-11.75	-8.57	37.90	109	-11.96	-6.59	40.72	174	-11.75	-8.57	37.90	109	-11.96	-6.59	40.72
RUB	67	-3.66	-2.63	26.95	32	-3.31	-3.39	20.87	44	-5.97	-2.61	37.69	31	-3.26	-4.08	27.37
SEK	163	-16.74	-8.86	20.05	106	-16.70	-5.78	27.94	163	-16.74	-8.86	20.05	106	-16.70	-5.78	27.94
SGD	83	-9.56	-2.99	20.84	83	-9.56	-2.99	20.84	83	-9.56	-2.99	20.84	83	-9.56	-2.99	20.84
THB	141	-3.57	-9.41	18.82	141	-3.57	-9.41	18.82								
TRY	84	-8.42	-10.90	48.06	84	-8.42	-10.90	48.06	79	-9.06	-9.15	56.46	79	-9.06	-9.15	56.46
ZAR	123	-13.77	-9.17	27.26	123	-13.77	-9.17	27.26								
pooled	3357	-5.68	-6.02	18.37	2459	-6.38	-4.62	19.04	2497	-6.88	-7.21	20.87	1761	-7.59	-6.39	21.00
pooled (doc)	3357	-5.69	-6.02	18.54	2459	-6.39	-4.62	19.25	2497	-6.90	-7.22	21.06	1761	-7.60	-6.42	21.25
sovFE	3357	-5.68	-5.98	18.11	2459	-6.42	-4.58	18.93	2497	-6.94	-7.06	20.68	1761	-7.67	-6.40	21.02
timeFE	3357	-3.17	-4.00	46.03	2459	-3.28	-3.47	47.39	2497	-3.91	-3.73	52.39	1761	-3.49	-2.89	51.58
sovFEtimeFE	3357	-3.16	-4.01	45.98	2459	-3.27	-3.43	47.32	2497	-3.88	-3.70	52.33	1761	-3.48	-2.84	51.50

Table IA.35: Currency excess returns and sovereign bond yield spreads (CDS-bond-sample)

This table reports estimates for regressions of currency returns on changes in sovereign bond yield spreads. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017, covering all observations with matched sovereign CDS and bond data.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	0.75	0.24	0.04	167	0.75	0.24	0.04	167	0.75	0.24	0.04	167	0.75	0.24	0.04
BRL	67	-3.10	-0.87	1.81	67	-3.10	-0.87	1.81	22	-8.10	-5.38	16.77	22	-8.10	-5.38	16.77
CAD	133	-9.25	-1.66	4.50	133	-9.25	-1.66	4.50	133	-9.25	-1.66	4.50	133	-9.25	-1.66	4.50
CHF	96	11.28	2.79	7.20	58	5.06	0.93	1.62	96	11.28	2.79	7.20	58	5.06	0.93	1.62
CLP	24	6.98	2.07	15.46	24	6.98	2.07	15.46	24	6.98	2.07	15.46	24	6.98	2.07	15.46
CNY	100	-0.38	-1.09	1.55												
COP	48	-5.49	-1.22	5.67	48	-5.49	-1.22	5.67								
CZK	160	-6.72	-3.22	7.83					160	-6.72	-3.22	7.83				
DKK	146	-4.47	-0.71	2.12					146	-4.47	-0.71	2.12				
GBP	133	-2.91	-2.08	1.65	133	-2.91	-2.08	1.65	133	-2.91	-2.08	1.65	133	-2.91	-2.08	1.65
HKD	147	-0.11	-1.27	0.36					147	-0.11	-1.27	0.36				
HUF	54	-2.71	-2.77	3.33					54	-2.71	-2.77	3.33				
IDR	115	-2.80	-4.81	21.58	38	-2.90	-2.79	27.61	38	-2.93	-3.53	18.64				
ILS	54	-0.68	-0.28	0.26	54	-0.68	-0.28	0.26	54	-0.68	-0.28	0.26	54	-0.68	-0.28	0.26
ISK	109	0.65	0.89	0.76	109	0.65	0.89	0.76	13	2.74	0.64	4.44	13	2.74	0.64	4.44
JPY	174	-8.59	-1.37	0.82	174	-8.59	-1.37	0.82	174	-8.59	-1.37	0.82	174	-8.59	-1.37	0.82
KRW	166	-13.50	-2.51	21.46	166	-13.50	-2.51	21.46	112	-17.73	-3.11	29.65	112	-17.73	-3.11	29.65
MXN	150	1.18	0.76	0.24	150	1.18	0.76	0.24	150	1.18	0.76	0.24	150	1.18	0.76	0.24
MYR	115	-2.83	-1.96	3.19	114	-2.79	-1.93	3.30								
NOK	85	-5.61	-1.00	2.73	85	-5.61	-1.00	2.73	85	-5.61	-1.00	2.73	85	-5.61	-1.00	2.73
NZD	154	-5.25	-1.80	3.41	154	-5.25	-1.80	3.41	154	-5.25	-1.80	3.41	154	-5.25	-1.80	3.41
PHP	125	-0.64	-1.55	2.61	107	-0.73	-1.55	2.99	92	-0.74	-1.78	3.68	74	-0.91	-1.88	4.59
PLN	174	-11.94	-2.91	9.72	109	-10.23	-2.32	6.83	174	-11.94	-2.91	9.72	109	-10.23	-2.32	6.83
RUB	67	0.42	0.61	0.45	32	-0.80	-0.58	1.73	44	0.62	0.68	0.43	31	0.72	1.13	1.54
SEK	163	-1.63	-0.34	0.17	106	-1.19	-0.23	0.10	163	-1.63	-0.34	0.17	106	-1.19	-0.23	0.10
SGD	83	1.35	0.84	1.34	83	1.35	0.84	1.34	83	1.35	0.84	1.34	83	1.35	0.84	1.34
THB	141	-0.01	-0.01	0.00	141	-0.01	-0.01	0.00								
TRY	84	-2.31	-2.95	7.24	84	-2.31	-2.95	7.24	79	-2.49	-2.87	7.45	79	-2.49	-2.87	7.45
ZAR	123	-6.43	-1.58	2.75	123	-6.43	-1.58	2.75								
pooled	3357	-1.33	-2.25	0.88	2459	-1.36	-2.03	0.74	2497	-2.25	-2.43	1.58	1761	-2.00	-2.05	1.07
pooled (doc)	3357	-1.33	-2.24	0.97	2459	-1.36	-2.02	0.86	2497	-2.25	-2.41	1.68	1761	-1.98	-2.01	1.23
sovFE	3357	-1.32	-2.21	0.51	2459	-1.38	-2.03	0.45	2497	-2.28	-2.45	1.36	1761	-2.02	-2.08	0.85
timeFE	3357	-0.63	-1.76	42.96	2459	-0.49	-1.15	44.65	2497	-1.06	-2.82	18.97	1761	-1.10	-2.20	49.60
sovFEtimeFE	3357	-0.61	-1.69	42.90	2459	-0.51	-1.13	44.61	2497	-1.08	-2.69	49.05	1761	-1.13	-2.18	49.59

Table IA.36: Currency excess returns and sovereign CDS-bond basis (CDS-bond-sample)

This table reports estimates for regressions of currency returns on changes in the sovereign CDS-bond basis. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017, covering all observations with matched sovereign CDS and bond data.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	-7.77	-5.96	10.32	167	-7.77	-5.96	10.32	167	-7.77	-5.96	10.32	167	-7.77	-5.96	10.32
BRL	67	-8.82	-6.00	43.13	67	-8.82	-6.00	43.13	22	-9.23	-2.67	31.91	22	-9.23	-2.67	31.91
CAD	133	0.85	0.14	0.05	133	0.85	0.14	0.05	133	0.85	0.14	0.05	133	0.85	0.14	0.05
CHF	96	-10.21	-3.69	15.53	58	-5.40	-3.27	5.85	96	-10.21	-3.69	15.53	58	-5.40	-3.27	5.85
CLP	24	-7.53	-3.30	36.84	24	-7.53	-3.30	36.84	24	-7.53	-3.30	36.84	24	-7.53	-3.30	36.84
CNY	100	0.04	0.15	0.03												
COP	48	-6.11	-3.21	14.77	48	-6.11	-3.21	14.77								
CZK	160	-4.14	-2.21	4.00					160	-4.14	-2.21	4.00				
DKK	146	-2.98	-0.85	2.39					146	-2.98	-0.85	2.39				
GBP	133	-4.09	-3.04	4.43	133	-4.09	-3.04	4.43	133	-4.09	-3.04	4.43	133	-4.09	-3.04	4.43
HKD	147	0.00	0.01	0.00					147	0.00	0.01	0.00				
HUF	54	-4.44	-4.54	28.99					54	-4.44	-4.54	28.99				
IDR	115	-1.59	-1.58	6.14	38	1.99	2.00	8.09	38	-3.20	-2.26	24.96				
ILS	54	-2.87	-1.88	6.78	54	-2.87	-1.88	6.78	54	-2.87	-1.88	6.78	54	-2.87	-1.88	6.78
ISK	109	-1.09	-2.03	5.11	109	-1.09	-2.03	5.11	13	-3.28	-1.25	10.00	13	-3.28	-1.25	10.00
JPY	174	0.58	0.19	0.05	174	0.58	0.19	0.05	174	0.58	0.19	0.05	174	0.58	0.19	0.05
KRW	166	-5.32	-5.37	19.55	166	-5.32	-5.37	19.55	112	-5.42	-4.41	19.75	112	-5.42	-4.41	19.75
MXN	150	-7.19	-9.70	44.73	150	-7.19	-9.70	44.73	150	-7.19	-9.70	44.73	150	-7.19	-9.70	44.73
MYR	115	-3.73	-4.91	16.68	114	-3.72	-4.89	17.63								
NOK	85	0.53	0.12	0.02	85	0.53	0.12	0.02	85	0.53	0.12	0.02	85	0.53	0.12	0.02
NZD	154	-3.31	-1.45	1.80	154	-3.31	-1.45	1.80	154	-3.31	-1.45	1.80	154	-3.31	-1.45	1.80
PHP	125	-0.75	-2.55	4.54	107	-0.78	-2.32	4.34	92	-0.70	-1.92	4.37	74	-0.72	-1.66	4.09
PLN	174	-11.04	-6.03	26.64	109	-12.21	-5.34	33.42	174	-11.04	-6.03	26.64	109	-12.21	-5.34	33.42
RUB	67	-1.11	-2.64	9.37	32	-0.60	-1.18	2.50	44	-2.38	-2.51	16.68	31	-1.23	-4.25	12.93
SEK	163	-6.55	-4.23	7.18	106	-7.23	-2.01	11.46	163	-6.55	-4.23	7.18	106	-7.23	-2.01	11.46
SGD	83	-2.78	-2.05	8.82	83	-2.78	-2.05	8.82	83	-2.78	-2.05	8.82	83	-2.78	-2.05	8.82
THB	141	-2.40	-4.79	12.66	141	-2.40	-4.79	12.66								
TRY	84	-1.90	-1.94	4.90	84	-1.90	-1.94	4.90	79	-2.39	-2.67	7.74	79	-2.39	-2.67	7.74
ZAR	123	-8.60	-3.80	13.36	123	-8.60	-3.80	13.36								
pooled	3357	-2.43	-4.15	6.18	2459	-2.79	-3.36	6.70	2497	-3.69	-5.33	8.51	1761	-3.59	-3.64	7.87
pooled (doc)	3357	-2.44	-4.17	6.30	2459	-2.80	-3.36	6.86	2497	-3.71	-5.38	8.67	1761	-3.60	-3.67	8.10
sovFE	3357	-2.43	-4.12	5.87	2459	-2.82	-3.33	6.47	2497	-3.73	-5.22	8.24	1761	-3.65	-3.58	7.73
timeFE	3357	-0.84	-2.48	43.35	2459	-0.98	-2.89	45.20	2497	-1.31	-4.11	49.43	1761	-0.79	-1.77	49.54
sovFEtimeFE	3357	-0.85	-2.50	43.32	2459	-0.97	-2.71	45.13	2497	-1.27	-4.23	49.44	1761	-0.76	-1.62	49.48

Table IA.37: Currency excess returns, CDS spreads, and CDS-bond basis (CDS-bond-sample)

This table reports estimates for regressions of currency returns on changes in sovereign CDS spreads, controlling for changes in the sovereign CDS-bond basis. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The sample is monthly from 01/2003 – 07/2017, covering all observations with matched sovereign CDS and bond data.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	-21.42	-5.38	24.32	167	-21.42	-5.38	24.32	167	-21.42	-5.38	24.32	167	-21.42	-5.38	24.32
BRL	67	-8.74	-4.19	56.13	67	-8.74	-4.19	56.13	22	-7.44	-2.34	46.02	22	-7.44	-2.34	46.02
CAD	133	-25.52	-3.23	11.36	133	-25.52	-3.23	11.36	133	-25.52	-3.23	11.36	133	-25.52	-3.23	11.36
CHF	96	-1.65	-0.24	15.61	58	-2.77	-0.43	6.11	96	-1.65	-0.24	15.61	58	-2.77	-0.43	6.11
CLP	24	-3.73	-0.89	38.56	24	-3.73	-0.89	38.56	24	-3.73	-0.89	38.56	24	-3.73	-0.89	38.56
CNY	100	-0.65	-1.66	2.42												
COP	48	-15.64	-4.57	45.78	48	-15.64	-4.57	45.78								
CZK	160	-10.85	-5.52	20.57					160	-10.85	-5.52	20.57				
DKK	146	-12.06	-2.23	11.88					146	-12.06	-2.23	11.88				
GBP	133	-15.87	-5.27	24.74	133	-15.87	-5.27	24.74	133	-15.87	-5.27	24.74	133	-15.87	-5.27	24.74
HKD	147	-0.20	-1.36	0.65					147	-0.20	-1.36	0.65				
HUF	54	-5.28	-3.52	40.70					54	-5.28	-3.52	40.70				
IDR	115	-4.43	-8.42	48.64	38	-6.86	-3.70	42.13	38	-4.21	-5.29	60.49				
ILS	54	-6.76	-3.25	19.01	54	-6.76	-3.25	19.01	54	-6.76	-3.25	19.01	54	-6.76	-3.25	19.01
ISK	109	-1.50	-1.34	6.83	109	-1.50	-1.34	6.83	13	-4.79	-0.73	12.68	13	-4.79	-0.73	12.68
JPY	174	-9.18	-1.15	0.84	174	-9.18	-1.15	0.84	174	-9.18	-1.15	0.84	174	-9.18	-1.15	0.84
KRW	166	-17.71	-3.62	54.26	166	-17.71	-3.62	54.26	112	-21.35	-4.74	61.12	112	-21.35	-4.74	61.12
MXN	150	-6.96	-3.83	51.61	150	-6.96	-3.83	51.61	150	-6.96	-3.83	51.61	150	-6.96	-3.83	51.61
MYR	115	-7.44	-6.25	33.98	114	-7.38	-6.21	35.73								
NOK	85	-45.86	-3.86	20.43	85	-45.86	-3.86	20.43	85	-45.86	-3.86	20.43	85	-45.86	-3.86	20.43
NZD	154	-17.07	-4.52	18.77	154	-17.07	-4.52	18.77	154	-17.07	-4.52	18.77	154	-17.07	-4.52	18.77
PHP	125	-2.40	-5.35	23.38	107	-2.83	-5.55	26.09	92	-2.03	-3.73	21.27	74	-2.46	-4.38	23.96
PLN	174	-12.95	-4.03	38.03	109	-10.68	-3.40	40.86	174	-12.95	-4.03	38.03	109	-10.68	-3.40	40.86
RUB	67	-9.19	-4.49	41.08	32	-7.78	-3.85	37.39	44	-8.21	-4.16	40.33	31	-5.45	-3.79	31.29
SEK	163	-24.70	-5.98	22.50	106	-24.78	-5.33	30.98	163	-24.70	-5.98	22.50	106	-24.78	-5.33	30.98
SGD	83	-9.25	-2.65	20.87	83	-9.25	-2.65	20.87	83	-9.25	-2.65	20.87	83	-9.25	-2.65	20.87
THB	141	-2.95	-3.26	19.46	141	-2.95	-3.26	19.46								
TRY	84	-8.54	-8.34	48.14	84	-8.54	-8.34	48.14	79	-9.37	-8.20	56.74	79	-9.37	-8.20	56.74
ZAR	123	-16.85	-4.33	28.03	123	-16.85	-4.33	28.03								
pooled	3357	-6.79	-5.63	19.02	2459	-7.54	-4.80	19.60	2497	-7.59	-6.07	21.05	1761	-9.07	-6.46	21.63
pooled (doc)	3357	-6.80	-5.63	19.19	2459	-7.55	-4.80	19.80	2497	-7.59	-6.06	21.24	1761	-9.07	-6.45	21.87
sovFE	3357	-6.78	-5.59	18.76	2459	-7.53	-4.78	19.46	2497	-7.58	-5.97	20.84	1761	-9.07	-6.40	21.59
timeFE	3357	-3.82	-3.74	46.23	2459	-3.75	-3.37	47.46	2497	-4.36	-3.56	52.46	1761	-4.38	-3.28	51.80
sovFEtimeFE	3357	-3.79	-3.74	46.16	2459	-3.72	-3.35	47.38	2497	-4.31	-3.53	52.40	1761	-4.34	-3.25	51.72

Table IA.38: Sovereign risk and options-implied higher order FX moments: Controlling for global macro-finance variables

This table reports estimates for pooled and panel regressions of changes in (risk-neutral) higher order FX moments on changes in sovereign CDS spreads (as in Table 7) while controlling for global variables, i.e., (i) log changes on the VIX index, (ii) US stock market return, changes in the US corporate high yield spreads, and returns on the Baltic Dry Index as a proxy for commodity markets, and (iii) all control variables together. Higher order FX moments (i.e., *ivol*, *iskew*, and *ikurt*) are described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), adjusted R^2, incremental adjusted R^2 from including the control variables (R^2_{add}), and the number of observations (N) for different samples of countries. t_b is based on standard errors clustered by currency and time dimension. We report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") and panel regressions with sovereign fixed effects ("sovFE"). The sample is monthly from 01/2003 – 07/2017.

Panel A. Changes in *ivol* (volatility risk)

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
(i) Controlling for the VIX																				
pooled	4274	4.50	3.56	30.26	5.48	3227	3.95	3.60	28.35	7.18	3111	5.04	3.08	32.10	6.75	2310	4.24	2.93	30.39	9.22
pooled (doc)	4274	4.50	3.56	30.23	5.48	3227	3.95	3.60	28.31	7.19	3111	5.04	3.07	32.06	6.75	2310	4.24	2.93	30.33	9.23
sovFE	4274	4.51	3.56	29.84	5.50	3227	3.97	3.61	27.89	7.21	3111	5.06	3.08	31.67	6.77	2310	4.26	2.94	29.91	9.25
(ii) Controlling for the US stock market, US high-yield market, and commodity market																				
pooled	4274	4.24	4.48	28.19	3.41	3227	3.46	4.82	26.65	5.49	3111	4.61	3.75	30.61	5.26	2310	3.46	3.53	29.52	8.35
pooled (doc)	4274	4.24	4.48	28.16	3.41	3227	3.46	4.82	26.61	5.49	3111	4.61	3.75	30.57	5.26	2310	3.46	3.52	29.47	8.36
sovFE	4274	4.25	4.47	27.75	3.41	3227	3.47	4.82	26.18	5.51	3111	4.63	3.76	30.16	5.25	2310	3.49	3.52	29.03	8.37
(iii) Controlling for the VIX as well as the US stock market, US high-yield market, and commodity market																				
pooled	4274	4.42	4.85	31.79	7.01	3227	3.65	5.45	30.54	9.38	3111	4.86	4.07	34.51	9.16	2310	3.77	4.12	33.90	12.73
pooled (doc)	4274	4.42	4.85	31.76	7.02	3227	3.65	5.45	30.50	9.39	3111	4.86	4.07	34.47	9.16	2310	3.77	4.12	33.85	12.74
sovFE	4274	4.43	4.85	31.38	7.04	3227	3.66	5.45	30.09	9.42	3111	4.88	4.09	34.09	9.19	2310	3.80	4.12	33.43	12.77

Panel B. Changes in *iskew* (skewness or crash risk)

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
(i) Controlling for the VIX																				
pooled	4274	1.98	3.18	26.65	0.91	3227	1.62	3.29	21.32	1.70	3111	2.37	3.09	28.05	0.86	2310	2.05	3.13	23.50	1.59
pooled (doc)	4274	1.98	3.18	26.62	0.91	3227	1.62	3.29	21.27	1.70	3111	2.37	3.09	28.01	0.86	2310	2.05	3.13	23.44	1.59
sovFE	4274	1.99	3.17	26.22	0.92	3227	1.62	3.28	20.81	1.70	3111	2.38	3.08	27.63	0.86	2310	2.06	3.13	23.01	1.58
(ii) Controlling for the US stock market, US high-yield market, and commodity market																				
pooled	4274	1.76	3.11	29.39	3.65	3227	1.24	3.25	26.59	6.97	3111	2.12	3.09	31.38	4.19	2310	1.64	3.08	29.26	7.34
pooled (doc)	4274	1.76	3.11	29.36	3.65	3227	1.24	3.25	26.54	6.97	3111	2.12	3.09	31.34	4.20	2310	1.64	3.08	29.20	7.35
sovFE	4274	1.76	3.10	28.97	3.66	3227	1.25	3.24	26.10	6.99	3111	2.13	3.07	30.96	4.19	2310	1.66	3.07	28.78	7.34
(iii) Controlling for the VIX as well as the US stock market, US high-yield market, and commodity market																				
pooled	4274	1.78	3.18	29.68	3.94	3227	1.26	3.36	26.83	7.21	3111	2.15	3.16	31.68	4.49	2310	1.68	3.23	29.55	7.64
pooled (doc)	4274	1.78	3.18	29.65	3.94	3227	1.26	3.36	26.79	7.22	3111	2.15	3.16	31.64	4.49	2310	1.68	3.23	29.50	7.64
sovFE	4274	1.78	3.16	29.26	3.95	3227	1.27	3.34	26.35	7.24	3111	2.16	3.14	31.26	4.49	2310	1.69	3.22	29.07	7.64

Panel C: Changes in *ikurt* (kurtosis risk)

	All currencies					Floating exchange rates (FX)					Open capital account (CA)					Floating FX & open CA				
	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}	N	b	t_b	R^2	R^2_{add}
(i) Controlling for the VIX																				
pooled	4274	0.22	2.81	15.81	0.37	3227	0.14	2.36	13.68	1.83	3111	0.24	3.34	20.62	0.78	2310	0.18	2.26	16.50	1.95
pooled (doc)	4274	0.22	2.81	15.77	0.37	3227	0.14	2.35	13.63	1.83	3111	0.24	3.34	20.57	0.78	2310	0.18	2.26	16.43	1.95
sovFE	4274	0.22	2.80	15.30	0.37	3227	0.14	2.33	13.16	1.84	3111	0.24	3.33	20.13	0.78	2310	0.18	2.23	15.93	1.96
(ii) Controlling for the US stock market, US high-yield market, and commodity market																				
pooled	4274	0.18	2.64	17.95	2.51	3227	0.09	2.44	18.76	6.91	3111	0.20	3.55	23.69	3.85	2310	0.12	2.31	22.78	8.22
pooled (doc)	4274	0.18	2.64	17.91	2.51	3227	0.09	2.43	18.72	6.92	3111	0.20	3.55	23.64	3.85	2310	0.12	2.30	22.71	8.23
sovFE	4274	0.18	2.63	17.45	2.51	3227	0.09	2.39	18.28	6.95	3111	0.20	3.54	23.20	3.85	2310	0.12	2.25	22.23	8.27
(iii) Controlling for the VIX as well as the US stock market, US high-yield market, and commodity market																				
pooled	4274	0.18	2.67	17.94	2.49	3227	0.09	2.54	18.78	6.92	3111	0.20	3.63	23.71	3.87	2310	0.12	2.44	22.78	8.23
pooled (doc)	4274	0.18	2.67	17.90	2.49	3227	0.09	2.53	18.73	6.93	3111	0.20	3.62	23.66	3.87	2310	0.12	2.43	22.72	8.24
sovFE	4274	0.18	2.66	17.43	2.49	3227	0.09	2.50	18.29	6.97	3111	0.20	3.61	23.22	3.87	2310	0.12	2.38	22.24	8.27

Table IA.39: FX implied volatility and sovereign CDS spreads

This table reports estimates for regressions of changes in currency option implied volatility on changes in sovereign CDS spreads. The implied volatility is extracted from a delta-neutral straddle as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	8.81	2.04	9.79	167	8.81	2.04	9.79	167	8.81	2.04	9.79	167	8.81	2.04	9.79
BRL	160	4.39	4.11	21.84	160	4.39	4.11	21.84	71	4.44	2.18	16.25	71	4.44	2.18	16.25
CAD	133	9.50	3.09	6.29	133	9.50	3.09	6.29	133	9.50	3.09	6.29	133	9.50	3.09	6.29
CHF	100	5.01	2.36	4.37	58	2.31	1.05	1.47	100	5.01	2.36	4.37	58	2.31	1.05	1.47
CLP	160	11.19	4.12	47.58	160	11.19	4.12	47.58	160	11.19	4.12	47.58	160	11.19	4.12	47.58
CNY	166	1.33	3.98	7.01												
COP	138	4.82	4.08	21.18	138	4.82	4.08	21.18								
CZK	174	9.19	12.25	48.51					174	9.19	12.25	48.51				
DKK	172	3.82	2.95	4.90					172	3.82	2.95	4.90				
GBP	133	5.72	2.82	6.04	133	5.72	2.82	6.04	133	5.72	2.82	6.04	133	5.72	2.82	6.04
HKD	154	0.12	0.85	0.12					154	0.12	0.85	0.12				
HUF	66	3.12	2.81	26.81					66	3.12	2.81	26.81				
IDR	164	9.07	4.07	60.45	83	5.99	2.93	30.64	85	9.62	3.66	61.82	43	7.06	2.63	37.21
ILS	160	1.53	1.74	5.39	160	1.53	1.74	5.39	160	1.53	1.74	5.39	160	1.53	1.74	5.39
JPY	174	2.69	1.34	1.62	174	2.69	1.34	1.62	174	2.69	1.34	1.62	174	2.69	1.34	1.62
KRW	174	8.42	2.53	41.48	174	8.42	2.53	41.48	114	8.89	2.52	43.63	114	8.89	2.52	43.63
MXN	172	6.05	2.57	29.67	172	6.05	2.57	29.67	172	6.05	2.57	29.67	172	6.05	2.57	29.67
MYR	150	3.70	3.71	22.26	144	3.75	3.73	23.92								
NOK	165	13.50	1.44	6.13	165	13.50	1.44	6.13	165	13.50	1.44	6.13	165	13.50	1.44	6.13
NZD	158	8.64	2.21	15.05	158	8.64	2.21	15.05	158	8.64	2.21	15.05	158	8.64	2.21	15.05
PHP	162	3.11	3.56	32.31	150	3.42	4.09	36.50	113	2.98	2.65	31.17	101	3.36	3.08	36.37
PLN	174	7.51	5.11	38.83	109	7.65	4.22	40.33	174	7.51	5.11	38.83	109	7.65	4.22	40.33
RUB	138	3.92	5.42	21.59	86	2.70	3.77	22.43	102	4.01	3.71	16.16	85	2.70	4.17	22.52
SEK	163	6.87	2.15	8.80	106	6.43	1.76	8.91	163	6.87	2.15	8.80	106	6.43	1.76	8.91
SGD	87	5.87	1.44	13.75	87	5.87	1.44	13.75	87	5.87	1.44	13.75	87	5.87	1.44	13.75
THB	174	1.74	3.01	5.66	174	1.74	3.01	5.66								
TRY	162	5.16	4.16	34.90	162	5.16	4.16	34.90	114	6.20	3.58	45.14	114	6.20	3.58	45.14
ZAR	174	7.08	3.31	26.29	174	7.08	3.31	26.29								
pooled	4274	5.47	4.35	24.75	3227	5.12	4.25	21.11	3111	6.12	3.68	25.33	2310	5.54	3.47	21.12
pooled (doc)	4274	5.47	4.35	24.72	3227	5.12	4.24	21.07	3111	6.12	3.67	25.29	2310	5.55	3.47	21.06
sovFE	4274	5.48	4.35	24.31	3227	5.13	4.26	20.62	3111	6.14	3.69	24.88	2310	5.57	3.48	20.61
timeFE	4274	3.62	4.25	49.41	3227	2.92	5.15	51.95	3111	3.95	3.57	53.99	2310	2.78	3.92	57.78
sovFEtimeFE	4274	3.63	4.26	49.09	3227	2.93	5.21	51.64	3111	3.97	3.59	53.68	2310	2.81	3.96	57.47

Table IA.40: FX implied skewness and sovereign CDS spreads

This table reports estimates for regressions of changes in currency option implied skewness on changes in sovereign CDS spreads. The implied skewness is proxied using the implied volatility of a 25-delta risk reversal as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	1.80	0.94	4.48	167	1.80	0.94	4.48	167	1.80	0.94	4.48	167	1.80	0.94	4.48
BRL	160	1.52	2.68	13.69	160	1.52	2.68	13.69	71	2.34	1.95	16.29	71	2.34	1.95	16.29
CAD	133	2.79	2.22	7.00	133	2.79	2.22	7.00	133	2.79	2.22	7.00	133	2.79	2.22	7.00
CHF	100	0.94	1.39	2.04	58	0.02	0.06	0.00	100	0.94	1.39	2.04	58	0.02	0.06	0.00
CLP	160	3.90	4.13	33.37	160	3.90	4.13	33.37	160	3.90	4.13	33.37	160	3.90	4.13	33.37
CNY	166	0.96	4.96	4.68												
COP	138	1.16	2.32	13.82	138	1.16	2.32	13.82								
CZK	174	1.89	4.00	25.48					174	1.89	4.00	25.48				
DKK	172	0.42	1.06	0.77					172	0.42	1.06	0.77				
GBP	133	1.51	2.23	3.04	133	1.51	2.23	3.04	133	1.51	2.23	3.04	133	1.51	2.23	3.04
HKD	154	0.19	0.53	0.43					154	0.19	0.53	0.43				
HUF	66	0.92	2.64	38.11					66	0.92	2.64	38.11				
IDR	164	4.11	3.58	54.61	83	0.98	2.35	13.70	85	4.48	3.65	55.81	43	0.99	1.58	11.58
ILS	160	0.81	7.83	18.76	160	0.81	7.83	18.76	160	0.81	7.83	18.76	160	0.81	7.83	18.76
JPY	174	-0.29	-0.23	0.11	174	-0.29	-0.23	0.11	174	-0.29	-0.23	0.11	174	-0.29	-0.23	0.11
KRW	174	3.35	2.90	34.69	174	3.35	2.90	34.69	114	3.57	2.90	37.21	114	3.57	2.90	37.21
MXN	172	2.79	1.89	22.73	172	2.79	1.89	22.73	172	2.79	1.89	22.73	172	2.79	1.89	22.73
MYR	150	1.12	3.24	16.64	144	1.13	3.24	16.79								
NOK	165	4.29	3.90	9.32	165	4.29	3.90	9.32	165	4.29	3.90	9.32	165	4.29	3.90	9.32
NZD	158	1.66	0.92	5.07	158	1.66	0.92	5.07	158	1.66	0.92	5.07	158	1.66	0.92	5.07
PHP	162	2.04	3.05	37.37	150	2.20	3.24	40.53	113	2.13	2.67	37.18	101	2.35	2.88	41.21
PLN	174	2.39	3.31	35.08	109	2.48	2.44	34.30	174	2.39	3.31	35.08	109	2.48	2.44	34.30
RUB	138	2.16	7.98	60.43	86	1.68	9.00	51.88	102	1.93	6.94	50.15	85	1.68	8.83	53.38
SEK	163	1.13	4.84	4.17	106	1.14	2.36	4.82	163	1.13	4.84	4.17	106	1.14	2.36	4.82
SGD	87	2.07	1.46	11.30	87	2.07	1.46	11.30	87	2.07	1.46	11.30	87	2.07	1.46	11.30
THB	174	0.29	2.51	2.65	174	0.29	2.51	2.65								
TRY	162	1.60	4.26	37.60	162	1.60	4.26	37.60	114	2.24	10.63	55.12	114	2.24	10.63	55.12
ZAR	174	2.12	7.18	32.95	174	2.12	7.18	32.95								
pooled	4274	2.13	3.59	25.71	3227	1.83	3.72	19.57	3111	2.52	3.39	27.18	2310	2.27	3.47	21.88
pooled (doc)	4274	2.13	3.59	25.68	3227	1.83	3.72	19.53	3111	2.52	3.39	27.14	2310	2.27	3.47	21.82
sovFE	4274	2.14	3.57	25.28	3227	1.83	3.71	19.07	3111	2.53	3.38	26.77	2310	2.28	3.47	21.40
timeFE	4274	1.76	2.90	41.15	3227	1.26	3.05	38.99	3111	2.16	2.91	43.20	2310	1.71	3.03	41.16
sovFEtimeFE	4274	1.76	2.89	40.79	3227	1.27	3.03	38.57	3111	2.17	2.89	42.84	2310	1.72	3.02	40.72

Table IA.41: FX implied kurtosis and sovereign CDS spreads

This table reports estimates for regressions of changes in currency option implied kurtosis on changes in sovereign CDS spreads. The implied kurtosis is proxied using the implied volatility of a 25-delta butterfly spread as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for different samples of currencies. t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled"), pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)") as well as panel regressions with sovereign fixed effects ("sovFE"), time fixed effects ("timeFE"), and both fixed effects ("sovFEtimeFE"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is monthly from 01/2003 – 07/2017.

	All currencies				Floating exchange rates (FX)				Open capital account (CA)				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	167	0.23	1.67	7.78	167	0.23	1.67	7.78	167	0.23	1.67	7.78	167	0.23	1.67	7.78
BRL	160	0.15	2.04	7.39	160	0.15	2.04	7.39	71	0.21	1.28	8.01	71	0.21	1.28	8.01
CAD	133	0.23	1.71	3.88	133	0.23	1.71	3.88	133	0.23	1.71	3.88	133	0.23	1.71	3.88
CHF	100	0.07	0.94	0.72	58	0.07	0.75	1.26	100	0.07	0.94	0.72	58	0.07	0.75	1.26
CLP	160	0.29	2.53	15.11	160	0.29	2.53	15.11	160	0.29	2.53	15.11	160	0.29	2.53	15.11
CNY	166	0.07	1.99	0.16												
COP	138	0.09	1.69	3.99	138	0.09	1.69	3.99								
CZK	174	0.25	4.16	16.62					174	0.25	4.16	16.62				
DKK	172	0.16	1.54	6.97					172	0.16	1.54	6.97				
GBP	133	0.29	2.60	6.92	133	0.29	2.60	6.92	133	0.29	2.60	6.92	133	0.29	2.60	6.92
HKD	154	0.08	2.95	2.16					154	0.08	2.95	2.16				
HUF	66	0.03	3.04	6.93					66	0.03	3.04	6.93				
IDR	164	0.34	4.43	40.93	83	-0.09	-1.17	3.62	85	0.36	4.21	46.62	43	-0.15	-1.68	8.29
ILS	160	0.03	1.62	1.20	160	0.03	1.62	1.20	160	0.03	1.62	1.20	160	0.03	1.62	1.20
JPY	174	0.06	0.51	0.64	174	0.06	0.51	0.64	174	0.06	0.51	0.64	174	0.06	0.51	0.64
KRW	174	0.40	3.86	44.94	174	0.40	3.86	44.94	114	0.44	4.18	49.17	114	0.44	4.18	49.17
MXN	172	0.28	2.75	28.15	172	0.28	2.75	28.15	172	0.28	2.75	28.15	172	0.28	2.75	28.15
MYR	150	0.18	1.49	15.65	144	0.18	1.49	15.68								
NOK	165	0.75	2.86	16.69	165	0.75	2.86	16.69	165	0.75	2.86	16.69	165	0.75	2.86	16.69
NZD	158	0.21	1.76	8.23	158	0.21	1.76	8.23	158	0.21	1.76	8.23	158	0.21	1.76	8.23
PHP	162	0.15	1.63	11.47	150	0.15	1.60	11.99	113	0.17	1.59	13.04	101	0.18	1.58	13.89
PLN	174	0.22	1.98	23.18	109	0.25	1.81	27.62	174	0.22	1.98	23.18	109	0.25	1.81	27.62
RUB	138	0.38	4.21	37.18	86	0.14	4.70	15.89	102	0.33	2.58	22.95	85	0.14	7.46	15.87
SEK	163	0.34	2.55	20.22	106	0.33	3.17	20.54	163	0.34	2.55	20.22	106	0.33	3.17	20.54
SGD	87	0.16	0.70	4.91	87	0.16	0.70	4.91	87	0.16	0.70	4.91	87	0.16	0.70	4.91
THB	174	-0.01	-0.39	0.04	174	-0.01	-0.39	0.04								
TRY	162	0.12	3.75	15.86	162	0.12	3.75	15.86	114	0.15	4.64	25.60	114	0.15	4.64	25.60
ZAR	174	0.20	2.88	22.27	174	0.20	2.88	22.27								
pooled	4274	0.23	3.08	15.43	3227	0.17	2.70	11.82	3111	0.26	3.58	19.82	2310	0.21	2.54	14.50
pooled (doc)	4274	0.23	3.08	15.39	3227	0.17	2.69	11.76	3111	0.26	3.57	19.76	2310	0.21	2.53	14.43
sovFE	4274	0.23	3.07	14.92	3227	0.17	2.67	11.29	3111	0.26	3.56	19.33	2310	0.21	2.50	13.91
timeFE	4274	0.17	2.43	26.67	3227	0.08	2.43	32.78	3111	0.19	3.08	34.60	2310	0.10	2.05	38.68
sovFEtimeFE	4274	0.17	2.42	26.20	3227	0.08	2.37	32.36	3111	0.19	3.07	34.15	2310	0.10	1.98	38.22

Table IA.42: FX implied volatility and sovereign CDS spreads: Daily and weekly

This table reports estimates for regressions of changes in currency option implied volatility on changes in sovereign CDS spreads. The implied volatility is extracted from a delta-neutral straddle as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for the full sample of countries ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled") and pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is weekly and daily from 01/2003 – 07/2017.

	Weekly data								Daily data							
	All currencies				Floating FX & open CA				All currencies				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	714	5.59	2.35	4.79	714	5.59	2.35	4.79	3456	8.17	6.23	5.82	3456	8.17	6.23	5.82
BRL	687	6.86	5.32	36.41	310	8.67	6.51	45.46	3329	6.34	5.40	29.56	1498	8.56	4.86	38.03
CAD	611	0.80	0.53	0.05	611	0.80	0.53	0.05	3031	2.10	2.78	0.37	3031	2.10	2.78	0.37
CHF	438	4.07	1.62	2.69	262	3.94	1.43	3.93	2136	2.24	2.25	0.60	1277	2.26	2.18	1.35
CLP	685	5.92	5.55	17.04	685	5.92	5.55	17.04	3322	3.39	7.12	7.34	3322	3.39	7.12	7.34
CNY	712	0.91	2.60	1.61					3477	1.13	5.87	2.26				
COP	593	1.65	2.29	6.06	52	0.61	1.07	1.76	2872	1.29	3.38	3.45				
CZK	751	4.96	7.42	14.10					3634	4.77	10.74	10.53				
DKK	743	3.59	2.68	2.46					3578	6.03	5.19	4.50				
GBP	571	4.44	3.20	3.42	571	4.44	3.20	3.42	2785	7.55	6.64	7.49	2785	7.55	6.64	7.49
HKD	665	0.20	2.81	0.61					3218	0.10	2.47	0.15				
HUF	284	2.95	5.58	17.50					1386	2.37	9.27	11.85				
IDR	701	3.14	14.71	14.15	192	3.40	2.54	8.87	3401	2.62	1.92	13.46	925	1.62	2.36	2.23
ILS	687	0.80	1.58	1.15	687	0.80	1.58	1.15	3325	1.20	4.05	2.19	3325	1.20	4.05	2.19
JPY	751	5.61	1.73	4.77	751	5.61	1.73	4.77	3636	6.86	3.20	4.70	3636	6.86	3.20	4.70
KRW	751	6.52	5.53	35.93	492	6.65	5.25	36.90	3636	6.25	4.68	25.97	2390	6.38	4.48	27.18
MXN	746	9.91	4.32	40.16	746	9.91	4.32	40.16	3616	11.93	3.06	40.90	3616	11.93	3.06	40.90
MYR	645	2.23	4.37	13.46	52	1.35	5.55	20.39	3125	1.47	3.64	5.77				
NOK	703	9.82	1.84	2.84	703	9.82	1.84	2.84	3412	4.25	1.78	0.79	3412	4.25	1.78	0.79
NZD	655	2.83	1.67	1.99	655	2.83	1.67	1.99	3206	4.96	5.24	3.34	3206	4.96	5.24	3.34
PHP	692	1.16	3.66	9.78	433	1.06	3.90	9.94	3370	0.63	1.59	2.13	2118	0.49	1.29	1.51
PLN	751	5.52	5.32	20.92	475	5.53	4.61	22.97	3636	4.40	11.70	13.04	2287	4.41	10.77	14.09
RUB	591	2.19	4.04	13.96	370	2.83	5.38	20.73	2881	1.81	4.73	8.25	1807	2.56	8.07	18.02
SEK	709	2.79	1.02	1.21	457	2.66	0.96	1.24	3449	5.25	3.23	2.68	2223	5.15	3.21	2.94
SGD	370	2.59	1.00	2.12	370	2.59	1.00	2.12	1826	2.21	1.66	1.45	1826	2.21	1.66	1.45
THB	751	0.46	1.55	0.54					3636	0.37	3.22	0.30				
TRY	699	5.21	14.34	43.35	492	5.41	18.15	48.91	3386	4.86	11.56	33.96	2390	4.80	12.40	38.02
ZAR	751	6.12	5.15	33.09					3634	4.17	21.95	16.44				
pooled	18407	3.88	5.59	16.38	10080	4.88	4.25	19.28	89399	3.59	4.74	11.87	48530	5.28	3.86	16.20
pooled (doc)	18407	3.88	5.59	16.37	10080	4.88	4.25	19.27	89399	3.59	4.74	11.86	48530	5.28	3.86	16.20

Table IA.43: FX implied skewness and sovereign CDS spreads: Daily and weekly

This table reports estimates for regressions of changes in currency option implied skewness on changes in sovereign CDS spreads. The implied skewness is proxied using the implied volatility of a 25-delta risk reversal as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for the full sample of countries ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled") and pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is weekly and daily from 01/2003 – 07/2017.

	Weekly data								Daily data							
	All currencies				Floating FX & open CA				All currencies				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	714	1.22	0.85	1.80	714	1.22	0.85	1.80	3456	2.94	6.04	8.13	3456	2.94	6.04	8.13
BRL	687	1.98	4.21	31.98	310	2.62	6.33	41.26	3329	1.17	6.36	12.61	1498	1.46	5.40	14.33
CAD	611	0.27	0.80	0.07	611	0.27	0.80	0.07	3031	0.61	2.90	0.44	3031	0.61	2.90	0.44
CHF	438	-0.27	-0.65	0.13	262	-0.39	-0.78	0.64	2136	0.29	1.04	0.16	1277	0.14	0.56	0.07
CLP	685	0.73	1.88	1.80	685	0.73	1.88	1.80	3322	0.52	2.00	0.90	3322	0.52	2.00	0.90
CNY	712	0.78	2.68	3.26					3477	0.90	7.69	1.95				
COP	593	0.33	1.71	2.41	52	0.01	0.13	0.00	2872	0.18	1.52	0.61				
CZK	751	1.41	3.46	9.40					3634	1.05	4.11	3.64				
DKK	743	1.12	3.66	2.10					3578	1.47	6.33	2.71				
GBP	571	1.26	2.25	1.63	571	1.26	2.25	1.63	2785	1.43	2.99	2.83	2785	1.43	2.99	2.83
HKD	665	0.15	0.93	0.26					3218	0.02	0.63	0.01				
HUF	284	0.77	4.11	15.49					1386	0.53	7.86	7.12				
IDR	701	0.96	7.90	9.29	192	0.63	1.77	3.69	3401	0.40	1.16	2.03	925	0.22	1.47	0.35
ILS	687	0.25	2.31	1.91	687	0.25	2.31	1.91	3325	0.30	5.05	1.50	3325	0.30	5.05	1.50
JPY	751	-1.35	-2.11	2.07	751	-1.35	-2.11	2.07	3636	-1.95	-3.40	3.21	3636	-1.95	-3.40	3.21
KRW	751	3.69	8.58	35.40	492	3.84	10.42	36.92	3636	3.36	4.60	20.42	2390	3.43	4.23	21.24
MXN	746	2.22	12.77	29.71	746	2.22	12.77	29.71	3616	1.38	9.82	12.75	3616	1.38	9.82	12.75
MYR	645	0.48	3.08	5.63	52	0.24	3.81	5.73	3125	0.32	4.44	2.37				
NOK	703	2.28	2.45	1.45	703	2.28	2.45	1.45	3412	1.50	4.29	1.09	3412	1.50	4.29	1.09
NZD	655	0.49	0.46	0.49	655	0.49	0.46	0.49	3206	1.93	3.43	5.32	3206	1.93	3.43	5.32
PHP	692	0.15	0.37	0.42	433	0.03	0.07	0.01	3370	0.27	1.85	1.25	2118	0.24	1.56	1.07
PLN	751	1.52	3.39	13.70	475	1.58	3.05	14.70	3636	1.16	4.51	6.74	2287	1.21	4.12	7.41
RUB	591	0.62	2.31	13.37	370	1.41	4.88	23.86	2881	0.60	6.05	8.22	1807	1.20	7.97	15.45
SEK	709	1.54	4.67	4.22	457	1.55	4.64	5.03	3449	1.62	5.23	2.94	2223	1.65	5.30	3.84
SGD	370	1.29	0.89	2.98	370	1.29	0.89	2.98	1826	0.31	0.52	0.16	1826	0.31	0.52	0.16
THB	751	0.11	1.75	0.47					3636	0.04	1.83	0.05				
TRY	699	1.07	5.98	26.28	492	1.17	4.95	33.85	3386	1.09	8.81	21.51	2390	1.16	8.26	28.60
ZAR	751	1.28	7.67	19.23					3634	0.95	11.61	10.45				
pooled	18407	1.07	5.02	10.19	10080	1.41	3.89	12.29	89399	0.82	4.77	5.17	48530	1.28	4.01	7.98
pooled (doc)	18407	1.07	5.02	10.19	10080	1.41	3.89	12.27	89399	0.82	4.77	5.17	48530	1.28	4.01	7.98

Table IA.44: FX implied kurtosis and sovereign CDS spreads: Daily and weekly

This table reports estimates for regressions of changes in currency option implied skewness on changes in sovereign CDS spreads. The implied kurtosis is proxied using the implied volatility of a 25-delta butterfly spread as described in Section 2.3.2. We report the slope coefficient (b), t-statistic (t_b), R^2, and the number of observations (N) for the full sample of countries ("All currencies") and a subsample of countries with floating exchange rates and open capital accounts ("Floating FX & Open CA"). t_b is based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. We also report estimates of pooled regressions ("pooled") and pooled regressions with dummies that capture differences in CDS restructuring clauses ("pooled (doc)"). The corresponding t_b are based on standard errors clustered by currency and time dimension. The sample is weekly and daily from 01/2003 – 07/2017.

	Weekly data								Daily data							
	All currencies				Floating FX & open CA				All currencies				Floating FX & open CA			
	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2	N	b	t_b	R^2
AUD	714	0.07	0.66	0.55	714	0.07	0.66	0.55	3456	0.25	4.25	3.10	3456	0.25	4.25	3.10
BRL	687	0.16	3.06	9.65	310	0.23	5.32	14.47	3329	0.07	5.31	1.17	1498	0.08	3.98	1.09
CAD	611	-0.01	-0.18	0.00	611	-0.01	-0.18	0.00	3031	0.04	1.52	0.07	3031	0.04	1.52	0.07
CHF	438	0.08	1.57	0.64	262	0.06	1.08	1.00	2136	0.02	1.59	0.03	1277	0.02	2.37	0.13
CLP	685	0.04	2.31	0.22	685	0.04	2.31	0.22	3322	0.09	3.17	0.67	3322	0.09	3.17	0.67
CNY	712	0.05	1.26	0.69					3477	0.03	2.10	0.02				
COP	593	0.00	0.10	0.00	52	-0.02	-1.26	2.61	2872	0.02	2.27	0.10				
CZK	751	0.07	1.61	0.82					3634	0.02	0.45	0.01				
DKK	743	0.08	1.32	0.09					3578	0.03	1.32	0.01				
GBP	571	0.05	0.75	0.24	571	0.05	0.75	0.24	2785	0.04	1.36	0.13	2785	0.04	1.36	0.13
HKD	665	0.01	0.87	0.05					3218	-0.01	-0.86	0.01				
HUF	284	-0.01	-0.37	0.11					1386	0.00	0.22	0.00				
IDR	701	0.05	1.82	1.32	192	0.01	0.28	0.04	3401	0.04	1.64	0.84	925	0.02	1.01	0.08
ILS	687	0.03	1.24	0.79	687	0.03	1.24	0.79	3325	0.01	0.39	0.01	3325	0.01	0.39	0.01
JPY	751	0.13	1.88	2.76	751	0.13	1.88	2.76	3636	0.22	2.64	3.91	3636	0.22	2.64	3.91
KRW	751	0.15	3.01	11.13	492	0.15	2.76	11.45	3636	0.13	2.99	3.73	2390	0.13	2.92	3.86
MXN	746	0.12	5.88	11.36	746	0.12	5.88	11.36	3616	0.06	5.87	2.06	3616	0.06	5.87	2.06
MYR	645	0.10	4.09	9.50	52	0.12	10.13	39.08	3125	0.04	2.03	0.55				
NOK	703	0.27	1.49	2.67	703	0.27	1.49	2.67	3412	0.06	1.90	0.11	3412	0.06	1.90	0.11
NZD	655	0.06	0.81	0.82	655	0.06	0.81	0.82	3206	0.14	2.76	1.65	3206	0.14	2.76	1.65
PHP	692	-0.07	-3.39	5.79	433	-0.07	-3.05	7.37	3370	0.01	0.53	0.02	2118	0.00	0.07	0.00
PLN	751	0.01	0.31	0.02	475	-0.01	-0.56	0.07	3636	0.02	1.56	0.08	2287	0.01	0.98	0.05
RUB	591	0.04	0.98	0.79	370	0.07	2.27	2.77	2881	-0.01	-0.39	0.02	1807	0.06	3.13	1.45
SEK	709	0.11	1.49	0.17	457	0.10	1.40	3.03	3449	0.07	2.46	0.05	2223	0.08	2.53	0.60
SGD	370	0.13	1.27	1.82	370	0.13	1.27	1.82	1826	0.02	0.76	0.04	1826	0.02	0.76	0.04
THB	751	0.03	1.54	0.40					3636	0.00	0.41	0.00				
TRY	699	0.04	2.64	1.91	492	0.04	2.23	3.43	3386	0.03	4.13	1.03	2390	0.04	3.39	1.67
ZAR	751	0.03	1.19	0.53					3634	0.02	0.72	0.10				
pooled	18407	0.05	2.21	1.08	10080	0.07	1.81	2.34	89399	0.03	3.08	0.21	48530	0.06	3.71	0.91
pooled (doc)	18407	0.05	2.21	1.07	10080	0.07	1.81	2.32	89399	0.03	3.08	0.21	48530	0.06	3.71	0.91

Table IA.45: Summary statistics for currency and FX option excess returns

This table reports country-level summary statistics for currency and FX option excess returns. RX denotes excess returns to forwards, ST to delta-neutral straddles, RR to 25-delta risk reversals, and BF to 25-delta butterfly spreads. Means and standard deviations (std) are expressed in percentage per annum, and SR denotes the annualized Sharpe Ratio. The sample is monthly from 01/2004 – 07/2017.

	RX			ST			RR			BF		
	mean	*std*	SR	*mean*	*std*	SR	*mean*	*std*	SR	*mean*	*std*	SR
AUD	3.30	13.13	0.25	1.34	8.19	0.16	1.91	7.59	0.25	-0.60	2.75	-0.22
BRL	16.68	14.89	1.12	0.71	8.32	0.09	2.95	7.48	0.39	-0.55	2.90	-0.19
CAD	-2.03	9.83	-0.21	0.23	6.16	0.04	-0.78	5.61	-0.14	-0.53	2.13	-0.25
CHF	5.47	9.50	0.58	-2.75	6.04	-0.46	2.41	5.03	0.48	-0.21	2.32	-0.09
CLP	0.12	11.99	0.01	-0.50	8.25	-0.06	-0.68	7.22	-0.09	-1.09	2.83	-0.38
GBP	-2.80	9.30	-0.30	-2.11	6.01	-0.35	-1.19	4.93	-0.24	0.04	2.51	0.02
IDR	58.28	15.29	3.81	-47.20	10.22	-4.62	40.37	11.80	3.42	5.48	2.55	2.15
ILS	2.27	8.39	0.27	-2.04	7.82	-0.26	0.57	6.69	0.09	0.00	2.90	0.00
ISK	11.93	12.12	0.98									
JPY	-1.67	9.78	-0.17	-2.64	6.15	-0.43	-2.93	4.97	-0.59	0.17	2.60	0.07
KRW	-0.74	13.66	-0.05	-1.22	10.36	-0.12	8.28	8.35	0.99	-0.08	4.15	-0.02
LVL	2.48	11.23	0.22									
MXN	0.66	10.58	0.06	-3.91	4.19	-0.93	1.81	2.68	0.67	0.81	2.20	0.37
NOK	-0.56	11.48	-0.05	-2.64	7.43	-0.36	0.22	6.13	0.04	0.50	3.00	0.17
NZD	3.50	14.06	0.25	1.31	8.69	0.15	2.68	8.01	0.34	-0.38	3.12	-0.12
PHP	2.83	5.93	0.48	-0.33	10.33	-0.03	3.73	8.88	0.42	-0.56	3.96	-0.14
PLN	4.53	16.72	0.27	-1.02	6.79	-0.15	1.02	6.32	0.16	-1.79	3.08	-0.58
RUB	6.05	12.71	0.48	0.39	4.96	0.08	1.52	4.41	0.35	-0.71	1.94	-0.37
SEK	-1.31	12.16	-0.11	-2.68	6.87	-0.39	0.77	5.95	0.13	-0.63	2.74	-0.23
SGD	2.02	6.67	0.30	-0.30	4.00	-0.07	0.95	3.65	0.26	-0.24	1.48	-0.16
TRY	-3.01	13.22	-0.23									

Table IA.46: Portfolio returns: Delta-hedged risk reversals

This table presents descriptive statistics of portfolios based on delta-hedged 25-delta risk reversals sorted by lagged sovereign CDS spreads. Hedging is performed using a 0.5 short position in the one-month forward contract of the corresponding currency pair. Mean excess returns are expressed in percentage per annum, SR denotes the annualized Sharpe Ratio, and MDD is the maximum drawdown in percentage. HML denotes a zero investment strategy that goes long portfolio P3 and short portfolio P1. *Rank* refers to a zero investment strategy constructed as in Asness, Moskowitz, and Pedersen (2013). The t-statistic in squared brackets is based on White (1980) standard errors. The sample is monthly 01/2004 - 07/2017.

	Portfolio				
	1	2	3	HML	Rank
Trading hedged RR25 based on CDS spreads					
mean	0.12	0.04	1.48	1.36	1.37
t	[0.08]	[0.02]	[0.91]	[1.12]	[1.15]
SR	0.02	0.01	0.25	0.30	0.31
MDD	-11.99	-10.14	-9.17	-14.52	-5.60

Table IA.47: Predictive regressions

This table reports coefficient estimates, t-statistics, and R^2s from predictive regressions of currency excess returns on one-month lagged CDS spreads and control variables. RX denotes excess returns to forwards, ST to delta-neutral straddles, RR to 25-delta risk reversals, and BF to 25-delta butterfly spreads. The set of controls include the one-month lagged forward discounts for RX, one-month lagged implied volatility on straddles for ST, one-month lagged implied volatility on risk reversals for RR, and one-month lagged implied volatility on butterfly spread for BF, in addition to the corresponding one-month lagged excess returns. $\Delta\overline{R}^2$ refers to the adjusted R^2 that is unrelated to both country and time fixed effects. Panel regressions are estimated with currency and month fixed effects. t-statistics (in brackets) are based on standard errors clustered by currency and month dimension. The sample is monthly from 01/2003 – 07/2017.

	RX		ST		RR		BF	
CDS	0.23	0.14	0.00	0.28	0.27	0.10	-0.03	-0.05
	[2.32]	[1.75]	[-0.02]	[2.35]	[2.49]	[0.77]	[-0.48]	[-1.32]
$\overline{R}^2$	49.14	51.28	33.64	37.40	43.95	49.21	12.54	12.96
$\Delta\overline{R}^2$	1.06	6.93	1.68	3.15	2.79	4.69	0.24	0.25
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Table IA.48: Portfolio return correlations

This table reports return correlations for high-minus-low (HML) portfolios sorted on past CDS spreads which we denote by HML^{i}_{CDS}, where i denotes trades in forwards (no superscript), delta-neutral straddles (ST), 25-delta risk reversals (RR) or 25-delta butterfly spreads (BF). We also include HML portfolios based on carry (HML_{FX}) and momentum (HML_{MOM}) as well as excess returns to the dollar factor (denoted DOL) as reported in Table 8 in the main text. The sample is monthly from 01/2004 – 07/2017.

	HML_{CDS}	HML^{ST}_{CDS}	HML^{RR}_{CDS}	HML^{BF}_{CDS}	HML_{FX}	HML_{MOM}	DOL
HML_{CDS}	1.00	0.19	0.18	0.08	0.57	0.06	0.07
HML^{ST}_{CDS}		1.00	0.19	0.74	0.13	0.16	0.06
HML^{RR}_{CDS}			1.00	0.05	0.24	0.12	0.16
HML^{BF}_{CDS}				1.00	0.14	0.07	0.05
HML_{FX}					1.00	0.03	0.42
HML_{MOM}						1.00	-0.17
DOL							1.00

Table IA.49: Composition of currency portfolios

This table presents the composition of three currency portfolios sorted on the lagged CDS spreads (i.e., CDS), three currency portfolios sorted on the lagged one-month interest rate differentials (i.e., carry), and three currency portfolios sorted on the lagged one-month exchange rate returns (i.e., momentum). For each currency, we report the frequency (in %) with which it is included in one of the three portfolios. The sample is monthly from 01/2004 – 07/2017.

	CDS			Carry			Momentum		
	Low	2	High	Low	2	High	Low	2	High
AUD	63.98	36.02	0.00	0.00	47.20	52.80	29.38	33.13	37.50
BRL	0.00	4.23	95.77	0.00	1.41	98.59	18.57	28.57	52.86
CAD	84.62	15.38	0.00	62.31	37.69	0.00	30.89	43.09	26.02
CHF	91.38	8.62	0.00	98.28	0.00	1.72	29.09	41.82	29.09
CLP	0.00	77.50	22.50	36.25	56.25	7.50	41.51	28.30	30.19
GBP	63.16	36.84	0.00	60.90	38.35	0.75	36.36	34.09	29.55
IDR	0.00	0.00	100.00	17.50	0.00	82.50	15.38	2.56	82.05
ILS	0.00	30.63	69.38	48.13	51.25	0.63	28.30	37.74	33.96
ISK	28.21	71.79	0.00	0.00	2.56	97.44	25.00	27.78	47.22
JPY	27.61	72.39	0.00	99.39	0.61	0.00	47.85	20.86	31.29
KRW	0.00	83.33	16.67	19.30	76.32	4.39	29.20	35.40	35.40
LVL	0.00	58.49	41.51	45.28	26.42	28.30	28.85	50.00	21.15
MXN	0.00	6.75	93.25	0.00	7.98	92.02	29.45	38.04	32.52
NOK	100.00	0.00	0.00	27.61	71.17	1.23	40.49	34.36	25.15
NZD	36.60	63.40	0.00	0.65	41.83	57.52	30.92	32.24	36.84
PHP	0.00	0.00	100.00	5.94	42.57	51.49	36.36	29.29	34.34
PLN	0.00	68.37	31.63	21.43	43.88	34.69	35.71	26.53	37.76
RUB	0.00	0.00	100.00	0.00	8.24	91.76	27.71	32.53	39.76
SEK	98.11	1.89	0.00	68.87	31.13	0.00	38.10	32.38	29.52
SGD	60.98	39.02	0.00	86.59	13.41	0.00	25.64	64.10	10.26
TRY	0.00	0.00	100.00	0.00	0.00	100.00	34.51	31.86	33.63

Table IA.50: Portfolio turnover

This table reports average average portfolio turnover per month and the implied break-even half-spreads (Break-even HS, in percentage relative to the spot mid quote) such that the average portfolio return of a given portfolio equals zero. The sample is monthly from 01/2004 – 07/2017.

	Portfolio turnover (in %)				
	1	2	3	HML	Break-even HS
			Portfolios based on CDS spreads		
Forwards	10.54	15.36	7.17	8.86	5.48
Straddles	10.47	14.13	6.01	8.24	3.44
Risk reversals	10.32	13.92	5.88	8.10	4.39
Butterfly spreads	10.23	13.84	5.70	7.96	0.31
			Additional strategies		
Carry	12.83	20.82	11.76	12.30	4.73
Momentum	64.78	65.45	66.25	65.52	0.74

Table IA.51: Higher FX Moment Swaps

This table presents descriptive statistics of portfolios sorted by sovereign CDS spreads. Panel A reports means for portfolio averages of the fixed swap rates for a long position in a variance, a short position in a skewness swap, and a long position in a kurtosis swap. Panel B reports means for estimates of ex-post realized higher moments. Panel C summarizes higher moment risk premia earned by selling insurance against variance risk, skewness risk, and kurtosis risk by entering corresponding swap positions. All values are expressed in percentage per annum. t-statistics, based on White (1980) standard errors, are reported in squared brackets. The sample is monthly 01/2004 – 07/2017.

	P1	P2	P3	HML
	Panel A. Prices of Higher Moment Insurance			
Variance swap long	11.89	13.89	16.39	4.50
	[16.28]	[11.97]	[9.26]	[3.91]
Skewness swap short	0.14	0.48	1.14	1.00
	[7.86]	[4.04]	[3.05]	[2.74]
Kurtosis swap long	0.10	0.20	0.52	0.42
	[5.12]	[3.46]	[2.87]	[2.54]
	Panel B. Realized Higher Moments			
Variance realized	10.99	11.12	11.50	0.52
	[12.62]	[11.93]	[6.58]	[0.40]
Skewness realized	-0.11	-0.10	-0.72	-0.62
	[-0.86]	[-0.50]	[-1.49]	[-1.42]
Kurtosis realized	0.01	0.01	0.02	0.01
	[2.92]	[3.31]	[1.70]	[1.16]
	Panel C. Risk Premia for Selling Higher Moment Insurance			
Variance swap short	0.90	2.77	4.89	3.99
	[1.23]	[3.36]	[2.69]	[2.81]
Skewness swap long	0.04	0.38	0.42	0.39
	[0.28]	[1.81]	[0.82]	[0.84]
Kurtosis swap short	0.09	0.19	0.50	0.40
	[4.77]	[3.38]	[2.76]	[2.48]

Table IA.52: Asset pricing tests: Two-stage GMM with optimal weighting matrix

This table reports SDF loadings (b), risk prices (λ), cross-sectional R^2s, J-stats, and $RMSE$ from GMM-based asset pricing tests (with optimal weighting matrix). Panel A uses 6 currency portfolios i.e., three currency portfolio based on the lagged one-month interest rate differentials (CAR) and three currency portfolios based on the lagged CDS spreads (CDS). Panel B uses 9 currency portfolios, i.e., three currency portfolios based on the lagged one-month exchange rate returns (MOM) in addition to the ones in Panel A, and 9 currency option portfolios, i.e., three portfolios of delta-neutral straddles (ST), 25-delta risk reversals (RR), and 25-delta butterfly spreads (BF) based on the lagged CDS spreads. We use the dollar (DOL), carry (HML_{FX}) and CDS (HML_{CDS}) factors as pricing factors. The tests are based on a linear discount factor with a unit intercept and all factors are de-meaned. Factor means are estimated along with the other parameters by placing a large weight on the these moments in the weighting matrix. All other moments (portfolio returns) receive the same weight (identity weighting matrix) within a two-stage GMM. $RMSE$s are in percent per annum. We report Newey and West (1987) standard errors in parentheses and p-values in squared brackets. The sample is monthly from 01/2004 – 07/2017.

	Panel A: 3 CAR & 3 CDS Portfolios			Panel B: 9 Currency & 9 Option Portfolios		
	(1)	(2)	(3)	(4)	(5)	(6)
	SDF loadings (b)					
DOL	-0.01	0.04	0.02	0.02	0.09	0.08
	(0.05)	(0.05)	(0.06)	(0.04)	(0.07)	(0.04)
HML_{FX}	0.10		0.05	0.11		0.02
	(0.04)		(0.05)	(0.04)		(0.04)
HML_{CDS}		0.13	0.10		0.15	0.14
		(0.04)	(0.04)		(0.05)	(0.05)
	Risk prices (λ)					
DOL	0.20	0.26	0.27	0.38	0.56	0.53
	(0.29)	(0.27)	(0.35)	(0.19)	(0.39)	(0.24)
HML_{FX}	0.59		0.59	0.70		0.64
	(0.24)		(0.33)	(0.19)		(0.28)
HML_{CDS}		0.46	0.47		0.54	0.54
		(0.16)	(0.14)		(0.17)	(0.17)
R^2	0.76	0.76	0.95	0.42	0.38	0.42
J	5.82	5.11	3.17	40.80	39.72	38.74
	[0.56]	[0.65]	[0.79]	[0.00]	[0.00]	[0.00]
$RMSE$	1.24	1.04	0.78	2.19	3.17	3.02

Table IA.53: Asset pricing tests: Individual currencies

This table reports risk price estimates based on Fama-MacBeth regressions in which we use individual currency returns as test assets. We use the dollar risk factor (DOL), HML_{FX}, and HML_{CDS} risk factors. We also make use of conditioning information and include managed portfolios in the set of test assets. The use of these instruments is indicated in the lower part of the table where RX denotes the set of simple log currency excess returns, $RX_{t+1} \cdot fd_t$ denotes log currency excess returns scaled by lagged forward discounts (interest rate differentials), and $RX_{t+1} \cdot RX_t$ denotes log currency excess returns scaled by lagged excess returns (i.e., currency momentum). t-statistics (in brackets) are based on Newey and West (1987) standard errors with Andrews (1991) optimal lag selection. The sample is monthly from 01/2014 – 07/2017.

	Risk prices λ			
	(1)	(2)	(3)	(4)
DOL	0.47	0.23	0.23	0.22
	[1.78]	[1.06]	[1.03]	[1.01]
HML_{FX}	0.34	0.42	0.42	0.42
	[1.45]	[1.79]	[1.79]	[1.81]
HML_{CDS}	0.55	0.60	0.60	0.60
	[3.21]	[3.24]	[3.23]	[3.23]
R^2	56.78	51.42	50.95	51.88
	Test assets – Scaled returns			
RX_{t+1}	Yes	Yes	Yes	Yes
$RX_{t+1} \cdot fd_t$		Yes		Yes
$RX_{t+1} \cdot RX_t$			Yes	Yes

Table IA.54: Asset Pricing Tests with Hedged Risk Reversals

This table reports SDF loadings (b), risk prices (λ), cross-sectional R^2s, J-stats, and $RMSE$ from GMM-based asset pricing tests. Panel A uses 6 currency portfolios i.e., three currency portfolio based on the lagged one-month interest rate differentials (CAR) and three currency portfolios based on the lagged CDS spreads (CDS). Panel B uses 9 currency portfolios, i.e., three currency portfolios based on the lagged one-month exchange rate returns (MOM) in addition to the ones in Panel A, and 9 currency option portfolios, i.e., three portfolios of delta-neutral straddles (ST), *delta-hedged* 25-delta risk reversals (RR), and 25-delta butterfly spreads (BF) based on the lagged CDS spreads. Hedging is performed using a 0.5 short position in the one-month forward contract of the corresponding currency pair. We use the dollar (DOL), carry (HML_{FX}) and CDS (HML_{CDS}) factors as pricing factors. The tests are based on a linear discount factor with a unit intercept and all factors are de-meaned. Factor means are estimated along with the other parameters by placing a large weight on these moments in the weighting matrix. All other moments (portfolio returns) receive the same weight (identity weighting matrix) within a one-stage GMM. $RMSE$s are in percent per annum. We report Newey and West (1987) standard errors in parentheses and p-values in squared brackets. The sample is monthly from 01/2004 – 07/2017.

	Carry &CDS			Carry, CDS, MOM, Options		
	(1)	(2)	(3)	(4)	(5)	(6)
	SDF loadings (b)					
DOL	-0.02	0.03	0.01	-0.02	0.03	0.00
	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
HML_{FX}	0.12		0.05	0.13		0.06
	(0.04)		(0.04)	(0.04)		(0.05)
HML_{CDS}		0.16	0.11		0.17	0.10
		(0.06)	(0.05)		(0.06)	(0.05)
	Risk prices (λ)					
DOL	0.21	0.22	0.21	0.19	0.21	0.20
	(0.25)	(0.29)	(0.28)	(0.24)	(0.28)	(0.26)
HML_{FX}	0.68		0.59	0.71		0.62
	(0.27)		(0.27)	(0.27)		(0.27)
HML_{CDS}		0.57	0.50		0.58	0.50
		(0.20)	(0.17)		(0.21)	(0.17)
R^2	0.84	0.92	0.97	0.64	0.65	0.70
J	5.95	4.12	3.08	66.23	62.84	61.43
	[0.55]	[0.77]	[0.80]	[0.00]	[0.00]	[0.00]
RMSE	1.14	0.75	0.46	1.57	1.51	1.43

Table IA.55: Downside-risk CAPM betas

This table presents time-series CAPM beta estimates as in Lettau, Maggiori, and Weber (2014), where β denotes the full-sample beta estimate and β^- denotes the downside beta (market return below its mean minus volatility). t-statistics in squared brackets are based on Newey and West (1987) standard errors. The sample is monthly from 01/2004 - 07/2017.

	Portfolio				
	1	2	3	HML	Rank
Panel A. Trading Forwards based on CDS spreads					
β	0.40	0.41	0.45	0.06	0.06
	[12.21]	[8.53]	[10.63]	[1.38]	[1.48]
β^-	0.49	0.77	0.70	0.21	0.19
	[8.76]	[13.69]	[9.36]	[3.85]	[3.41]
Panel B. Trading Implied Volatility based on CDS spreads					
β	0.04	0.04	0.07	0.02	0.03
	[1.61]	[1.12]	[1.78]	[0.80]	[1.07]
β^-	0.03	0.03	0.00	-0.03	-0.02
	[0.25]	[0.22]	[-0.02]	[-0.68]	[-0.49]
Panel C. Trading Implied Skewness based on CDS spreads					
β	0.02	0.01	0.04	0.02	0.03
	[0.57]	[0.39]	[1.26]	[1.06]	[1.39]
β^-	0.13	0.12	0.12	-0.01	0.04
	[1.50]	[1.18]	[1.56]	[-0.34]	[0.96]
Panel D. Trading Implied Kurtosis based on CDS spreads					
β	0.00	0.01	0.02	0.01	0.01
	[0.58]	[0.62]	[1.74]	[1.44]	[1.34]
β^-	0.02	0.02	0.05	0.03	0.00
	[1.04]	[0.86]	[1.33]	[1.02]	[-0.10]
Panel E. Benchmark Carry Strategy					
β	0.27	0.47	0.52	0.24	0.26
	[6.90]	[12.00]	[10.96]	[4.73]	[5.22]
β^-	0.45	0.70	0.81	0.36	0.45
	[6.42]	[9.45]	[9.07]	[3.86]	[4.07]
Panel F. Benchmark Momentum Strategy					
β	0.46	0.40	0.38	-0.08	-0.07
	[9.71]	[9.19]	[9.90]	[-1.41]	[-1.48]
β^-	0.82	0.77	0.35	-0.47	-0.42
	[14.81]	[14.16]	[3.44]	[-4.35]	[-4.33]

Table IA.56: Independent double sorts

This table reports average returns and Sharpe Ratios in annual terms for conditional double currency portfolios. In Panel A, we sort first on the lagged CDS spreads and then on the lagged one-month interest rate differentials (carry). In Panel A, we sort first on the lagged CDS spreads and then on the lagged one-month exchange rate returns (momentum). HML denotes excess returns to a high-minus-low strategy. t-statistics in brackets are based on White (1980) standard errors. The sample is monthly from 01/2004 – 07/2017.

Panel A: Carry				
		Low Carry	High Carry	HML
Low CDS	*mean*	-0.54	4.34	4.89
		[-0.27]	[1.30]	[2.25]
	SR	-0.07	0.35	0.61
	MDD	-36.20	-39.50	-25.49
High CDS	*mean*	2.18	7.23	5.05
		[1.00]	[2.62]	[2.15]
	SR	0.27	0.71	0.58
	MDD	-22.78	-31.19	-19.81
HML	*mean*	2.72	2.89	
		[1.57]	[1.38]	
	SR	0.42	0.37	
	MDD	-12.51	-31.47	
Panel B: Momentum				
		Low Mom	High Mom	HML
Low CDS	*mean*	-0.77	1.87	2.64
		[-0.29]	[0.75]	[1.48]
	SR	-0.08	0.20	0.40
	MDD	-35.26	-35.57	-16.17
High CDS	*mean*	0.18	8.89	8.71
		[0.07]	[3.72]	[4.10]
	SR	0.02	1.01	1.11
	MDD	-39.18	-22.53	-9.25
HML	*mean*	0.95	7.02	
		[0.49]	[3.71]	
	SR	0.13	1.00	
	MDD	-25.32	-10.40	