

2007 International Dissertation Competition

Three Essays on Emerging Capital Markets

A Dissertation Proposal

by

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Abstract

With recent trends toward globalization and capital market integration, emerging markets have increasingly become the target of many investors in search for higher returns. Nonetheless, emerging market investors must bear considerable challenges in mind; investments in emerging markets can result in spectacular returns. But, as recent global economic events have confirmed, emerging capital markets can be highly volatile, reacting strongly to the international investor sentiment, and economic and political changes. Thus, understanding these risks has become critically important to those who want to navigate successfully through emerging capital markets. Elucidating some of the challenges faced by the emerging market investor is the aim of my thesis. This dissertation consists of three essays addressing different issues related to emerging capital markets: (1) contagion in emerging debt markets, (2) the managerial performance of emerging-market (EM) closed-end funds and the determinants of EM closed-end fund premia, and (3) the relationship between credit default swap spreads and sovereign credit rating changes.

1. Introduction

With recent trends toward globalization and capital market integration, emerging markets have become the target of an increasing number of investors searching for higher returns. Several factors that have accelerated the recent interest in emerging economies were the relaxation of some of investment restrictions in several East Asian and Latin American countries throughout the 1990s, the collapse of communism followed by the development of market-based economies and active stock markets in Eastern Europe, and the strong performance of several Latin American markets that came after a long period of default and instability. Since 1995 the total net capital inflows to emerging markets and developing countries more than doubled, increasing from 319.2 billions of U.S. dollars at the end of 1995 to 716.4 billions at the end of 2005¹.

In spite of the growing attraction of foreign capital markets, emerging market investors must bear considerable challenges in mind; recent investments in emerging markets have resulted in spectacular returns. But, as recent global economic events have confirmed, emerging capital markets can become highly volatile (Hamao, Masulis, and Ng (1990), Edwards (1998), Chakrabarti and Roll (2002), Diebold and Yilmaz (2006)) reacting strongly to the international investor sentiment (De Long, Shleifer, Summers, and Waldmann (1990), Hardouvelis, La Porta, and Wizman (1993), Bodurtha, Kim, and Lee (1995), Gemmill and Thomas (2002)) and economic and political changes (Henri (2000), Patro(2005)). Thus, understanding these risks has become critically important to those who want to navigate through emerging capital markets successfully. Elucidating some of the challenges faced by the emerging market investor is the aim of my thesis.

¹ IMF *Global Financial Stability Report, Market Developments and Issues*, April 2007, Table 1, Statistical Appendix.

This dissertation consists of three essays addressing different issues related to emerging capital markets: (1) contagion in emerging debt markets, (2) the managerial performance of emerging-market (EM) closed-end funds and determinants of EM closed-end fund premia, and (3) the relationship between credit default swap (CDS) spreads and sovereign credit rating changes.

2. Contagion in Emerging Debt Markets

Although the phenomenon of contagion has been of particular interest for many researchers, no consensus has been reached on the definition of contagion or the methodology to test for it. King and Wadhvani (1990), Lee and Kim (1993), Baig and Goldfajn (1999), Forbes and Rigobon (2002), Chakrabarti and Roll (2002), Bekaert, Harvey, and Ng (2005), to name a few, define contagion as a significant post-event increase in cross-country linkages. Except for Forbes and Rigobon (2002), they all find that most national stock markets become more co-integrated after a financial crash.

Hamao, Masulis, and Hg (1990), Chakrabarti and Roll (2002), Diebold and Yilmaz (2006) measure contagion by spillovers of stock return volatility across equity markets. Using a GARCH and VAR frameworks, they find evidence of significant cross-market volatility spillover following a crisis, especially stemming from the crisis country.

Eichengreen, Rose, and Wyplosz (1997), Kaminsky and Reinhart (2000), Bae, Karolyi, and Stulz (2003) use probit/logit models to test the likelihood of contagion in one country given that a crisis has already occurred somewhere else.

While these studies have been of critical importance in understanding the transmission of shocks across foreign exchange and stock markets, few, if any, have

investigated the propagation of contagion into bond markets. This is where I aim to make a contribution to the existing body of the international finance literature. Since no better framework exists for studying contagion in debt markets than a credit event, I focus on the impact of the 1998 Russian and 2001 Argentine government defaults on three regional emerging debt markets: East Asia, Latin America, and Eastern Europe.

Does contagion propagate differently in debt and equity markets? Is the diversification potential of the bond investor affected by changes, if any, in debt market co-movements caused by credit events? Was the Russian crisis more contagious than the Argentine crisis? Are the results dependent upon the methodology used to test for contagion? To answer these questions I consider three techniques that have been previously suggested for contagion tests: the correlation framework, the volatility spillovers, and the probit/logit models. I limit my study to U.S. dollar-denominated fixed income securities issued by emerging market governments and placed on international markets. To avoid the disadvantages of working with specific instruments, I use the JP Morgan's EMBI Global country indexes.

In the correlation framework, following Chakrabarti and Roll's (2002) approach, I calculate geometric means of absolute values of correlations of EM bond index returns for each region in my sample. Then, I test whether correlation coefficients increase from the pre-crisis to the crisis period for each region, and if correlations across regions differ. Due to the problematical sampling distributions of geometric averages, all tests for differences in correlations are carried out with bootstrapping.

To test for volatility spillovers within and across regions, I model the bond index returns as a GARCH(1,1) process, and regress daily first differences of the estimated

volatility of one country against lagged daily changes of volatilities of other markets. The use of GARCH (1,1) model is motivated by parsimony of parameters and significant empirical evidence that it performs as well as, if not better than, most models in the GARCH family.

Last, in order to evaluate contagion within and across regions using extreme returns, I follow a methodology based on Bae et al. (2003) and estimate the number of simultaneous extreme returns (co-exceedances) in each region with the multinomial logit regression model. The logit model is estimated separately for top tails and bottom tails. The covariates I deem important for intra-regional contagion are the conditional volatility of the regional (JP Morgan EMBI Global) index and the Eurodollar rate. The conditional volatilities are estimated with GARCH(1,1). To test for contagion across regions, I use multinomial logistic regressions to predict the probability of having a high number of extreme returns in one region given a high number of co-exceedances in the crisis region. The additional covariate included in these tests is the number of co-exceedances in the crisis region.

Given the high correlations between EM debt markets, I am interested in knowing whether volatility spillovers and contagion in extreme returns in EM bond markets are confined only to crisis periods or they are omnipresent.

3. A New Perspective on Emerging-Market Closed-end Funds

The first aim of the second essay is to explore the sources of time-series and cross-sectional variation in EM closed-end fund premiums, prices, and NAVs. In addition to the variables previously proposed in the closed-end funds literature, such as the U.S.

stock market return, local market return, and the percentage change in exchange rates, I also incorporate the country credit risk, U.S. investor sentiment, and fund liquidity in the regression models. Investor sentiment has been previously hypothesized to have a major roll in explaining the time-series variation in CE funds (Lee, Shleifer, and Thaler (1991), Hardouvelies et al. (1993), Bodurtha et al. (1995)), but no formal test has confirmed or refuted its significance yet. Additionally, Domowitz et al. (1998) find evidence of a positive and significant relationship between the premium of U.S.-based Mexican closed-end funds and changes in country risk premium after the Mexican currency crisis of 1994, which they largely attribute to the market segmentation hypothesis. They argue that equity prices abroad may react faster to changes in country credit risk than US closed-end fund prices. If their statement holds true, I should expect U.S. investors to react more slowly to perceived increases in country credit risk than local investors, widening the gap between fund prices and their NAVs.

My sample consists of 56 emerging-market closed-end funds publicly traded on U.S. exchanges between January 1, 1990 and December 31, 2006. For each fund I collected the weekly share price and net asset value (NAV) from the Wall Street Journal, and weekly volume data from the Center for Research in Security Prices (CRSP) database. To examine whether my findings are sensitive to fund type, I group the funds in my sample into three categories: country funds, regional and global equity funds, and global bond funds. I perform all time-series estimations by ordinary least square regressions using a six-lag Newey West adjustment. The cross-section analysis is carried out with Fama and MacBeth (1973) methodology.

The second aim of my study is to investigate whether EM fund premiums or discounts lead or lag managerial performance. Is the fund premium indicative of the fund's future manager performance or the manager performance is what causes future fund discounts or premiums? Using my sample of 56 EM funds, I extend Hardouvelis et al. (1993) and Chay and Trzcinka (1999) and, for each group of funds in my sample, test the hypothesis that the fund premium reflects shareholders' expectations of the fund's future management performance. The measures of managerial performance I use are cumulative NAV returns and unconditional CAPM alphas for horizons of six months, one year, and two years. Unlike Chay and Trzcinka (1999), I use local market indexes to proxy for the market portfolio in the CAPM model.

4. The relationship between the credit default swap spreads and sovereign credit rating changes.

In the third essay I first examine the reaction of emerging markets credit default swap (CDS) spreads to sovereign credit rating changes, and *vice versa*, whether CDS spreads are useful in estimating the probability of a rating change.

Hull, Predescu, and White (2004) investigate whether CDS spreads widen before or after a Moody's rating event. Additionally, they examine the contribution of CDS spread changes to estimating the probability of a change in credit ratings. Although comprehensive, Hull et al.'s (2004) analysis only considers investment grade instruments, arguing that credit derivatives are rarely written on below investment grade categories. As nearly all emerging markets credit ratings are below investment grade, this is where I can make a contribution. With a database that includes credit default swaps written on 21

U.S. dollar denominated sovereign bonds, spanning from early 2001 to October 2006, I can test whether Hull et al.' (2004) results continue to hold when the CDS are written on sovereign bonds of emerging economies. In this spirit, I test whether Standard and Poor's rating changes are as reliable an indicator of sovereign credit risk as Moody's. To avoid the event window contamination problem, I measure the CDS spread change over a two-day window, rather than a 30-day period as Hull et al. (2004) use. I also use a logistic model to estimate whether sovereign CDS spreads are predictive for credit ratings changes.

Earlier theoretical and empirical research (Duffie (1999), Hull and White (2000), Hull et al. (2004), Chan-Lau and Kim (2004)) suggests that, in the absence of market frictions, CDS spreads should approximately equal the underlying bond spreads. Gande and Parsley (2005) examine the reaction of sovereign bond spreads of one country to sovereign credit rating changes of other countries. Accordingly, I shall explore whether similar results prevail when bond spreads are replaced by CDS spreads in the regression analysis.

Finally, I investigate the determinants of spread changes of credit default swaps in emerging markets. While substantial work has been recently dedicated to finding the determinants of sovereign credit spreads (Eichengreen and Moody (1998), Arora and Cerisola (2001), Barcinski (2001), Ferrucci (2003)) few studies have explored the sources of credit default swap spreads (Di Cesare and Guazzarotti (2005)), of which none has focus on sovereign CDSs. In emerging economies, two components are directly responsible for a country's default: the ability to repay debt and the willingness to do so.

The third component refers to the “market sentiment,” and it is related to both country fundamentals and global economic conditions.

While a country’s willingness to repay its debt is not easily quantifiable, I measure its repayment ability with several macroeconomic factors: leverage (external debt/GDP), level of foreign reserves, distance to default (debt service/exports), budget deficit, growth rate, inflation rate, the strength of the local currency related to a basket of currencies, and balance of trade. As for the market sentiment, I measure it by credit rating, local stock market returns, and volatility of local stock market returns if it is country-related, and by the ten-year rate on U.S. treasuries, global stock index, oil prices if it is linked to global economic conditions. Finally, since macroeconomic variables are reported quarterly, I use linear interpolation to estimate their monthly values. I also convert the CDS daily data into monthly time series. All estimations are performed with ordinary least squares.

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