



Sovereign default risk linkage: Implication for portfolio diversification



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ABSTRACT

Dynamic conditional correlation, principal components analysis, and impulse response function analysis are employed to examine the interdependence of sovereign credit default swaps (SCDS) in the different emerging market regions of Asia, Europe and Latin America. Using these measures, Asian emerging markets show strong linkage among themselves, both during and after the financial crisis, but less responsive to shocks in European and Latin American regions. Emerging markets in Europe and Latin America have weaker regional bonds than Asian markets. Accordingly, knowledge of the varying correlations, commonality and persistence of shocks existing in intra- and inter-regional markets provides insight for superior portfolio diversification with SCDS.

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1. Introduction

A key identifying feature of international finance research in recent decades has been the assessment of financial crises spill-over from one emerging market¹ to other emerging markets and from developed markets to emerging markets. These emerging markets have undergone a number of financial crises and spill-over episodes. Since the early 1990s significant spill-over effects on emerging markets have originated from the Mexican peso crisis in 1994, Asian currency crisis of 1997, Russian sovereign debt crisis in 1998, and the Argentine sovereign debt crisis in 2001. Emerging markets have also been affected by crises originating from developed markets, for example, the US high yield market sell-off in 2002, the US subprime crisis in 2007, collapse of Lehman Brothers in 2008 and the European sovereign debt crisis in 2009.

The motivation for the focus on emerging markets lies in the potential of these markets to yield high investment returns for international portfolio investors. Hook (2001) notes that by the mid-1990s “emerging markets” were the required destination for prudent portfolio investors. “Institutions and individuals who didn’t assign a small portion of their assets – say 3 to 5% – to this new category were considered behind the times” (Hook, 2001: 130). Furthermore, over the past 15 years, emerging markets experienced significant improvements in financial deepening and macroeconomic fundamentals. These developments, coupled with persistent low yields in developed markets, motivated international portfolio investors to increase their investment in emerging

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¹ Different bodies (i.e. IMF, FTSE, S&P, Dow Jones and MSCI) have their own definitions and classifications of emerging markets. Leijonhufvud (2007) defines these markets as the subset of developing countries that are most integrated in the global finance, which captures all possible dimensions of an emerging market.

market assets. Consequently, these markets have experienced a fivefold increase in gross capital flows since the early 2000, with a significant portion concentrated in the most volatile portfolios (IMF, 2014).

The high return potential of emerging markets is associated with high perceived risk. With the increased integration of the global economy, emerging markets have become vulnerable to crises originated in other markets. This interconnectivity of emerging markets, particularly regional emerging markets, has facilitated an extensive body of research on the transmission or spill-over of shocks and volatility among these markets. Research principally focuses on linkages between stock and bond markets and considers the impact from the viewpoint of volatility spill-overs, volatility linkage, co-movements and transmissions across Asian, Latin American and European emerging markets.²

Given the extensive coverage of linkages among emerging stock and bond markets, the issue of the linkage of sovereign credit risks among emerging markets remains surprisingly under-researched. However, the introduction of credit default swap (CDS) contracts by JP Morgan in 1997 permitted researchers to more fully examine spill-over and transmission mechanisms across markets. There is a sizable market for sovereign credit derivative - credit default swap. Before the 2008–2009 global financial crisis the market for sovereign credit default swap (SCDS) largely consisted of CDS contracts on emerging markets' sovereign debt (IMF, 2013). This indicates that investors viewed emerging market sovereign debts to be riskier than those in advanced economies. It is, therefore, important for the global investors in sovereign debt securities to know how credit risk in one market responds to shocks in other markets. Though there is an increasing integration of global financial markets it is still possible for investors to benefit from international portfolio diversification (Abbas et al., 2013).

The present study is motivated by the dearth of research on the linkage among sovereign credit risk in emerging markets. SCDSs provide a tool for managing country or national credit risk exposure and are used principally by commercial banks, investment banks and securities houses followed by hedge funds, mutual funds, pension funds, money market funds, building societies, leasing companies and central banks.³ Banks use SCDS mainly for their market-making activities and also managing risk for their exposures to sovereigns. Hedge funds, pension funds and mutual funds use CDS to provide protection against their exposure to emerging market sovereign bonds.

Surprisingly, Over the Counter (OTC) derivative statistics of 13 countries published by Bank of International Settlement (BIS) reveal that government participation in SCDS market is not >0.01% (see Table A2 in Appendix A). This is consistent with Chan-Lau et al. (2004) who note that major players in SCDS markets are hedge funds, mutual funds, pension funds and banks. Ismailescu and Phillips (2015) report that the introduction of SCDS is associated with debt markets revealing more information especially for high credit risk countries and lower borrowing costs. Hedge funds, pension funds and mutual funds use CDS to provide protection against their exposure to emerging market sovereign bonds. Any knowledge on the magnitude of linkage among markets would help these funds to manage their risk more effectively and efficiently. Thus this study has significant implications for these players in sovereign CDS markets in emerging economies where knowledge on the linkage would help taking appropriate arbitrage strategy in one emerging market by observing the movements of SCDS in another market.⁴

In addition, as noted in Financial Stability Report, 2013 of International Monetary Fund (IMF) that SCDS can be used on naked basis, that is, without having any position in the underlying reference asset to express views on the creditworthiness of the sovereign entity. In this case too knowledge on the strength of linkage among SCDSs of different emerging markets will help international investors to take appropriate strategy to ensure expected profit.

The major contribution of the paper is to focus on the impact of linkage among sovereign credit risks in emerging markets to ameliorate portfolio diversification. Since SCDS represents sovereign risk, portfolio of SCDS and sovereign bond is not expected to provide better diversification benefit. Moreover, Chan-Lau et al. (2004) document that SCDS and equity market are highly correlated, which suggest that deterioration in sovereign creditworthiness is reflected in equity market. Therefore, portfolio of SCDS and equity also should not provide better diversification benefit. However, since each country is different in terms of creditworthiness, which is determined by its own macroeconomic fundamentals, portfolio of SCDS from different countries may provide better diversification benefit.

Accordingly, the fundamental goal is to identify regional differences in the commonality of SCDS correlations and to provide insights on whether they can be exploited to reduce portfolio risk. To achieve this focus, we do not limit our investigation to crisis period as examined by most of the existing studies but extend the analysis to post-crisis period, since it is important for investors to know how asset returns are correlated during normal business period. This facilitates forming optimal portfolio with maximum portfolio diversification benefit. Furthermore, we select emerging markets from different regions and then consider intra- and inter-regional correlation of sovereign credit risk. Although emerging markets have previously been studied, those studies did not focus on correlation by grouping them into regional markets. In addition, we apply principal component analysis (PCA) to complement the findings of correlation analysis. Some existing studies apply PCA; however, they either apply the PCA for the whole range of emerging markets without focusing on regional differences (e.g. Longstaff et al., 2011) or use PCA to examine the commonality of SCDS variances, instead of correlation (e.g. de Boyrie and Pavlova, 2016).

The present paper complements the research on the linkages among sovereign credit risks in emerging markets by considering the impact on international portfolio diversification. Moreover we contend that the findings of this paper provide useful

² The following articles, among others, address these issues: Cappiello et al. (2006); Bunda et al. (2009); Beirne et al. (2010); Ismailescu and Kazemi (2010); Neaime (2012); Bianconi et al. (2013); Piljak (2013); and Mensi et al. (2014).

³ Semi-annual OTC derivative statistics, various issues, BIS

⁴ For example, in case of positive basis (the CDS premium is above the bond spread) the arbitrage profit can be made by selling the credit protection in the CDS market (long CDS) and taking a short position in the relevant bond (Fabbro, 2011).

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