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Sovereign CDS and bond pricing dynamics in emerging markets: Does the cheapest-to-deliver option matter? ☆

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ABSTRACT

We examine the relationships between credit default swap (CDS) premiums and bond yield spreads for nine emerging market sovereign borrowers. We find that these two measures of credit risk deviate considerably in the short run, due to factors such as liquidity and contract specifications, but we estimate a stable long-term equilibrium relationship for most countries. In particular, CDS premiums tend to move more than one-for-one with yield spreads, which we show is broadly consistent with the presence of a significant “cheapest-to-deliver” (CTD) option. In addition, we find a variety of cross-sectional evidence of a CTD option being incorporated into CDS premiums. In our analysis of the short-term dynamics, we find that CDS premiums often move ahead of the bond market. However, we also find that bond spreads lead CDS premiums for emerging market sovereigns more often than has been found for investment-grade corporate credits, consistent with the CTD option impeding CDS liquidity for our riskier set of borrowers. Furthermore, the CDS market is less likely to lead for sovereigns that have issued more bonds, suggesting that the relative liquidity of the two markets is a key determinant of where price discovery occurs.

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1. Introduction

In the past decade, the credit derivatives market has experienced rapid growth, and among credit derivatives, the credit default swap (CDS) has become the most widely traded instrument for transferring credit risk. According to survey data coordinated by the Bank for International Settlements, by the end of 2005, the total notional amount of outstanding CDS contracts had surpassed \$13 trillion.² CDS contracts can help isolate credit risk from other factors affecting bond prices such as illiquidity premiums, and thus may provide more accurate pricing and cleaner measurement of credit risk than is available from the underlying debt markets.

Most empirical comparisons of CDS and bond pricing, such as Hull and White (2000), Longstaff et al. (2005), Blanco et al. (2005), and Zhu (2006) have only considered investment-grade corporate names; these studies generally have concluded that arbitrage forces CDS premiums to be approximately equal to the underlying bond spreads in the absence of market frictions. Blanco et al. (2005) also report evidence that corporate CDSs seem to lead corporate bonds in reflecting changes in credit conditions. However, the number of CDS quoted for speculative-grade reference entities, while small until recent years, has since increased rapidly, and it is not obvious that investment-grade empirical regularities are necessarily applicable to riskier credits.

This paper makes three key contributions. First, we analyze the “cheapest to deliver” (CTD) option that is embedded in most CDS contracts, and we show that it can be quite important to determination of hedge ratios and to pricing relationships between bonds and CDS. We present evidence of the empirical importance of the option. Second, we find somewhat different dynamic relationships between CDS and bond prices than in the previous literature. These differences may arise because of the CTD option or because borrowers in our sample are riskier, but the differences in our results are also consistent with the relative importance of public and private information being a key determinant of differences in price dynamics across assets. Third, we examine pricing relationships for sovereign credit risk, with substantial variation in credit spreads over time and across reference entities. Most prior work on CDS has focused on investment-grade corporate names. Although the number of sovereign reference entities is smaller, cross-sectional relationships are often strong enough so that we obtain statistically significant results, and the sovereign market is large in the sense of the volume of credit risk transfer. Taken together, our arguments and evidence suggest that, particularly as the CDS market extends it reach to more speculative-grade names, market participants may wish to reconsider some features of the standard CDS contract, and may need to revise pricing models, trading strategies, and hedging strategies. There are matters of considerable practical importance to a rapidly growing market.

Our paper also differs from most previous work on CDS markets in its focus on the implications of the “cheapest-to-deliver” (CTD) option in CDS contracts. The CTD option often arises when the reference entity has more than one long-term debt instrument outstanding, because upon a default event, the protection buyer typically may choose to deliver virtually any long-term obligation that matches the currency and debt-seniority specified in the contract. Accordingly, there can be an incentive to deliver the (*ex post*) lowest-priced instrument that the protection buyer already owns or could acquire in secondary markets, even if the protection had been bought to hedge a different instrument. Most papers in the corporate CDS literature mention the CTD option in passing as a potential pricing complication, but few go further with addressing it. One exception is Packer and Zhu (2005), who consider price differences among CDS quotes for the same reference entities that differ only in how broadly a credit event is defined and in some cases, have varying restrictions on the set of deliverable instruments.³ In addition, Blanco et al. (2005), discuss a CTD option as the most likely explanation for

² In a CDS contract, one party (the protection seller) agrees to compensate the counterparty (the protection buyer) if a particular debtor (the reference entity, or name) experiences any one of a number of defined credit events that indicate it is unable or may be unable to service its debts. In exchange, the protection seller receives a premium, typically expressed as a per annum rate in basis points on the amount of coverage (the notional amount). The premium is paid quarterly or semi-annually until either the maturity date of the contract or the occurrence of a credit event.

³ In particular, they find that for two variations on CDS contracts that both define debt restructuring as a credit event, the “modified restructuring” contract, which limits deliverable obligations to those with a maturity at most 30 months after the

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